**DID401 Design Studio 4**

50 Credit Points • 4 hrs/week • 24 weeks • Prahran • Prerequisites: Successful completion of the 3rd year, plus an interview and portfolio review • Teaching methods: Studio based group or individual discussion, students work on projects sourced from the manufacturing industry and the design profession. Aims and objectives: To provide students with knowledge of construction and documentation principles, standards and services commonly used in single storey/low rise residential scale buildings. To expand the student's knowledge of the characteristics and quality standards of building materials, with particular emphasis on materials commonly used in commercial and industrial buildings. Recommended reading: Swinburne University of Technology • 1999 Higher Education Handbook

**DIE201 Design Studio 2**

50 Credit Points • 10 hours a week • 24 weeks • Prahran • Prerequisites: All first year subjects • Teaching methods: Exercises and assigned project work will be undertaken within the studio environment. These activities will be supported by lectures, practical demonstrations, tutorials and seminar sessions, group discussion and critiques. Assessment: Continuous

A Year 2 subject in the Bachelor of Design (Interior/Exhibition Design)

**Aims and objectives**

This subject seeks to consolidate and enhance the experiences gained in the program of the previous year. Activities within this study area will provide a challenging range of sequential and cumulative learning experiences within the broad context of interior and exhibition design. It also seeks to extend the students' theoretical knowledge and practical ability to prepare high order working drawings, to build communication skills with external consultants and suppliers and to incorporate the information into working drawings and project specifications.

**Recommended reading**

Dick Powell: Presentation Techniques, Orbis, 1992

**DIEX102 Technology 1**

12.5 Credit Points • 5.5 Hrs/week • 12 weeks • Prahran • Prerequisites: None • Teaching methods: Tutorial-based delivery of this subject will be supplemented by various field-based site visits. Studio based exercises would include practical drawing and sketching exercises. Material Science 1 will be delivered in conjunction with Building Construction 1A/B and will entail delivery by the use of instruction, visual examples, field studies and practical drawing work related to building projects studies in Building Construction 1A/B. Assessment: Continuous

A Year 1 subject in the Bachelor of Design (Interior/Exhibition Design)

**Aims and objectives**

To provide students with knowledge of architecture, architectural history, theory and design principles, and to familiarise students with computing and associated software. To further develop keyboard skills. To develop basic skills in CAD for the production of basic technical drawing.

**Recommended reading**

Swinburne University of Technology • 1999 Higher Education Handbook

**DIEX202 Technology 2**

12.5 Credit Points • 5.5 hrs/week • 12 weeks • Prahran • Prerequisites: DIEX102 • Teaching methods: Tutorial-based delivery of this subject will be supplemented by various field based site visits. Studio based exercises would include practical drawing and sketching exercises. Material Science 2 will be delivered in conjunction with Building Construction 2A/B and will entail delivery by the use of instruction, visual examples, field studies and practical drawing work related to building projects studies in Building Construction 2A/B. Assessment: Continuous

A Year 2 subject in the Bachelor of Design (Interior/Exhibition Design)

**Aims and objectives**

To provide students with knowledge of construction and documentation principles, standards and services commonly used in single storey/low rise residential scale buildings. To expand the student's knowledge of the characteristics and quality standards of building materials, with particular emphasis on materials commonly used in commercial and industrial buildings. Recommended reading: Swinburne University of Technology • 1999 Higher Education Handbook

**DIEX203CAD2**

12.5 Credit Points • 6 hours per week • 12 weeks • Prahran • Prerequisites: DIEX103 • Teaching methods: The content listed will be incorporated into a range of coordinated practical projects. These projects are designed to ensure a full understanding of the topic and will be enhanced by regular tutorials and demonstrations ensuring appropriate skills development to produce 2D and 3D drawings and models. Assessment: Continuous

A Year 2 subject in the Bachelor of Design (Interior/Exhibition Design)

**Aims and objectives**

To provide students with the knowledge and skills to use CAD for the production of 2D and 3D drawings to an advanced level.

**Content**

This unit will give the student theoretical and practical skills required to produce 2D and 3D working drawings and an understanding of CAD drawing management. Topics will cover library creation and data importation; system variables and configuration; applying efficient procedures for production of CAD drawings; production of complex 2D CAD drawings to industry standards; set up a 3D environment to allow multi-view of 3D models; create a variety of internal and external views; display solid, shaded and rendered views of 3D models; save selected views and drawings on file for plotting and printing.

**Recommended reading**

Swinburne University of Technology • 1999 Higher Education Handbook

**DIEX301 Design Studio 3**

12.5 Credit Points • 9 hours per week • 12 weeks • Prahran • Prerequisites: DIEX201 • Teaching methods: Studio activities and projects will emphasise creativity, experimentation, and realistic design and construction principles. Tutorials, audiovisual
projects, and exposure to companies and professionals within the industry will support these projects • Assessment: Continuous

Year 3 studio in the Bachelor of Design (Interior/Exhibition Design)

Aims and objectives
To build on and enhance the skills and knowledge developed in the previous year. To promote independent decision making and an understanding of industry-based references, procedures, and techniques.

Content
Projects will be designed to introduce complex issues, which will challenge the student to investigate solutions in a lateral and innovative manner. The student will be encouraged to expand their understanding of the development of ideas through applying their skills to assigned projects. Relevant research and course documentation will support projects.

Recommended reading
Students will be referred to project-specific references and supplied with class notes as applicable.

DIEX302 Design Practice
Bachelor of Design (Interior/Exhibition Design)

12.5 Credit Points • 4 hrs per week • 12 weeks • Prahran • Prerequisites: DIEX201, DIEX202 • Teaching methods: Practical projects enhanced by tutorials and demonstrations, ensuring appropriate skill development • Assessment: Continuous

Aims and objectives
- To provide students with the knowledge and skills to create 3D models, presentation rendered drawings, “fly by” and “walkthrough” animations.
- To develop a general understanding of the business environment focussing on effective design management.

Content
This subject comprises two study areas:

CAD 2
This study area will give students theoretical and practical skills required to create industry standard 3D presentation drawing and animated computer presentations.

Professional Studies
This study area will give students a general understanding of the business environment through the study of time management, communication, brief writing, proposal writing, personal presentation techniques and marketing.

Recommended reading
Parker and Rice, Inside 3D Studio, New Ride

DIEX333 Work Placement

37.5 Credit Points • 4 days/week • 1 Semester • Prahran • Prerequisites: DIEX201, DIEX202, Design Studio 3 • Teaching methods: Based on the practice of design in companies. The professional experience will be provided to the student, and the student will be placed in an appropriate industrial situation organised by the National Employment Office. Students will be given information as to the nature of the work, support these projects  Assessment: Continuous

Aims and objectives
- To develop an understanding of the practice of design in multimedia design
- To provide opportunity for investigation into, and development of, basic image-making craft skills and to allow for the development of a personal signature image-making style.
- To encourage creative and expressive development in image creation.
- To further develop aspects of professional design practice.

Content
Investigations into various media and techniques will be a primary concern, undertaken via project work. Here, demonstrations and personal development of image-making craft skills in both traditional media and digital media are to be a primary objective of this subject. Analysis of appropriateness of imagery and its relevance to its media context will also occur.

DIEX303 Image-Making 1

12.5 Credit Points • 4 days/week • 12 weeks • Prahran • Prerequisites: DIEX302 • Teaching methods: Project work will be undertaken in a studio context supplemented by work in tutorial groups, continuous critical review of work in progress, group discussion and demonstrations. The briefs will be supported by presentations of visual and background research in a group tutorial situation by staff and/or students • Assessment: Continuous

A Year 3 subject (elective) in the Bachelor of Design (Graphic Design)

Aims and objectives
- To provide opportunity for investigation into, and development of, basic image-making craft skills
- To develop a personal signature image-making style. To explore numerous image-making techniques ranging from traditional media to new digital methodologies. To develop sound idea generation methodologies in relation to creating images.
- To encourage creative and expressive development in image creation.
- To further develop aspects of professional design practice.

Content
Investigations into various media and techniques will be a primary concern, undertaken via project work. Here, demonstrations and personal development of image-making craft skills in both traditional media and digital media are to be a primary objective of this subject. Analysis of appropriateness of imagery and its relevance to its media context will also occur.

DIEX401 Design Studio 4

50 Credit Points • 10 hours per week • 24 weeks • Prahran • Prerequisites: DIEX301 • Teaching methods: Studio based consultation and direct involvement with industry • Assessment: Continuous; Research Paper

A Year 4 subject in the Bachelor of Design (Interior/Exhibition Design)

Aims and objectives
To consolidate skills and experience in conducting design projects through all stages of the process; by working on individual or team based process collaboratively with clients from industry or through self generated projects.

Content
It is expected that all design skills and knowledge gained in the previous studies will be utilised and extended to develop comprehensive solutions, leading towards independence in managing complex design projects. Emphasis on the research activities associated with interior/exhibition design, developed with participating industry sponsors, will be the focus of this subject.

Students will be expected to develop concepts from a rational research base and consult with appropriate specialists.

Recommended reading
Students will be referred to project-specific references as applicable.

DIM302 Image-Making 2

12.5 Credit Points • 6 hrs per week • 12 weeks • Prahran • Prerequisites: DIM302 • Teaching methods: Project work will be undertaken in a studio context supplemented by work in tutorial groups, continuous critical review of work in progress, group discussion and demonstrations. The briefs will be supported by presentations of visual and background research in a group tutorial situation by staff and/or students • Assessment: Continuous

A Yr 3 subject (elective) in the Bachelor of Design (Graphic Design)

Aims and objectives
- To provide opportunity for investigation into, and development of, image-making craft skills
- To develop a personal signature image-making style. To explore numerous image-making techniques ranging from traditional media to new digital methodologies. To develop sound idea generation methodologies in relation to creating images.
- To encourage creative and expressive development in image creation.
- To further develop aspects of professional design practice.

Content
Image-making 2 will explore, via project work, complex applied design solutions building on the work undertaken in Image-making 1. Innovative and creative design responses to a variety of design projects, both in 2D and 3D formats, will be encouraged. Analysis of appropriateness of imagery and its relevance to its media context will occur.

DMD104 Multimedia Design Practice 1

25 Credit Points • 6 hrs per week • 24 weeks • Prahran • Assessment: Continuous

A subject in the Bachelor of Design (Multimedia Design)

Aims and objectives
- To develop an understanding of the practice of design in multimedia design methods and technology
- To introduce the fundamental aspects of the content, function and context of visual communication
Recommended reading
Creating Killer Web Sites, David Siegel Hayden Books 1996/7
Stop Stealing Sheep & find out how type works, Spiekerman and Giner-Adobe Press (Prentice Hall)1993
Stop Stealing Sheep & find out how type works, Spiekerman and Giner-Adobe Press (Prentice Hall)1993
Creating Killer Web Sites, David Siegel Hayden Books 1996/7

Aims and objectives
To enhance and develop knowledge and experience of design for multimedia through an understanding of a visual language and narrative form as applied over time. To apply specific design systems in conceptual and critical problem solving in multimedia design and visual communication.

DMD203 Multimedia Design 2
25 Credit Points • 6hrs/week • 24 weeks • Prahran • Assessment: Continuous
A subject in the Bachelor of Design (Multimedia Design)

Aims and objectives
To develop an understanding of the practice of design in multimedia design methods and technology
To introduce the fundamental aspects of the content, function and context of visual communication

Recommended reading
Creating Killer Web Sites, David Siegel Hayden Books 1996/7
Stop Stealing Sheep & find out how type works, Spiekerman and Giner-Adobe Press (Prentice Hall)1993

Aims and objectives
To provide the opportunity for investigation into:
- Film / Video / TV
- Time based narrative direction and production
- Time based multimedia project development
- Interactive CD ROM direction and production
- Human Computer Interaction Interface Design

Content
Advanced investigation and research into time based media particularly as narrative form, script writing and development through storyboarding into prototype production. Constant definition and exploration of human computer interaction and exploration of interactive techniques as applied to time based visual communication. Creative, innovative and expressive development of video image/sound/interactive forms will be encouraged.

DMD204 Multimedia Design Practice 2
25 Credit Points • 6hrs/week • 24 weeks • Prahran • Assessment: Continuous; Project
A subject in the Bachelor of Design (Multimedia Design)

Aims and objectives
- To develop an understanding of the practice of design in multimedia design methods and technology
- To introduce the fundamental aspects of the content, function and context of visual communication

Recommended reading
Creating Killer Web Sites, David Siegel Hayden Books 1996/7
Stop Stealing Sheep & find out how type works, Spiekerman and Giner-Adobe Press (Prentice Hall)1993

Aims and objectives
To encourage creative and expressive development of design, narrative form, and sequenced image making for multimedia.

Content
Advanced investigation and research into time based media particularly as narrative form, script writing and development through storyboarding into prototype production. Constant definition and exploration of human computer interaction and exploration of interactive techniques as applied to time based visual communication. Creative, innovative and expressive development of video image/sound/interactive forms will be encouraged.

DMD303 Multimedia Design Studio 3
25 Credit Points • 6hrs/week • 24 weeks • Prahran • Assessment: Continuous
A subject in the Bachelor of Design (Multimedia Design)

Aims and objectives
- To provide the opportunity for increased investigation into, and development of time based media from an exploration of content and form, within interactive digital media and/or video production.
- To encourage creative and expressive development of design, narrative form, and sequenced image making for multimedia.

Content
Advanced investigation and research into time based media particularly as narrative form, script writing and development through storyboarding into prototype production. Constant definition and exploration of human computer interaction and exploration of interactive techniques as applied to time based visual communication. Creative, innovative and expressive development of video image/sound/interactive forms will be encouraged.

DMD304 Multimedia Design Practice 3
25 Credit Points • 6hrs/week • 24 weeks • Prahran • Assessment: Continuous; Project
A subject in the Bachelor of Design (Multimedia Design)

Aims and objectives
- To develop an understanding of the psychological processes that enable us to process and learn information.
- To provide the opportunity for understanding of the systems, methodologies and technologies relevant to contemporary multimedia design practice within local industry.
- To provide an understanding of the design process and its application to the design of multimedia projects.
- To encourage practical skills and the understanding of business systems and production.
- To provide an individualised, professionally focussed folio document for the graduate entering the professional environment.

Aims and objectives
To provide the opportunity for investigation into:
- word and image relationships
- editorial design
- the flow and tempo of sequence based design
- advanced typography as fundamental aspects of visual communication through project work.
- To demonstrate and expand upon a formal understanding of the conventions of publication design.
- To encourage creative and expressive development of word and picture relationships.
- To further develop skills in pertinent software applications (image making and text based).
- To contribute to the students’ development of sound idea generation methodologies.
- To further develop aspects of professional design practice.

DMD401 Multimedia Studio Practice
37.5 Credit Points • 12 hrs per week • 24 weeks • Prahran • Assessment: Continuous
A subject in the Bachelor of Design (Multimedia Design)
Content
Investigations into word and image relationships and advanced typographic techniques will occur. Constant definition and exploration of editorial and publication design conventions plus observation and analysis of typeface selections’ appropriateness to its editorial/layout context. Knowledge of software in regard to both contemporary design practice and production outcomes will underpin all project work.

Recommended reading
Stop Stealing Sheep and find out how type works, Spiekermann and Ginger, Adobe press (Prentice Hall) 1993

DRES400 Design Research
25 Credit Points • 6 Hours per week • 24 weeks • Prahran • Prerequisites: DHCT6
Teaching methods: Research will be undertaken using a combination of empirical and bibliographic sources. Research will also involve studio/workshop activity. Both will be undertaken in consultation with staff • Assessment: Research Paper
Year 4 Research in the Bachelor of Design (Hons) (Graphic Design)

Aims and objectives
To introduce students to:
(a) an in-depth analysis of a design topic using research methods and
(b) the benefits of such analysis to the development of a design.

Content
The research project spans both semesters of the Honours year and will involve the investigation of a design topic using appropriate research methods. The result of the investigation will provide the basis (or brief) for a design. The project comprises a written research component and a design component. The written research component may take the form of:
(a) dissertation or
(b) an article for publication in a journal or magazine relevant to the subject of the research.
The design component requires the presentation of a finished design, complete with supporting design material. Both the written research and the resulting design will have equal weight in the assessment.
The research project will be selected by the student in consultation with the Subject Convener, the Research Co-ordinator and the Year Co-ordinator.

DTYP302 Typography 1
12.5 Credit Points • 6hrs/week • 12 weeks • Prahran • Prerequisites: DSGD201 and DSGD202
Teaching methods: Project work will be undertaken in a studio context supplemented by work in tutorial groups; continuous critical review of work in progress, working in small teams and group discussion. The briefs will be supported by presentations of visual and background research in a group tutorial situation by staff and/or students • Assessment: Continuous
A Year 3 subject (elective) in the Bachelor of Design (Graphic Design)

Aims and objectives
• To provide the opportunity for investigation into typographic as a fundamental aspect of visual communication through project work. To demonstrate and expand upon a formal understanding of the conventions of typographic design. To encourage creative and expressive development of typographic communication.
• To further develop skills in pertinent software applications (image making and text based).
• To contribute to the students’ development of sound idea generation methodologies.
• To further develop aspects of professional design practice.

Content
Investigations into letterforms, text setting, type and image relationships and advanced typographic techniques will occur. Constant definition and exploration of typographic conventions plus observation and analysis of typeface selections; appropriateness to its context; knowledge of software in regard to both contemporary design practice and production outcomes will underpin all project work.

Recommended reading
Stop Stealing Sheep and find out how type works, Spiekermann and Ginger, Adobe press (Prentice Hall) 1993

DTYP303 Publication Design 2
12.5 Credit Points • 8 hrs per week • semester 2 • Prahran • Prerequisites: DTYP302 and DPDP202
Teaching methods: Project work will be undertaken in a studio context supplemented by work in tutorial groups; continuous critical review of work in progress, working in small teams and group discussion. The briefs will be supported by presentations of visual and background research in a group tutorial situation by staff and/or students • Assessment: Continuous
A Year 3 subject (elective) in the Bachelor of Design (Graphic Design)

Aims and objectives
• To provide the opportunity for advanced enquiry and investigation into:
  - word and image relationships
  - editorial design
  - the temporal nature of sequence based design
  - typography through project work.
• To demonstrate and expand upon a formal understanding of the conventions of typographic and editorial/publication design.
• To encourage creative and expressive development of word and picture based communication.
• To encourage creative and expressive development of design for publications.
• To develop advanced skills in pertinent software applications (image making and text based).
• To contribute to the students’ development of sound idea generation methodologies.
• To further develop aspects of professional design practice.

Content
Investigation into more complex document design involving advanced typographic and computer based techniques will occur. Constant definition and exploration of editorial and publication design conventions plus observation and analysis of typeface selections for their appropriateness to editorial/layout context. Increased knowledge of software in regard to both contemporary design practice and production outcomes will underpin all project work. Creative, innovative and expressive development of word/picture based visual languages will be encouraged.

Recommended reading
Stop Stealing Sheep and find out how type works, Spiekermann and Ginger, Adobe press (Prentice Hall) 1993

DVL303 Visual Language
12.5 Credit Points • 6 hours per week • semester 2 • Prahran • Prerequisites: DIM002, DTYP302
Teaching methods: Visual Language will use workshops as environments where students are encouraged to define personal goals and agendas, negotiate personal bias in outcomes and participate in peer learning. The student will be encouraged to contribute ideas and critical judgement to group discussion. The briefs will be supported by presentations of visual and background research in a tutorial situation. Staff are to be advertising/marketing industry professionals • Assessment: Continuous
A Year 3 subject (elective) in the Bachelor of Design (Graphic Design)

Aims and objectives
• To investigate and to develop design skills pertinent to the advertising and marketing industry.
• To generate folio works that are stamped by their innovation and relevance to the needs of advertising and marketing.
• To provide opportunities to engage in problem solving within a mass media based information environment.
• To develop solutions that are built on creative strategies.
• To contribute to the students’ development of sound idea generation methodologies.

Content
Investigation of mass media based advertising/marketing design environment. Areas such as type as image, art direction, identity and style, response mechanisms, packaging and catalogue design to be covered in project work. Liaison with industry professionals to figure prominently.
EF615  Introduction to Finance and Accounting

12.5 Credit Points  3 hours per week  Hawthorn  Prerequisite: Nil  Assessment: 2 x Written Assignments, 1 x Examination

This is a subject in the Graduate Certificate and Graduate Diploma of Management.

Aims and objectives

Students who have passed this subject should possess:

- demonstrable mastery of basic principles of accounting and double entry bookkeeping
- the ability to apply these principles and complete a set of accounts through to trial balance
- the ability to complete profit and loss statement, balance sheets and funds statements
- demonstrable mastery of fundamental financial mathematics, basic practical financial modeling techniques and sufficient financial theory for competent financial analysis, planning and management of a new venture investment;
- sufficient grounding in financial theory and its applications to pursue and acquire further specific knowledge in areas not covered by the course.

Content

An introductory course giving: mastery of basic principles of accounting and double entry bookkeeping to obtain trial balances and produce profit and loss statements, understanding of financial mathematics and ability to apply spreadsheets to financial modeling, forecasting financial requirements and evaluating investments and businesses.

Textbooks

Gaffikin, Michael, Principles of Accounting [Current Edn], Harcourt Brace Jovanich, Publishers, Marrickville, NSW.

EF616  Management Fundamentals

12.5 Credit Points  3 hours per week  Hawthorn  Prerequisite: Nil  Assessment: Teamwork, Personal Written, Personal Oral, Examination  Recognition of Prior Study: Equivalent subjects recognised

This is a subject in the Graduate Certificate and Graduate Diploma of Management.

Aims and objectives

To provide an introduction to management generally and a base from which the other courses in the program will be developed.

Content

This course introduces fundamental human, organisational and functional aspects of enterprise management and associated management theories and concepts. Areas addressed include foundations of behaviour, motivation, perception and decision making, understanding groups and teams, communication and interpersonal skills including conflict management and interpersonal skills, leadership and management, organisation design and culture, functions of management, human resource management and the obligations of EEO and D&DSS legislation.

Textbooks


EF617  Project and Asset Fundamentals

12.5 Credit Points  3 hours per week  Hawthorn  Prerequisite: Nil  Assessment: 3 x Written Assignment, Presentation, Seminar, Examination  Recognition of Prior Study: Equivalent subjects recognised

This is a subject in the Graduate Certificate and Graduate Diploma of Management.

Aims and objectives

- To introduce the basic tools available to the manager through project management and asset management processes
- To extend and apply basic concepts addressed in EF616 Management Fundamentals to such processes

Content

This course addresses the requirements of project life cycle and asset management. Considerations include: project initiation, implementation and termination; financial and legal requirements; life cycle costing, plant procurement, operation, reliability, maintenance, update and disposal.

EF618  Management Practices

12.5 Credit Points  3 hours per week  Hawthorn  Prerequisite: Nil  Assessment: Presentation, Assignments, Participation, Examination  Recognition of Prior Study: Equivalent subjects recognised

This is a subject in the Graduate Certificate and Graduate Diploma of Management.

Aims and objectives

The aim of this course is to develop student understanding of the management roles and functions within an enterprise and current practices.

Content

This course addresses the practice of management through the development of business strategies (including innovation and entrepreneurial aspects), and their impact on marketing, human, quality, operational, legal, ethical and financial faces of an enterprise and its operations.

Textbooks


Recommended reading

Terry A., & Giugni D., Business / Society and the Law, Harcourt Brace [Current Edn].

EF645  New Venture Accounting and Finance

12.5 Credit Points  3 hours per week  Hawthorn  Prerequisites: EF615  Assessment: Teamwork, Individual Assignments, Examination  Recognition of Prior Study: Equivalent subjects recognised

This is a subject in the Master of Management.

Aims and objectives

- To understand the differences between accounting for merchandising entities and manufacturing entities
- To understand partnership accounting, company and cost accounting and reporting.
- To apply both accounting and financial management skills to produce a comprehensive financial plan for a new venture embodied in an accurate and credible set of projected financial statements suitable for inclusion in a business plan for that venture.

Content

An integrating course to launch students into the production of a complete business plan for a new venture or initiative by an established firm and the discussion of contemporary business problems. Extending accounting and financial skills are addressed to permit understanding of: differences between accounting for merchandising entities and manufacturing entities; partnership accounting, company accounting, financial and external reporting; cost accounting; the business financial environment; the mechanics of financial management and planning.

Textbooks

Mayes T., & Shank T., Financial Analysis with Microsoft Excel, Harcourt Brace [Current Edn].

Recommended reading

Gaffikin, Michael, Principles of Accounting [Current Edn].

EF650  Marketing Management

12.5 Credit Points  3 hours per week  Hawthorn  Prerequisite: EF618  Assessment: Teamwork, Individual Assignments, Presentations, Examination  Recognition of Prior Study: Equivalent subjects recognised

This is a subject in the Master of Management.

Aims and objectives

- To analyse a given marketing case by applying a process or series of logical steps.
- To select and apply appropriate elements of the marketing mix to marketing situations.
• To construct a practical marketing plan for an innovative product [goods or services].

Content
This subject transfers the skills necessary to evaluate the broad marketing needs and vulnerability of new and high-growth ventures. Students acquire a thorough grounding in marketing principles combined with a proven ability to apply these principles to the development of practical marketing and business plans. Students concentrate on the area of developing and improving plans for the marketing of new products [goods or services] and supervising the implementation of these plans.

Textbooks

Recommended reading

EF651 Leadership, Team Building and Change Management

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: EF617, EF618, EF619 • Assessment: Teamwork, Assignments, Presentation • Recognition of Prior Study: Equivalent subjects recognised

This is a subject in the Master of Management.

Aims and objectives
To develop leadership, team building and change management skills of the course participants.

Content
This subject focuses on the requirements of effective leadership, team building and change management. The five facets of leadership (coaching, sponsoring, educating, counselling and confronting) are explored along with the hidden face of leadership (charisma) for application to team situations and the requirements of effective team building. Students' interpersonal skills are developed in key areas including: self-awareness, listening, goal setting, providing feedback, appraising performance, disciplining, delegating, oral persuasion, politicking, winning group meetings, resolving conflicts and integration. Students' skills are developed in key areas of change management.

Textbooks

Recommended reading

EF652 Strategic Intent in Enterprise Management

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: EF617, EF650, EF654 • Assessment: Examination, Assignments, Presentations • Recognition of Prior Study: Equivalent subjects recognised

This is a compulsory unit within stage three of the Master program, and is taken in conjunction with three electives chosen from the suite of elective subjects offered.

Aims and objectives
• To develop a framework within which to evaluate corporate strategy and exploit an organisation's core competencies for competitive advantage
• To evaluate strategy implementation impact on leadership, structure, systems, culture and power within the context of the entrepreneurial, innovative, mature professional and/or global organisation

Content
This course addresses the role of strategy formulation and implementation to achieve competitive advantage in the corporate, national and global arena. A demanding case study load is used to build on the linkage between theory and practice. A strong emphasis is placed on each participant's ability to 'sell' their point of view [i.e. to research, articulate and argue both verbally, and in print, their considered position].

Textbooks
Thompson and Strickland, Strategic Management Concepts and Cases, Irwin [Current Edn].
Recommended reading
Yip G.S., Total Global Strategy, Prentice Hall [Current Edn].

EF653 Research Project

12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: EF617, EF654, plus others as may be relevant to area of research • Assessment: Verbal Report, Written Report, Demonstrated Implementation Performance • Recognition of Prior Study: Nil

This is a subject in the Master of Management.

Aims and objectives
The aim of this subject is to develop the student's ability to comprehend a task requirement, analyse that requirement, conduct appropriate research to develop an analysis and specification of a solution. Students should develop personal time and resource management skills.

Content
The student chooses a particular management active learning research project from a selection offered by the lecturer. This project will be relevant to the student's management focus and can be associated with the student's current or intended employment responsibilities. Alternatively, the student can select a suitable project that is employment sponsored provided it satisfies the research requirements of this subject.

The student is instructed in approaches to the researching, analysis, specification and solution implementation and then embarks on the research, analysis, specification, implementation, evaluation and reporting of the management research project solution. The student consults regularly with the project supervisor and produces a formal management report.

EF654 The Business Plan

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: EF650, EF645, EF615 • Assessment Teamwork, Individual Assignment, Presentation • Recognition of Prior Study: Nil

This is a subject in the Master of Management.

Aims and objectives
• To understand the role, function, need for and preparation of a business plan.
• To avoid the common pitfalls associated with business planning.
• To direct the development of a business plan, including carrying out opportunity screening and the preparation of a working business plan, assigning tasks within a team and developing an appropriate set of action steps.
• To Analyse a business plan written by entrepreneurs to raise venture capital and indicate its strengths, weaknesses and probable appeal to venture capitalists.

Content
The elements of, and input requirements to, the business plan are identified, with participants working in self-selected teams to define the subject of their proposed business plan. Examples of successful business plans are provided and case studies are discussed. Students work in self-selected teams under the supervision of a member of staff of the School to compile a real-world business plan. Each team prepares a complete business plan including opportunity, marketing, financial, investment and organisational sections. The plan addresses an entrepreneurial initiative identified by the team: this may be the commercialisation of an invention by an established business or the creation of a completely new business.

Textbooks
EF655 Strategic Service Management

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: EF617, EF618 • Assessment: Examination, Assignments, Seminar • Recognition of Prior Study: Nil

This is a subject in the Master of Management.

Objectives
- To provide practical techniques for service enterprise management address customer needs and their satisfaction
- To develop a service strategy
- To address product liability issues
- To evaluate leadership issues in service enterprises
- To identify conflict management and negotiation strategies within a service environment

Content
This subject addresses the management needs of service organisations. Key issues of service management are developed including: service organisation, technical and non-technical services, customer demand, customer satisfaction, development of a service strategy, service obligation and legal liability, service teams and team building, organising service as a profit centre, pricing strategies for profit, service quality and accreditation requirements.

Textbooks
Recommended reading
Bateman J.E.G., Managing Services Marketing, Harcourt Brace, [Current Edn].

EF656 Logistics Management

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Assessment: Examination, Assignments, Seminar • Recognition of Prior Study: Nil

This is a subject in the Master of Management.

Aims and objectives
The aim of this course is to address contemporary issues of logistics management in both service and manufacturing industries and the challenge of integrating logistics functions

Content
This course addresses key issues of logistics management confronting the business enterprise including concepts of logistics management, logistics and quality customer service, supply and distribution, logistics activities, logistics for strategic advantage and the management control of integrated logistics.

Recommended reading

EF657 Strategic Human Resource Management 2000 and beyond

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Assessment: Examination, Assignments, Seminar • Recognition of Prior Study: Nil

This is a subject in the Master of Management.

Aims and objectives
- To introduce students to the concept of viewing Human Resources as a major asset base of a business
- To understand how the company can fully utilise the human resource asset base in all facets of the business. To understand the processes required when using those human resources strategically to enhance the competitive position of an organisation
- To introduce the concept of strategically linking the company’s overall objectives to the human resource function
- To enable managers to recognise how they can best manage, develop and train the human resources of their company in order to enhance the overall well-being of employees and the overall success of their business.

Content
An elective course which focuses on the role of Human Resources as a strategic determinant of competitiveness. The process of strategically linking the human resources function of the company is reviewed as an integral part of enhancing the company’s competitive position, and is assessed in the context of its attractiveness as a management concept. The presentation of the course provides strong links between established theory and practice.

Textbooks

EF658 Employee Relations

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Assessment: Examination, Assignments, Seminar • Recognition of Prior Study: Nil

This is a subject in the Master of Management.

Aims and objectives
- To introduce the concept of enterprise bargaining and Australian Workplace Agreements in both the private and public sectors of business and to understand the importance of successful Employee Relations to both productivity levels and the competitive position of an organisation.
- To demonstrate familiarity with a framework for analysing and understanding the enterprise bargaining process. To identify the phases involved in that process and appreciate the appropriate timing for each. To identify the key stakeholders and misunderstand their roles and interests in the process.
- To compare and contrast traditional, adversarial bargaining with co-operative, problem-solving negotiation and appreciate a preferred process approach.
- To develop a step-by-step, problem-solving model for negotiating an enterprise agreement.

Content
An elective subject that focuses on employee relations and workplace bargaining. Both are dynamic and complex phenomena, which are continually evolving as legislation changes and as employees become more involved in the decision making processes required in today’s flatter organisation structures. The ability of organisations to successfully manage these changes against a background of complex factors is critical to their competitive position and to their management of employee relations. This course aims to equip students with a fundamental understanding of how to manage this difficult process and how to successfully negotiate a workplace agreement or an enterprise agreement.

Textbooks

EF662 Total Quality Management

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Assessment: Examination, Assignments, Seminar • Recognition of Prior Study: Nil

This is a subject in the Master of Management.

Aims and objectives
- To introduce the concept of quality as a prime dimension of competitiveness through ‘Total Quality Management’
- To understand how quality assurance standards, such as ISO 9000 fit into the framework of Total Quality Management,
- To recognise the concept of Quality Progressions
- To outline the implementation of Total Quality Management in an Australian Context.

Content
An elective subject that focuses on the role of quality as a strategic determinant of competitiveness. Quality is reviewed for its intuitive attractiveness as a preferred competitive performance objective. The latter day renaissance of quality is assessed in the context of ‘Total Quality Management’ and its attractiveness as a management concept. Presentations throughout the course are designed to establish the strong linkage between established theory and that of practice. Specifically the course complements a focused case study approach to quality and its progression within Total Quality Management.

Recommended reading

Swinburne University of Technology | 1998 Higher Education Handbook
EF663 Service Management

2 hours per week • Hawthorn • Prerequisite: nil
An elective subject in the Graduate Diploma in Management (Manufacturing).

Objectives and Content
A course addressing the management needs of service organisations. Key issues of service management are developed including: service organisation, technical and non-technical services, customer demand, customer satisfaction, development of a service strategy, service obligation and legal liability, service teams and team building, organising service as a profit centre, pricing strategies for profit, service quality and accreditation requirements.

EF664 Manufacturing Management

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Assessment: Examination, Assignments, Seminar • Recognition of Prior Study: Nil
This is a subject in the Master of Management.

Aims and objectives
- To understand manufacturing management, manufacturing strategy, operations management and strategy within an organisation,
- To recognise the basis of competitiveness in the context of quality, productivity, flexibility, responsiveness and dependability,
- To understand Just-In-Time (JIT) manufacturing concepts in an Australian context, and
- To design key performance indicators linked to the organisations strategy for success.

Content
An elective subject addressing integrated manufacturing systems, the manufacturing management function (production, production planning and control, maintenance, quality control, etc.) and its relationships to other organisational functions. The course focuses on the role of competitiveness of the manufacturing function in an organisation to achieve operational advantage. The presentation of the course provides a strong linkage between established theory and practice.

Recommended reading
Riggs J.L., Production Systems, Wiley, New York, [Current Edn].
Brown J., Harker, Shiven, Production Management Systems, Addison, Wesley, [Current Edn].

EF665 Risk Management

12.5 Credit Points: three hours per week • Hawthorn • Prerequisite: EF617, EF618 • Assessment: Examination, Assignments, Seminar • Recognition of Prior Study: Equivalent subjects recognised
This is a subject in the Master of Management.

Aims and objectives
- To address skills required to identify and manage perceived risks to an enterprise
- To address contemporary issues of risk in society and emerging issues in risk management, understand processes and techniques in risk management and appraise risk management practices.

Content
This course addresses the evolution of risk management, risk management within an organisation, concepts and types of risks, risk decision-making and tools and techniques, obligation for hazard identification and risk assessment, managing the pre-conditions of a potential risk event, risk inventories, managing the risk event occurrence and consequences, assessing the cost benefit of risk management initiatives.

Textbooks
Recommended reading
Extensive Selected Bibliography of Books, Papers, Legislation and Regulations.
EF810  New Venture Marketing
3 hours per week equivalent  Hawthorn  Prerequisite: nil  Assessment: a combination of personal assignments, group assignments, class participation and/or exam

A subject in the first year of the Innovation and Entrepreneurship suite of programs.

Objectives and content
Develops the skills necessary to meet the marketing needs of new and high growth venture. During this intensive subject students gain a thorough grounding in marketing principles and apply them in marketing plans based on live opportunities in the marketplace. A blend of theory, insight and practicality, the subject provides the opportunity to gain hands-on experience in understanding market needs. Topics covered include marketing principles, marketing research, consumer behaviour, diffusion of innovation, organisational culture, technology and services.

At the completion of the subject successful candidates will be able to develop a practical and realistic marketing plan to support the launch of new products or services, align the core competence of their organisation with emerging needs of the marketplace, drive technology push as well as market pull strategies, determine steps for market research and analysis, market entry and long term business development.

Recommended reading
Hindle, K.G. What is a Marketing Case Study and How Do You Solve It? Hawthorn, Vic., Swinburne Press, 1992

EF811  New Venture Financial Planning
3 hours per week equivalent  Hawthorn  Prerequisite: EF936 Opportunity Evaluation Techniques and EF938 Commercialising Innovation  Assessment: a combination of personal assignments, group assignments, class participation and/or exam

A subject in the second year of the Innovation and Enterprise suite of programs.

Objectives and content
Students who have passed this subject should possess demonstrable mastery of financial mathematics and the basic financial principles required for competent financial analysis, planning and management of a start-up venture. Students apply those skills by producing a comprehensive financial plan for a new venture embodied in an accurate and credible set of projected financial statements suitable for inclusion in a business plan. Students also acquire the skills and acumen necessary to evaluate new venture financial projections from the point of view of a prospective investor. Finally, the subject provides a broad knowledge of new venture financing in Australia and a history of venture capital and the basics of entrepreneurial economics.

The main outcome is the application of skills in practical financial management, investment analysis and evaluation of financing alternatives to production of detailed, credible forecasts embodied in a complex, computerised financial model. The outputs of the financial model produce the proforma financial statements used in the business plan.

Recommended reading

EF814  The Business Plan
3 hours per week equivalent  Hawthorn  Prerequisite: EF811 New Venture Marketing  Assessment: a combination of personal assignments, group assignments, class participation and/or exam

A subject in the second year of the Innovation and Enterprise suite of programs.

Objectives and content
In this ‘capstone’ subject, students combine and apply the skills they have acquired in previous subjects by actually writing a real-world business plan. Students work, under supervision, in self-selected teams. Each team prepares an integrated business plan which includes relevant inputs on opportunity evaluation, market, manufacturing, finance and management plans. The core of the subject is the ability to apply strategic concepts to the production of a comprehensive business plan which integrates all knowledge gained in all seven previous subjects. The business plan goes well beyond a basic assessment of commercial feasibility (which is the hallmark of the Graduate Certificate program). It addresses an entrepreneurial initiative identified by the team: this may be the commercialisation of an invention by an established business or the creation of a completely new business. Real-world planning disciplines are enforced by involving professional investment consultants in the plan evaluations. During the semester, students are given the opportunity to learn from and meet a number of successful entrepreneurs in a series of lecture and discussion seminars.

Recommended reading

EF820G  Planning of Training Programs
36 hours over 4 x 1-day block modules (9 hours per day)  normally held at AIM, 181 Fitzroy St., St Kilda  Prerequisite: nil  Assessment: a combination of personal assignments, group assignments, class participation and/or exam

A subject in the Graduate Certificate in Training Management.

Objectives and content
Course participants are provided with the necessary knowledge, skills and resources for planning training programs in their own specific organisation. The prime focus of this subject is to enable the student to apply the diverse generic theories and principles of program planning to their discrete organisational needs in an innovative, systematic management style.

Topics include the planning cycle, training needs analysis, skills auditing, assessing training solutions, structuring of planning, human resource development, strategic planning, organisational theory of behaviour, professional development.

Recommended reading
Material in this course is based on Davies, A., Stock, J., Macleod, J., Williams, C. and Cross, M. The Management of Training. Camford, England, Parthenon Publishing, 1987, but has been adapted to Australian conditions by course lecturers
Pepper, A.D. Managing the Training and Development Function 2nd edn, Aldershot, Hants, Brookfield, Gover, 1992

EF821G  Program Design
36 hours over 4 x 1-day block modules (9 hours per day)  normally held at AIM, 181 Fitzroy St., St Kilda  Prerequisite: nil  Assessment: a combination of personal assignments, group assignments, class participation and/or exam

A subject in the Graduate Certificate in Training Management.

Objectives and content
Course participants are provided with the appropriate knowledge, skills and resources to design structured training programs with specific behavioural and quantitative outcomes.

The prime focus of this subject is to enable students to apply the generic theory of training program design to their own organisational environment in an innovative and systematic manner.

Topics include training aims and objectives, presentation of design specifications, delivery of training programs, planning and structuring course content, the principles of specificity, modes of delivery, principles of adult learning, development of materials and manuals, learning contracts, professional development.

Recommended reading
Material in this course is based on Davies, A., Stock, J., Macleod, J., Williams, C. and Cross, M. The Management of Training. Camford, England, Parthenon Publishing, 1987, but has been adapted to Australian conditions by course lecturers
Pepper, A.D. Managing the Training and Development Function 2nd edn, Aldershot, Hants, Brookfield, Gover, 1992

EF822G  Training Innovation and Evaluation
36 hours over 4 x 1-day block modules (9 hours per day)  normally held at AIM, 181 Fitzroy St., St Kilda  Prerequisite: nil  Assessment: a combination of personal assignments, group assignments, class participation and/or exam

A subject in the Graduate Certificate in Training Management.

Objectives and content
Course participants are instructed in the identified knowledge, skills, competencies and work requirements of training program innovation and evaluation. The prime focus of this subject is to provide course participants with the appropriate theory and resources to both manage and evaluate innovative training programs in a changing market driven organisational environment.

Topics include training and the management of innovation, innovative training methods, influence of effects of innovative training, models of training evaluation, training effects, designing evaluation interventions, quantitative and qualitative analysis, cost benefit training analysis, the marketing of training, professional development.

Recommended reading

Swinburne University of Technology | 1999 Higher Education Handbook
EF823G Administration of Training

36 hours over 4 x 1-day block modules (8 hours per day) • normally held at AIM, 181 Fitzroy St., St Kilda • Prerequisites: nil • Assessment: a combination of personal assignments, group assignments, class participation and/or exam

A subject in the Graduate Certificate in Training Management

Objectives and content

Course participants are provided with the identified knowledge, skills of on-the-job practical management of training program administration. The principal aim of the course is to enable participants to manage the organisational pressure, demands and resources of program administration in an innovative and systematic manner.

Topics include current legislation, compliance, book-keeping, computer applications, The Australian National Training Authority, competency standards, organisational/HRO functions, theory of organisational dynamics, budgeting, resource administration, professional development.

Recommended reading

Material in this course is based on Davies, A., Stock, J., Macleod, J., Williams, C. and Cross, M. The Management of Training. Camforth, Penthanon Publishing, 1987, but has been adapted to Australian conditions by course lecturers.

Pepper, A.D. Managing the Training and Development Function. 2nd eds, Aldershot, Hants, Brookfield, Gower, 1992

EF920 Managing the Growing Business

12.5 Credit Points • Block Mode, 8 days x 8 hours • Hawthorn • Prerequisites: completion of MBA core units or equivalent • Assessment: individual contribution to case study and debate, group report on case study, individual assignment, ‘open book’ exam

This is a subject in the Master of Business Administration and the Innovation and Enterprise suite of programs.

Aims and objectives

To identify the stages of business growth and problems and opportunities to be managed, to recognise the increasing complexities of the growing enterprise, to describe the functional, planning and control needs of each stage, to identify the tools and techniques available to manage and sustain growth, to identify the practices by which business maintains innovation; plan for business harvest; to describe and apply key principles and theories of organisational behaviour in new ventures; to use appropriate personnel practices in developing a new business; and to apply the entrepreneurial process to development of opportunities in corporations.

Content

As a new venture moves from start-up into a stage of rapid growth, the management and development of people and resources becomes a major concern. There is an exponential increase in requirements for communication, organisation, direction, supervision and coordination of the expanding human and physical resource. This course draws on theories and principles of organisational behaviour to solve human resource cases and problems (Australian and international) in growth situations. The emphasis is on managing growth throughout all stages of business development.

Textbooks


Recommended reading


EF923 Growth Venture Evaluation

12.5 Credit Points • one semester, four hours per week • Hawthorn • Prerequisites: EF811 and completion of MBA core subjects or equivalent • Assessment: 8 verbal cases, Clarion optical written case, Lucas Leasing Limited written case, Group work

This is a subject in the Master of Business Administration and the Innovation and Enterprise suite of programs.

Aims and objectives

To apply the established analytical tools and methods of investment appraisal used by successful venture capital companies; to apply some radical analytical tools and methods of investment appraisal as yet not in common use by financial analysts trained only in traditional methods; and using these tools, analyse investment proposals and derive insights and recommendations that are of the same standard as those of a professional venture capitalist.

Content

This is a case based subject which provides students with the ability to apply their knowledge of financial principles (gained in the EF811 course) to analysis and decision-making in vital, practical areas which affect the financing and management of entrepreneurial ventures. As members of a team, students conduct a project which evaluates an actual business plan from the perspective of a venture capitalist. As an individual, each student writes and orally defends analyses of ten sophisticated Australian and international case studies covering key topics in the field of growth venture evaluation.

Textbooks


Recommended reading


EF924 Advanced Business Plan

25 Credit points • two semester, two hours per week • Hawthorn • Prerequisite Subjects: completion of MBA core subjects or equivalent • Teaching Methods: lectures, team project work, interactive exercises, student presentations, field work, case teaching (Harvard System) • Assessment Method: Individual Contribution, The business plan is assessed as a written document and the presentation of the business plan before a panel comprising of business and commercial practitioners.

Aims and objectives

To enhance the core skills which students have acquired in the MBA Innovation and Enterprise coursework.

Content

Students are required to write their second business plan, in supervised teams. Students draw on the experience of their first effort in EF814: The Business Plan and the growing sophistication in entrepreneurial management acquired over many subjects to produce a business plan of a calibre high enough to meet due diligence standards of an investment analyst operating in an internationally established venture capital company.

Textbook:

Timmons, J., New venture Creation, 3rd edition.

EF934 Entrepreneurial Research Project

40 hours per year • Hawthorn • Prerequisites: All year 2 MEI subjects • Assessment: a combination of personal assignments, group assignments, class participation and/or exam

A subject in the Master of Enterprise Innovation

Objectives and content

The concept here is that of the ‘mini-thesis’. Each student is required to demonstrate his or her research capabilities by advancing knowledge of a selected aspect of Australia’s or the international entrepreneurial environment. After topic selection and approval, a student’s short thesis is developed to masters level standards of academic rigour and etiquette. The topic possibilities are as wide as a student’s varied expertise and interests. Class time is based on sharing the varied research problems and solutions which students experience as their theses progress, and discussion of research methodologies appropriate to entrepreneurial studies.

Recommended reading

Hair, J. el al. Multivariate Data Analysis with Readings, 4th edn, Prentice Hall, 1995

Leedy, P.P. Practical Research, McMillan, 1989

Neuman, W.L. Social Research Methods, Qualitative and Quantitative Approaches, Boston, Allyn and Bacon, 1991
EF936  Opportunity Evaluation Techniques

12.5 Credit Points • one semester, three hours per week • Hawthorn • Prerequisites: completion of MBA core subjects or equivalent • Assessment: Feasibility analysis, Individual contribution, Major presentation

This is a subject in the Master of Business Administration and the Innovation and Enterprise suite of programs.

Aims and objectives
To define the differences between an idea and an opportunity; to identify business opportunities; to analyse the risk attached to grasping opportunities; to utilise criteria to successfully screen opportunities; to demonstrate mastery in fundamental management systems; to recognise differences in accounting for merchandising and manufacturing entities; and to acquire basic understanding of cost and management accounting.

Content
What is a feasible opportunity? Many individuals and companies fail to realise that available opportunities are only made feasible by systematic application of appropriate methods, skills and resources. This course takes students through a 'screening guide' developed from international and Australian models. How does an entrepreneur recognise the 'quality' aspects of a successful venture, the team, the market, the financial issues, competitor response and tactics? Are there any fatal flaws, strengths, weaknesses, threats and opportunities for the proposed venture. Students also learn some important distinction between accounting for merchandising and manufacturing entities; partnership and company accounting, external and internal reporting. It is from a systematic analysis of these issues that an entrepreneur can determine whether or not it is worth investing the effort required for development of a business plan.

Textbooks

Recommended reading

EF938  Commercialising Innovation

12.5 Credit points • one semester, three hours per week • Hawthorn • Prerequisites: completion of MBA core subjects or equivalent • Assessment: Feasibility analysis, Individual contribution, Major presentation

This is a subject in the Master of Business Administration and the Innovation and Enterprise suite of programs.

Aims and objectives
Develop a comprehensive appreciation of product life cycles; to relate an exploitable opportunity to sustainable competitive advantage; to develop strategies to overcome corporate and consumer barriers to new ‘products’; to identify successful management practices for product and process innovation; to understand the role of development compared to that of research; to develop strategies for the successful management of intellectual property issues; to establish compatible development and commercial policies for the company; to construct accurate profit/loss statements, balance sheets and cash flow statement; and to construct a commercial feasibility analysis.

Content
This course develops an understanding of technology strategy in relation to ‘product’ (device, service or process) and process innovation, value chains, competitive reaction, barriers to market entry, intellectual property protection, and an international perspective on converting a good idea/opportunity into a productive commercial success. It examines selecting, staffing and managing R&D projects to achieve strategic business objectives and the problems of accelerating the pace of technological innovation in product development. Particular consideration is given to invention, development and innovation as they relate to commercialisation processes. It equips students with demonstrable mastery of the application of the principles of accounting to the preparation of accurate profit and loss statements, balance sheets and cash flow statements. The techniques acquired in this course are applied to the production of a commercial feasibility analysis and cash flow business plan. National and international case studies will be used to demonstrate the elements of market and financial success for developed products and services.

Textbooks

Recommended reading

EF940  Innovation Creativity and Leadership

3 hours per week equivalent • Hawthorn • Prerequisites: nil • Assessment: a combination of personal assignments, group assignments, class participation and/or exam

A second year subject in the Innovation and Enterprise suite of programs

Objectives and Content
This subject explores holistic application of the principles of the innovation process, marketing, accounting and leadership, the forces and ground rules that operate in large organisations and various analytical tools to real-life challenges. Major segments of the subject are leadership and lateral thinking; learning, listening, communications; and the market place. The aim is to equip students to: listen and look for innovative challenges; develop their right brain abilities of intuition, the subconscious and lateral thinking; apply both sides of the brain to the realisation of the challenge regardless of the resources presently available; understand the roles played by leadership, learning, listening, communicating, lateral thinking in the innovation process; and understand their own strengths and weaknesses as potential innovators.

Recommended reading
Turgeon, M. Right Brain, Left Brain Reflexology, Healing Arts Press, Vermont, 1994

EF943  Strategic Intent and Corporations

4 hours per week equivalent • Hawthorn • Prerequisites: All Year 2 MEI subjects • Assessment: a combination of personal assignments, group assignments, class participation and/or exam

A third year subject in the Master of Enterprise Innovation

Objectives and Content
This subject focuses on the role of entrepreneurship, the nurturing of innovation and successful management of innovation in established and generally large corporations. These activities are often referred to as intrapreneurship. The presentation of this subject is designed to provide a strong linkage between established theory and that of practice. In particular, the subject compliments a strong case study approach to management education with research and practice about management processes, and with particular emphasis on the relationship between effective strategy formulation and entrepreneurial management. The emphasis is on formulating and implementing strategic intent — the identification of desired corporate positioning and the means of getting there.

Recommended reading
Porter, M.E. The Competitive Advantage of Nations

EF947  Strategic Entrepreneurship

4 hours per week • Hawthorn • Prerequisites: All Year 2 MEI subjects • Assessments: a combination of personal assignments, group assignments, class participation and/or exam

A subject in the Masters of Business Administration

Objectives and content
Students identify the strategic and the organisational concept of a corporation, and the relevance of these concepts and how ‘entrepreneurial’ management differs from ‘professional’ management. This subject focuses on:
• the role of entrepreneurship;
• the nurturing of innovation;
• successful management of innovation in established and large corporations.
These activities are often referred to as intrapreneurship. The presentation of the course is designed to provide a strong link between established theory and practice.
Recommended reading
Porter, M.E., The Competitive Advantage of Nations
French, M., Invention and Evolution, Cambridge, 1998
Scott Fogler, H. & LeBlanc, S. E., Strategies for Creative Problem Solving, Prentice Hall, 1995
Cross, N., Engineering Design Methods, John Wiley, 1990
Lumsdaine, E. & Lumsdaine, M., Creative Problem Solving, McGraw-Hill, 1995

EF1000 Professional Engineering
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures: 12 hours. Tutorials / Projects: 60 hours. • Assessment: Assignments; Examinations; Research Paper; Tutorials
A subject in the Bachelor of Engineering (Chemical & Bioprocess, Civil, Electrical & Electronic, Manufacturing, Mechanical).
Aims and objectives
• To develop an understanding of the nature of engineering as a profession and the social and environmental responsibilities involved in professional practice.
• To develop students’ communications skills for their future role as professional engineers.
• To improve students’ confidence in expressing ideas and opinions and working as a part of a team.
• To develop students’ abilities to graphically communicate ideas and design using engineering standards and conventions.
• To assist students to demonstrate these understandings through the completion of an engineering design project.

Content
Communications and professional skills (50%). What is engineering and what do engineers do? The culture of the engineering profession and ethical responsibilities, design problem definition and solution, the design process, the role of communications in engineering, oral communication skills and formal technical report writing, teamwork and team management skills, engineers and the environment.
Graphical communication (50%). Introduction to graphical communications, concepts of 3D visualisation, sketching and drawing in isometric projection, presentation of drawings according to standards, relationships between 2D and 3D graphical presentations, orthogonal projection, dimensioning, intersections and auxiliary views, assembly drawings, spatial relations of lines and surfaces, development of design ideas using sketches, graphical presentation of design projects.

Required text

References

EF1005 Engineering Project
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures: 20 hours. Project: 36 hours. Site Visits: 4 hours. • Assessment: Field Visits; Projects
Bachelor of Engineering (Chemical & Bioprocess, Civil, Electrical & Electronic, Manufacturing, Mechanical).
Aims and objectives
• To develop an appreciation of the design cycle and the engineering design process.
• To develop the ability to creatively design, build, experiment and test for soundness, quality products for a sustainable environment.
• To develop sound visualization, synthesis, teamwork, experimentation and self education skills.
Content
Project (80%). Students select one project from a range of projects relevant to their field of study. All projects afford experience in all elements of the design process including: Investigation and research, project specification, design synthesis, component specification, construction, testing and documentation.

EF1125 Mechanics of Structures
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials: 24 hours. • Assessment: Assignments; Examinations
This is a subject in the Bachelor of Engineering (Civil) and the Bachelor of Engineering (Robotics and Mechatronics).
Aims and objectives
• To assist students in developing coherent and demonstrable understandings about the equilibrium of rigid bodies under the action of applied forces, and the behaviour of basic structural members, including the internal effects of applied loads.
• To provide a learning environment where students are encouraged, by a range of appropriate teaching strategies, to actively engage in learning tasks.

Content
Equilibrium of static systems (60%). Forces; moment of a force, concurrent and coplanar force systems, resultant forces, rigid body equilibrium, free body diagrams, equilibrium equations for two dimensions; types of structural members; types of loads and support reactions on structures, load paths; internal actions on structures; axial forces in simple pinned structures, shear force and bending moment in beams.
Stress, strain and element behaviour (40%). Uniform stress and strain; stress-strain relationships, tensile, compressive, shear and bearing stresses; compatibility of composite members, allowable and yield stresses; non-uniform stress and strain, section properties, bending and shear stresses; short and long column behaviour, eccentrically loaded short columns.

Recommended reading
To be advised.

ES1230 Materials and Processes
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials: 14 hours. Laboratory: 10 hours. • Assessment: Assignments; Examinations; Lab Reports
A subject in the Bachelor of Engineering (Chemical & Bioprocess, Civil, Electrical & Electronic, Manufacturing, Mechanical), Product Design Engineering, Robotics and Mechatronics.
Aims and objectives
• To demonstrate an understanding of the essential properties of the major classes of materials by explaining their microstructure / property relationships.
• To develop an understanding of the principles of materials selection based on material properties and failure analysis.
• To understand the chemical processes involved in material degradation.
• To understand the interaction between manufacturing, material, and properties in the context of economically and environmentally sustainable technology.

Content
Chemical processes and combustion (36%). Structure of matter, elements, bonding, periodic table, chemical reactions, polymer chemistry, heat, combustion, non-ideal liquids, non-ideal gases, mass balances.
Engineering materials (24%). Structure and properties of metals: ductility, plasticity, shear, slip, dislocations. Structure and properties of polymers: Tg, viscoelasticity, isotropy, stereoisomerism. Structure and properties of ceramics: Deformation and
To introduce the concepts and demonstrate the application of electro-mechanical devices through experimentation and hands-on learning.

**Content**

- To provide an introduction to computer programming in a needs-based environment in which programming is needed to activate and control an autonomous robot constructed by the students.
- To stimulate future learning by early exposure to Mechatronic systems.
- To provide mechanical and electronic workshop training.

**References**


**ES1500 Introductory Chemistry**

12.5 Credit Points  One semester  Hawthorn  Prerequisite: Nil  Corequisites: Nil  Teaching methods: Lectures/ Tutorials/ Laboratory sessions  Assessment: Computer Managed Learning; Examinations; Labs; Pracs

A first year subject in the Bachelor of Applied Science (Environmental Health).

**Aims and objectives**

- To introduce the basic concepts of chemistry as it relates to health applications.
- To provide an understanding of the interaction of elements and compounds with themselves and the environment.
- To demonstrate the importance of chemical safety and precautions required in hazardous environments.

**Content**

- Elementary chemistry: structure of atom, mole concept, formulae, naming, introduction to Periodic Table and simple calculations.
- Writing and balancing molecular, ionic and redox equations.
- Stoichiometry: calculations covering all types of chemical reactions with amounts of reactants and products expressed as mass, mole, concentration and volumes of gases. Review of gas laws and relevant calculations. Properties of gases in solution.
- Equilibria: quantitative and qualitative aspects of gaseous, heterogeneous, acid-base, solubility and complex-ion equilibria. Major emphasis on acid-base equilibria, buffers, properties of acids and bases, pH measurement.
- Energy from chemical reactions.
- Practical work covers measurement and errors, a study of chemical reactions and volumetric analyses including acid-base redox and complexometric titrations.
- Safety in the laboratory and application to potentially hazardous environments.

**Recommended reading**


**ES1610 Human Biology**

12.5 Credit Points  One semester  Hawthorn  Prerequisite: Nil  Corequisites: Nil  Teaching methods: Lectures/ Tutorials/ Demonstrations  Assessment: Examinations; Tests

This is a first year subject for students enrolled in the Bachelor of Applied Science (Biochemistry, Biochemistry/Psychology, Chemistry, Environmental Health and Bachelor of Arts).
Aims and objectives
- To introduce a comprehensive study of the basic physiological systems of the body.
- To develop an introductory understanding of the nature of the world of life.
- To provide a thorough grounding in human biology as preparation for advanced studies where a knowledge of biology is required.

Content
The cell as the basic biological unit, tissues as aggregates of cells with specialised functions. Treatment of the following systems in detail:
- Cardiovascular system - properties of blood, anatomy and physiology of the heart, mechanical and electrical events of the cardiac cycle, cardiac output. Regulation of heart rate and blood pressure, haemostasis.
- Respiratory system - anatomy, gas exchange and transport, control of respiration, properties of haemoglobin.
- Renal system - water balance, structure of the kidney and urinary system.
- Basic renal processes. Regulation of extracellular volume and osmolarity.
- Digestive system - as portal of entry into the body.
- Skeletal system - calcium regulation, structure of bone.
- Muscular system - type and role. Mechanism of contraction. Conduction in the heart.
- Immune system - reticulo endothelial system. Inflammation, phagocytosis, lymphocytes, cell-mediated immunity, antibody-mediated immunity.
- Nervous system - the synapses, simple reflex arc. Overview of functions and structures in the central nervous system.
- Endocrine system - functions, major glands, their products and functions.
- Reproductive system - anatomy, gametogenesis, conception, pregnancy, contraception.
- Integration of body systems response to stress.

Recommended reading
Tortora, G. J. and Grabowski, S R, Principles of Anatomy and Physiology, 8th Edn.

ES1615 Integrative Biology
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Nil  Corequisites: Nil  Teaching methods: Lectures, laboratory practicals  Assessment: Computer Managed Learning; Examinations; Tests
This is a first year subject for students enrolled in the Bachelor of Applied Science (Biochemistry, Biochemistry/Psychology, Chemistry, Environmental Health and Bachelor of Arts).

Aims and objectives
- To develop insights into the cell as the basic functional unit of the biological world.
- To understand the morphology of the cell and the roles of the various sub-cellular structures and organelles.
- To develop an appreciation of the role of enzymes in the functioning of cells, and the role of biochemical pathways in effecting chemical conversions within the cell.
- To develop an introductory understanding of the nature of the world of microorganisms.
- To develop at introductory level an understanding of how DNA determines the characteristics of organisms.

Content
- Chemical basis of nutrition: chemical composition of cells. General structures and function of carbohydrate, protein and fat. Role of enzymes, coenzymes, and mineral elements in metabolism. Metabolism of glucose and fat.
- Microbiology - Elements of the microbial world inc viruses, rickettsia, bacteria, algae, protozoa and fungi. Methods of growing, isolating and handling microorganisms. Microbes and pathogenicity.
- Practical work covering above topics.

Recommended reading
To be advised by lecturers.

ES1700 Environmental Health Management 1
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Nil  Corequisites: Nil  Teaching methods: Lectures, group and individual exercises  Assessment: Assignments; Examinations
This is a first year subject in the Bachelor of Applied Science (Environmental Health).

Aims and objectives
- To introduce the student to the basic principles of communication, negotiation and conflict resolution skills appropriate to the needs of the environmental health professional.
- To examine the major approaches to social policy and Australian health policy development.
- To review the history of public health in Victoria and the impact on environmental health.
- To understand the professional role of the environmental health officer in government and industrial settings.
- To study the administrative structure of local and state environmental health and environmental protection agencies, and the application of legislative and policy initiatives available to them.

Content
- Introduction to verbal and non-verbal communication skills, active listening, recognising conflict situations, methods of interpersonal conflict resolution, assertiveness skills, interpersonal negotiation skills, and stress management.
- Group and individual exercises will allow students to put these principles into practice to develop skills that will be of practical use in the workplace and community environments.
- A review of major theoretical and ideological approaches to social policy, and introduction to key policy issues, such as problem identification, policy implementation, evaluation and monitoring, and an introduction to Australian health policy.
- The history of public health in Victoria and the impact of environmental health on the prevention of spread of disease.
- The professional role and practice of the environmental health officer in government and industry. Career opportunities and development. Concepts of environmental health.
- The administrative structure and role of state and local government agencies involved in environmental health and environment protection.
- An overview of appropriate legislation, policies and codes.

Recommended reading

ES1715 Environmental Measurement
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Nil  Corequisites: Nil  Teaching methods: Lectures/demonstrations/ computer laboratory practicals  Assessment: Assignments; Examinations
This is a first year subject in the Bachelor of Applied Science (Environmental Health).

Aims and objectives
- To study the administrative structure of local and state environmental health and environment protection agencies involved in environmental health and environment protection.
- An overview of appropriate legislation, policies and codes.

Content
- Computer hardware, peripheral devices, CPU, Operating systems, DOS, Windows; Application packages such as word processors, spreadsheets, databases etc.; Data acquisition from instruments, incorporation into Excel.; Use of Excel for simulation.
- Principles of scientific instrumentation.
- Electrical technology.
- Mechanical and electrical devices with applications.
- Radiation sources: materials and detection.
- Acoustics.
ES1810 Building Control 1

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil •
Teaching methods: Lectures: 48 hours. Tutorials/Projects 12 hours. • Assessment: Assignments; Examinations
This is a first year subject in the Bachelor of Technology (Building Surveying).

Aims and objectives
• To provide students with an understanding of the role and duties of a building surveyor.
• To introduce students to the Building Code, Act and Regulations pertaining in particular to domestic buildings.
• To enable students to understand the origin of law and to provide students with a suitable legal background for the proper discharge of their duties.

Content
Administration and Law (20%) Structure and operations of local government and private practice. The role of Building Survey and required skills. Statutory functions related to Act and Regulations.
Building Team (10%) The role of the Building Surveyor as a professional member of the Building Team which involves architects, engineers, town planners etc.
Functions (20%) Liaison with council departments, public authorities and private enterprise. Comparison of Building Surveyor’s role as a council employer and as consultant in private practice.

Acts and Regulations (20%) Basic principles of the Act and Regulations. An overview of more regulations relating to a building application.

Recommended reading
Building Act 1993 Ansent 1993
Building Regulations 1994 Ansent 1994
Building Code of Australia 1996 Volume 1 Class 1610
Building - Housing Provisions CDH Australia 1996

ES1815 Building Control 2

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES1810 • Corequisites: Nil •
Teaching methods: Lectures: 36 hours. Tutorials/Assignments 24 hours. • Assessment: Assignments; Examinations; Project
This is a first year subject in the Bachelor of Technology (Building Surveying).

Aims and objectives
• To provide students with an understanding of ownership of land and related documents.
• To extend the knowledge of the Building Code, Act on Regulations dealing with domestic buildings.
• To introduce students to the process of scheduling control and plan checking of domestic projects.

Content
Act and regulations (50%) Study of the Building Code of Australia. Building Act and Regulations pertaining to domestic buildings.
Documents for building approval (20%) Working drawings and other documents received for consideration for a building permit.
Plan checking (30%) An introduction to the checking process requested prior to the issue of a building approval.

Recommended reading
Building Act 1993 Ansent 1993
Building Regulations 1994 Ansent 1994
Building Code of Australia 1996 Volume 1 Class 1610
Building - Housing Provisions CDH Australia 1996

ES1820 Construction 1

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil •
Teaching methods: Lectures: 36 hours. Drafting/ Tutorials 24 hours. • Assessment: Assignments; Examinations
This is a first year subject in the Bachelor of Technology (Building Surveying).

Aims and objectives
• To develop an understanding of the general principles of construction of single storey residential buildings.
• To impart the rudimentary aspects of free hand sketching and basic architectural drafting.

Content
Building Terminology (10%) The use of the correct building terminology in the description of building, planning, construction and methodology.
Building Team and Tradesman (10%) The role of the various players involved in the design and construction process and sequence.
Principles of Construction (40%) The types, principles, construction standards and practices incurred on the construction of single and double storey residential buildings.
Drafting (40%) An introduction to free hand drawings, basic architectural drafting using manual and computer aided facilities.

Recommended reading
Glossary of Building Terms 4th Edn SAA HB50 -1994
Timber Framing Manual Timber Promotional 1997
Residential Footing Code SAA 2870 -1996
Technical Drawings - Architectural SAA 1100- Part 301-1994

ES1825 Construction 2

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES1820 • Corequisites: Nil •
Teaching methods: Lectures: 24 hours. Tutorials 12 hours, Inspections 24 hours. • Assessment: Diary; Examinations
This is a first year subject in the Bachelor of Technology (Building Surveying).

Aims and objectives
• To provide students with a knowledge of construction techniques used in low rise residential scale buildings up to 2 storey.
• To introduce students to onsite construction methods and inspections.

Content
Principles and practice of site excavations (10%) Various types of excavations including shipping, bulk and detailed.
Foundations, footings (20%) Different foundation types and footing systems.
Timber framing (30%) Types, regulations, construction standards and practice related to timber framing systems.
Lock up and Finishes (20%) Materials, systems and processes involved in finishing a domestic building.
Inspections (20%) Inspections of domestic sites.

Recommended reading
Building Act 1993 Ansent 1993
Building Regulations 1994 Ansent 1994
Building Code of Australia 1996 Volume 1 Class 1610
Building - Housing Provisions CDH Australia 1996

ES1830 Materials and Services 1

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil •
Teaching methods: Lectures: 48 hours. Tutorials/Inspections 12 hours. • Assessment: Assignments; Examinations
This is a subject in the Bachelor of Technology (Building Surveying).

Aims and objectives
• To provide students with a knowledge of the properties of building materials used in residential buildings and to enable students to make informed selection of these materials.
• To inform students of the services and requirements provided in residential buildings and to enable them to communicate technically with tradesmen, authorities and builders.
Content
Materials (20%) Properties, quality standards, testing, performance and visual characteristics of commonly used residential building materials such as timber, concrete, masonry and plaster.
Manufacturing of Materials (20%) Conversion of raw products into building materials, manufacture of materials, quality control, defects, degradation and preservation.
Soils (20%) Types of soil and rock - geological and regulatory descriptions. Foundations introduction to bearing capacity, settlement and footing. Approval of foundations and inspections.
Recommended reading
Fundamental Building Materials 2nd Ed K Wont-Harvey RAIA 1984
Building Services - Engineering for Architects RP Parisour 1994
ES1845 Communications
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials/Computer laboratory 24 hours. • Assessment: Assignments
This is a first year subject in the Bachelor of Technology (Building Surveying).
Aims and objectives
• To introduce students to techniques for developing basic skills in written and oral communication.
• To understand social and urban issues relevant to building surveying.
• To introduce basic computer skills.
Content
Personal and interpersonal communication skills. Time management, decision making and problem solving in groups, skills in thinking critically and creatively. Written and diagrammatic communications. Researching, compiling and writing reports.
Practical skills Including use of telephone, conducting interviews, giving instructions and public speaking.
Further skills In specific areas of communications relevant to building surveyors are developed including dispute management. The emphasis is on such things as relating to the public, technical and descriptive reports, reports to councils, work diaries.
Critical thinking skills And an understanding of relevant social issues. Social and political structures for decision-making; the social responsibility of professional groups; public policy and controversy.
Recommended reading
Building Surveyor Editor D Wadsworth
Other references to be advised during lectures.
ES1855 Applied Structures
12.5 Credit Points • One semester • Hawthorn • Prerequisite: MS101 • Corequisites: Nil • Teaching methods: Lectures: 24 hours. Tutorials/Inspections 36 hours. • Assessment: Assignments
This is a first year subject in the Bachelor of Technology (Building Surveying).
Aims and objectives
To develop an understanding of the basic principles of mechanics and their application to the behaviour of loaded members and simple systems.
Content
Basic concepts (20%) Forces and force components, loads, reactions, equilibrium, internal forces. Applications to pin-jointed trusses, beams and simple frames. Shear force and bending moment diagrams.
Stress and strain (20%) General load-deflection and stress-strain behaviour including elastic, plastic, strain hardening, brittle, non-linear and behaviour. Hookes Law. Linear elastic parameters (E, G and Poisson’s ratio) Values for common building materials including metals, timber, rock, concrete, common plastics. Common tests to measure properties.
Behaviour of simple structural members (30%). Stresses and deformations of tension members and short centrically loaded columns, stresses in beams and simple bolted and welded joints.
Beam deflection (30%) Deflection of statically determinate beams under simple loads.
Recommended reading
H J Wyatt Principles of Structures NSW University Press 1992
ES2031 Industrial Chemistry
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of first year • Corequisites: Nil • Teaching methods: Lectures: 40%. Laboratory: 80%.
• Assessment: Assignments; Examinations; Places
Subject in the Bachelor of Engineering (Chemical & Bioprocess).
Aims and objectives
• To build on the many basic concepts acquired elsewhere in chemistry and extend this knowledge to a level applicable to chemical engineering.
• To develop skills in Organic, Analytical and Inorganic Chemistry, including basic laboratory skills.
Content
• Overview: Chemical bonding, electronic structure of atoms and molecules.
• Organic Chemistry: alkenes and alkynes, benzene and other aromatic compounds, alcohols, alky halides, ethers, nitriles and amines, aldehydes and ketones, carboxylic acids and their derivatives.
• Analytical Chemistry: precipitation equilibria, complex ion equilibria, the Nernst equation
• Inorganic Chemistry: Ionic and metallic bonding
• Introduction to kinetics:
• Laboratory: establishing basic laboratory skills in organic, analytical and physical chemistry, including some instrumental analysis.
Recommended reading
Chang, R. Chemistry, 5th Edn, McGraw Hill.
ES2051 Basic Process Analysis and Calculations
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of first year • Corequisites: Nil • Teaching methods: Lectures, tutorials, laboratory • Assessment: Assignments; Examinations
A subject in the Bachelor of Engineering (Chemical & Bioprocess).
Aims and objectives
• To develop competence in the application of physical and chemical principles:
• To perform unit conversion;
• To draw process flowsheets and perform flowsheet calculations by means of heat and mass balances;
• To understand simple behaviour of solids, liquids, and gases.
Content
P-V-T relationships of substances. Ideal and real gases; compressibility; equations of state. Gas mixtures; partial pressure and partial volume; Dalton’s and Amagat’s laws. Coal analysis and combustion; stoichiometric air and excess air; flue gas composition. Liquid-vapour equilibrium. Vapour pressure; Clausius-Clapeyron equation; reference-substance plots. The steam table. Vapour pressure of liquid mixtures; ideal and non-ideal solutions.
Laboratory work: topics include flow measurement, viscometry, psychrometry, calorimetry, phase equilibria.

**Recommended reading**


**ES2075 Chemical Engineering Thermodynamics**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of second year • Corequisites: Nil • Teaching methods: Lectures: 24 hours. Tutorials: 24 hours. Assessment: Assignments, Examinations

A subject in the Bachelor of Engineering (Chemical & Bioprocess), and in the Graduate Diploma in Chemical Engineering.

**Aims and objectives**

To train students in the application of thermodynamic principles to chemical engineering.

To provide sound understanding of the fundamental principles and methods of thermodynamics.

**Content**

- Review of fundamental concepts. Temperature, heat, work and energy, state of a system; state and path functions; reversibility.
- Macroscopic properties of pure substances. Phases and phase diagram; phase equilibrium.
- Kinetic theory of gases. Ideal and real gas behaviour; compressibility; law of corresponding states. Theories of viscosity, thermal conductivity, and mass diffusivity of gases.
- Second law of thermodynamics. The Carnot cycle; efficiency of heat engines.
- Phase equilibria. Degrees of freedom; Gibbs phase rule.
- Solution thermodynamics. Vapour pressure; heat of vapourisation; theory of viscosity of liquids.
- Ideal and non-ideal mixtures. Raoult’s law and Henry’s law. Solubility.
- Liquid-vapour systems with one, two and three components. Partial molar quantities; chemical potential; Gibbs-Duhem relation; fugacity; activities and activity coefficients of non-ideal solutions; distribution coefficients.
- Colligative properties. Boiling-point elevation and freezing-point depression.
- Application to distillation, evaporation and other separation processes.

**Recommended reading**


**ES2100 Civil Engineering Practice**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: The student must be currently enrolled full-time in Semester 3 or have substantially completed Semester 2. • Corequisites: Nil • Teaching methods: Lectures: 24 hours. Tutorials: 24 hours. Site visits/inspections 12 hours. Assessment: Assignments, Examinations

This is a subject in the Bachelor of Engineering (Civil).

**Aims and objectives**

- To introduce students to Civil Engineering practice.
- To develop an appreciation of the nature of civil engineering projects, the engineering workplace and their importance to society.
- To develop teamwork skills through group work.
- To develop an appreciation of engineered systems in the urban environment.

**Content**

Introduction to Civil Engineering practice (25%). Engineering workplace relationships and communications and the introduction to project stages including site assessment, planning, design, construction and operation/maintenance, through case studies. Group projects including site assessment and simple design tasks. Additionally management of teamwork, report writing, communication with the community will be looked at.

Civil engineering and society (25%). Impact of Civil Engineering practice on society. Case studies of successful innovation, and engineering failures. Causes, liability and responsibility.

Engineering systems in the urban environment (50%). Transportation systems; water systems/catchment management structural and building systems. Function; community attitudes, impact on quality of life and the environment. Analysis of real-life issues through site inspections and group projects.

**Recommended reading**

To be advised.

**ES2115 Road Data, Design and Environment**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES2130 Engineering Surveying • Corequisites: Nil • Teaching methods: Lectures: 24 hours. Tutorials: 24 hours.

Field/Lab Work: 24 hours. Assessment: Assignments; Examinations; Pracs

This is a subject in the Bachelor of Engineering (Civil).

**Aims and objectives**

To develop an understanding of the principles and practice of geometric road design and set out.

**Content**

Use of land physical survey data in road design and set-out (40%). Detail road surveying; set out computations and practice, software to produce computerised road plans, introduction to Geographical Information.

Systems Geometric design of roads (50%) Terminology and design of road cross sections; basic principles of road design and computer-aided road design; theory, co-ordination and computations related to horizontal and vertical elements in road design (horizontal and transition curves; vertical curves); cut and fill balance; applications in design project. Area, volumes, Cadastral Surveying.

Road location and environment (10%) Issues in road location and potential effects on social and natural environment.

**Recommended reading**


No recommended reading.

**ES2120 Structural Mechanics**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of first year • Corequisites: Nil • Teaching methods: Lectures: 24 hours. Tutorials: 20 hours. Laboratory Work: 24 hours. Assessment: Assignments, Examinations

This is a subject in the Bachelor of Engineering (Civil, Mechanical & Manufacturing).

**Aims and objectives**

- To develop an understanding of structural and material behaviour.
- To develop skills in analysis of statically determinate and indeterminate structures.
- To introduce the use of computer packages in the analysis of structural systems.

**Content**

Structural behaviour (8%). Modelling of structures; equilibrium, statical and kinematic determinacy, stability of structural form. Loads on structures; load paths.
Section properties (17%). Centroids, second moment of area, section modulus, principal axes.
Stress and strain (17%). Distributions in beams; elastic and plastic behaviour plastic section modulus. Failure theories: maximum shear stress (Tresca) maximum principal stress (Rankine) and maximum shear strain energy (Von Mises). Principal stresses, Mohr’s circle. Behaviour of composite structures.
Structural theories (17%). Concept of work, conservation of energy, principle of virtual work, energy methods, and moment area methods.
Statically determinate structures (17%). Analysis for reactions, shear force, bending moment and axial force diagrams for beams and frames; analysis of trusses. Deflection of beams.
Statically indeterminate structures (17%). Development of the slope-deflection equations and introduction to matrix analysis of beams. Moment distribution method for continuous beams.
Computer analysis (8%). Use of computer packages for the analysis of skeletal structures. Approximate analysis of structures, checking computer analysis

**Recommended reading**

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**ES2130 Engineering Surveying**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: First year mathematics or equivalent subjects • Corequisites: Nil • Teaching methods: Lectures: 12 hours. Tutorials: 12 hours. Field/lab work: 36 hours. Assessment: Assignments, Examinations; Pracs.

**Bachelor of Engineering (Civil)**

**Aims and objectives**
To develop a basic knowledge of Land Surveying theory and practice related to Civil Engineering.

**Content**
Surveying theory (40%). Distance measurement including principles and use of electronic distance measuring devices; levelling; construction; use and adjustment of level types; booking and level reductions; contour properties and use of contour plans; theodolites including construction, use, traversing and angle reading methods; Computations (20 %) Trigonometry; levelling reductions; traverse reductions; Survey practice (40 %) Principles and types of surveys, detail plan surveys, use of surveying instruments and software to produce computerised plans.

**Recommended reading**
Swinburne School of Civil Engineering & Building. ES2130 Survey and Road Engineering; (tutorials and practical notes). Swinburne University Press, 1999

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**ES2135 Hydraulics and Environment**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES1125 Solid Mechanics and ET124 Energy and Motion • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials/Laboratory: 24 hours. Projects: 12 hours. Assessment: Assignments, Examinations.

**Bachelor of Engineering (Civil)**

**Aims and objectives**
- Students should learn to apply fundamental laws of physics to the flow of water, and hence to understand and analyse the steady flow of water through pipelines, channels, and a range of hydraulic structures.
- Students should improve their ability to communicate technical information, by means of concise calculation and brief reports.
- Students should improve their ability to learn from textbooks and technical notes.

**Content**
- Hydrostatics (16%). Fluid properties; pressure and thrust; buoyancy and stability of floating vessels.
- Fluid flow (8%). Mass balance, pollutant flows, conservation of energy (Bernoulli’s equation), impulse-momentum.
- Discharge control structures (12%). Orifices, orifice plate and venturi meter, weirs, sluice gates.
- Primary treatment processes (8%). Screens, sedimentation tanks, gross pollutant traps.
- Pipe flow (16%) the Moody diagram, Darcy-Weisbach, Colebrook-White and empirical pipe formulars.
- Pipeline systems (8%). Series and parallel pipelines; equivalent pipelines; branched systems; pumped systems; pipelines networks.
- Channel flow (24%). Uniform flow; Manning formula; part-full pipes; specific energy; the hydraulic jump; gradually-varied flow.
- Pump selection (8%). Classification and principles of operation; pump and system characteristics.

**Required text**
Hamil, L. *Computing and Engineering Applications*, MacMillan, 1999

**ES2145 Computing and Engineering Applications**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures: 24 hours. Tutorials/Laboratories: 36 hours. Assessment: Assignments, Examinations.

**Bachelor of Engineering (Civil)**

**Aims and objectives**
- Students should gain familiarity and confidence with computers and the Windows platform.
- Students should learn to solve a wide range of problems using Excel at an advanced level.
- Students should develop basic drafting skills in an industry-standard drafting package (AutoCad or MicroStation), and familiarity with Civil Engineering drawings.
- Students should develop basic familiarity with a range of specialist Civil Engineering packages.

**Content**
- Introduction (4%). Hardware, networks, Internet.
- Word (5%). Style sheets and templates, technical report styles.
- Excel (33%). Advanced functions and tools, macros, solution of engineering problems.
- Drafting (8%). Sketching in civil engineering design.
- CAD (25%). Using the following features: screen elements; settings; seed files; drawing elements; patterns; views sections and longitudinal sections; dimensioning; scaling; text; levels; editing. Preparation of a set of civil engineering drawings.
- Civil Engineering applications (25%). Introduction to packages such as Space Gass, Pipes for Windows, Microsoft Project.

**Recommended reading**
To be advised

**ES2155 Geomechanics**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES2130 Structural Mechanics • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials / Projects: 24 hours. Assessment: Assignments, Examinations, Fieldwork.

This is a subject in the Bachelor of Engineering (Civil).

**Aims and objectives**
- To enable students to recognise basic geology, geological principles and their influence on civil engineering projects.
- To construct simple geological cross sections.
- To identify and classify rock and soil specimens.
- To understand basic engineering properties of soils; effective stress law; shear strength of soils; basic selection of shallow foundations; settlement and consolidation principles; carry out a basic site investigation.

**Content**
- Introduction of geology (30%). Formation of rocks and soils; tectonic plate movements; identification of rock types; elements of structural geology; measurement of dip angle and direction, strike; geological mapping; geology of Melbourne and Victoria.
- Physical and engineering properties of soils (20 %). Soil structure; weight and volume relationships; identification and classification of soils; mechanical analysis; consistency of soil.
- Geostatic stresses (10 %). Effective stress law.
- Shear strength of soils (20 %) Normal and shear stresses on inclined plane; pole method; mohr-coulomb failure criteria; shear strength determination in the laboratory and the field.
- Compressibility (20 %). Basic introduction to bearing capacity theory for shallow foundations; immediate settlement (elastic theory); consolidation settlement; one-
dimensional consolidation laboratory test; time rate of consolidation, and coefficient of consolidation.

**Recommended reading**

**ES2230 Engineering Materials**

12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of first year plus ES1220 Materials and Processes  Co-requisites: Nil  Teaching methods: Lectures: 36 hours. Tutorials/Laboratory/Oral presentations: 24 hours.  Assessment: Class presentations; Examinations; Lab Reports

This is a subject in the Bachelor of Engineering (Chemical & Bioprocess, Manufacturing, Mechanical, Product Design Engineering).

**Aims and objectives**
- To demonstrate an understanding of the properties and applications of major engineering materials based on their microstructure/property relationships.
- To develop an appreciation of materials selection, design and application based on their properties and performance.
- To show communication skills by formal reporting of experiments, and by oral presentations.

**Content**
- Surface Engineering (8%) Hard coatings, physical vapour deposition, chemical vapour deposition, plasma and ion bombardments, hardfacing and electroplating.
- Polymers (16%) Crystalline and amorphous microstructures, physical properties. Polymer degradation and environmental failures. Mechanical properties of polymers. Adhesive joining of materials.
- Composites (8%) Classical strength, isostress, isostrain.
- Tribology (8%) Conformal and counterformal contact, lubrication of bearing and gears. Friction and Wear Mechanics.
- Ceramics (8%) Structures; phase diagrams, mechanical properties. Electrical, magnetic and optical properties.

**Required Text**

**References**

**ES2270 Computer Aided Engineering I**

12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of first year  Corequisites: Nil  Teaching methods: Lectures: 36 hours. Tutorials/Projects: 16 hours, Laboratory: 8 hours  Assessment: Assignments; Examinations; Labs; Project(s)

A subject in the Bachelor of Engineering (Manufacturing, Mechanical, Robotics and Mechatronics).

**Aims and objectives**
- To develop the ability to prepare 2D engineering drawings using a CAD system.
- To develop the ability to use 3D CAD to create models for further engineering applications.
- To develop abilities in the art of creating mathematical models or analytical toolboxes for the exploration, design and optimisation of technological systems, implementing them through high level computer languages, and professionally documenting the result.

**Content**
- 2D CAD (16%) Introduction to CAD, the screen, menus, toolbars, commands, drawing elements, editing, filing, printing.
- 3D CAD (32%) The third dimension, wireframe modelling, solid modelling features and limitations. Creating solid models to prepare engineering drawings. Other applications of 3D modelling.
- Mathematical modelling (32%) Introduction to mathematical modelling of engineering systems using a high level computer language. Introduction to Mathematics: expressions, lists, functions, interface, graphics, programming paradigms, programming.
- Applicable computer skills (16%) This component aims to develop those computer skills particularly germane to the specific degree program undertaken.

**Required Text**

**References**

**ES2280 Manufacturing Technology 1**

12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of first year  Corequisites: Nil  Teaching methods: Lectures: 36 hours. Tutorials/Projects: 16 hours, Laboratory: 8 hours  Assessment: Assignments; Examinations; Labs; Project(s)

Bachelor of Engineering (Manufacturing, Mechanical, Product Design Engineering).

**Aims and objectives**
- To provide a general understanding of the role of manufacturing technology in industry.
- To develop foundation knowledge of some of the more commonly encountered manufacturing technologies.
- To provide a general understanding of design of components and tools in manufacturing industries.

**Content**
- Manufacturing processes (16%) Casting and forming of metals, powder metallurgy, polymer products, material removal processes, guidelines for component and tooling design, manufacturing technologies, environmental impacts and measures developed for cleaner production.
- Material removal processes (16%) Chip formation, comparison of machining processes, calculations in machining, tool wear mechanisms, tool life, economics. Polymers in manufacturing (8%) Forming and moulding techniques, extrusion and injection moulding; effect of process parameters.
- Manufacturing automation (12%) Numerical control, fundamentals of CNC programming, role of robotics in increasing efficiencies.
- Quality and measurements (12%) Metrology: standards of accuracy, linear, thread, gear, angular measurements, measurement of surface roughness, roundness, flatness. Concepts of quality, quality control and quality assurance, quality control tools.
- Design of components (16%) Sand casting, die casting, plastic moulding, die forging: precision, sheet metal forming, welding.
- Design of tools for forming processes (16%) Forging, deep drawing, shearing, extrusion, selection of cutting tools, die sets design for metal forming and plastic moulding dies.
- Laboratory Experiments (8%) Tool life in machining, polymer extrusion, CNC machining and metrology.

**Required text**

**References**
ES2310 Machine Dynamics 1

12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of first year  Corequisites: Nil  Teaching methods: Lectures: 36 hours. Tutorials: 24 hours. Assessment: Examinations; Tests
A subject in the Bachelor of Engineering (Manufacturing, Mechanical, Product Design Engineering and Robotics & Mechatronics).

Aims and objectives

- To develop a foundation of analytical capability for the solution of engineering mechanisms problems.
- To develop a theoretical and analytical foundation for the study of Machine Dynamics in the Advanced Stage of the mechanical engineering course.

Content


Rigid body Dynamics (48%) - Relative velocity, instant centers, relative acceleration. Dynamic analysis of simple mechanisms. Rigid body translation: fixed axis rotation. Rigid body plane motions: forces, mass, acceleration. Rigid body plane motion using work and energy principles. Rigid body plane motion using impulse and momentum principles. Kinematics of mechanisms (24%) - Degrees of freedom, types of motion, links, joints and kinematic chains. Linkage transformation, intermittent motion, inversion, the Grashof condition, linkages of more than four bars, practical considerations. Quick return mechanisms.

Required Texts

Norton, R.L., Kinematics and Dynamics of Planar Machinery, Prentice-Hall, 1979

References

Bedford, A. and Fowler, W., Dynamics, Addison-Wesley, 1995

ES2330 Thermodynamics 1

12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of first year  Corequisites: Nil  Teaching methods: Lectures: 36 hours. Laboratories/ Tutorials: 24 hours. Assessment: Examinations; Labs; Tutorials
Bachelor of Engineering (Chemical & Bioprocess, Manufacturing, Mechanical).

Aims and objectives

- To develop a basic understanding of thermodynamics.
- To develop an appreciation of the design principles in thermo-fluid systems.
- To develop the ability to analyse existing thermo-fluid systems and contribute to new designs.

Content

First Law of Thermodynamics (8%) - Heat, work system, units, state of a working fluid, reversibility, conservation of energy, the non-flow equation, steady-flow equation. The Working Fluid (8%) - Liquid, vapour, gas, vapour tables, perfect gasses.

Reversible and Irreversible Processes (8%) - Reversible non-flow processes, reversible adiabatic non-flow processes, polytropic processes, reversible steady flow processes, irreversible processes.

The Second Law (8%) - The heat engine, entropy, the T-s diagram, processes on the T-s diagram, entropy and irreversibility, exergy.

The Heat Engine (8%) - The Carnot cycle, the constant pressure cycle, the air standard cycle, the Otto cycle, the Diesel cycle, mean effective pressure.

Steam Cycles (16%) - The Rankine cycle, superheat, the enthalpy-entropy chart, reheat, regeneration, plant efficiency.

Gas Turbine Cycles (16%) - The gas turbine cycle, intercooling, reheating, heat regeneration.

Positive Displacement Machines (8%) - Reciprocating compressors, clearance, multi-stage compression, steady-flow analysis, rotary machines, vacuum pumps, air motors.

Reciprocating Internal Combustion Engines (8%) - Four stroke, two stroke, other types, performance, efficiency, fuel systems, supercharging, emissions and legal requirements.

Refrigeration and Heat Pumps (8%) - Reversed heat engine cycles, vapour compression cycles, refrigerating load, the pressure-enthalpy diagram.

Required Text


References

Rogers, G. and Mayhew, Y., Engineering Thermodynamics, 4th Edn Longman, 1992

ES2340 Fluid Mechanics 1

12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of first year  Corequisites: Nil  Teaching methods: Lectures: 36 hours. Laboratory/ Tutorials: 24 hours. Assessment: Examinations; Labs; Tutorials
Bachelor of Engineering (Chemical & Bioprocess, Manufacturing, Mechanical).

Aims and objectives

- To develop the fundamentals of fluid mechanics;
- To develop an appreciation of the design principles in thermo-fluid systems;
- To develop the ability to analyse existing thermo-fluid systems and contribute to new designs.

Content

Fluid Properties (8%) - Density, specific weight, specific gravity, enthalpy, viscosity, heat capacity, internal energy, elasticity, vapour pressure.

Fluid Statics (8%) - Static pressure, dynamic pressure, total pressure, gauge pressure, absolute pressure, pressure heights, manometry.

Fluids in Motion (8%) - Lagrangian and Eulerian viewpoints, streamlines, uniform & non-uniform flow, steady & unsteady flow, 1-D, 2-D and 3-D flows, flow rate & continuity, flow acceleration, continuity equation, rotation and vorticity, separation, vortices & turbulence.

Pressure Variation in Flowing Fluids (8%) - Variations due to weight and acceleration, Euler’s equation, Bernoulli’s equation, separation & its effect on pressure variation, cavitation, applications.

Momentum Principle (15%) - Momentum equation, application of the momentum equation, forces on nozzles and bends, moment of momentum, introduction to the Navier-Stokes equations.

Energy Principle (15%) - Energy equation, flow work, shaft work, forms of the energy equation, applications to pipe systems. Application of the energy momentum & continuity equations in combination, hydraulic & energy grade lines.

Dimensional Analysis & Similitude (8%) - Dimensions in equations, Buckingham π theorem, dimensionless numbers, similitude, pressure coefficient.

Flow in Conduits (16%) - Shear stress distribution across a pipe section, laminar & turbulent flow in pipes, criteria for laminar and turbulent flow, resistance, Moody diagram, empirical relationships, primary and secondary losses, pipe systems, pipe networks, non-circular conduits.

Turbomachinery Basics (8%) - Introduction to: axial flow pumps, radial flow pumps, compressors, specific speed, suction limitations of pumps, impulse turbines, reaction turbines, torque & power Required Text

References


ES2535 Materials and Services 3

12.5 Credit Points  One semester  Hawthorn  Prerequisite: ES2390  Corequisites: Nil  Teaching methods: Lectures: 48 hours. Tutorials: 72 hours. Assessment: Assignments; Examinations
This is a subject in the Bachelor of Technology (Building Surveying).

Aims and objectives

- To introduce services encountered in commercial and office buildings.
- To provide students an understanding of specialist materials in the construction industry and processes.

Content

Techniques used will include thin layer chromatography, gel filtration, selective precipitation, ion exchange, gel electrophoresis, spectrophotometric and enzymatic analysis of metabolites and the use of the oxygen electrode.

Recommended reading
Refer to other Materials and Services subjects

ES2620 Biochemistry 1
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of first year  Corequisites: Nil  Teaching methods: Lectures: 36 hours. Laboratory: 24 hours.  Assessment: Examinations; Pracs
A subject in the Bachelor of Applied Science (Biochemistry, Biochemistry/ Psychology) and the Bachelor of Engineering (Chemical & Bioprocess).
This subject is adopted from a course in biochemistry which will soon be re-accredited. It is therefore subject to change. The re-accredited course in biochemistry will contain a subject substantially the same as the one described here, and will be used.

Aims and objectives
• To acquaint students with detailed structures of bio-molecules
• To develop an understanding of enzyme structure, mechanisms, kinetics, (including the roles of co-factors, activators, inhibitors).
• To develop a practical appreciation of the techniques for handling delicate macro molecules such as enzymes.
• To develop a detailed understanding of the main catabolic pathways, especially in relation to energy transformations and the inter-relationships of the pathways.

Content
Enzyme kinetics: simple enzyme mechanisms, Michaelis-Menten kinetics, inhibition.
Catabolic pathways: for carbohydrate, lipid, and protein.
Laboratory exercises: will include quantitative spectrophotometric analysis, colorigenic assays, biochemical extractions and analyses, model building of peptides, enzyme kinetics, computer simulated enzyme catalysis, isoenzyme analysis, and enzyme assays. The program supports the theory content by illustrating biochemical structures, enzyme kinetics and metabolic pathways.
As well as practice in basic biochemistry, laboratory techniques and procedures, skills emphasised by the program include protocol interpretation and design, and calculations and interpretations from quantitative analyses.

Recommended reading
Matthews, C.K. and Jan Holde, K.E., Biochemistry, 2nd Edn. Benjamin-Cummings 1996

ES2625 Biochemistry 2
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of first year and Biochemistry 1  Corequisites: Nil  Teaching methods: Lectures: 24 hours. Laboratory: 48 hours.  Assessment: Examinations; Pracs
A subject in the second of Bachelor of Applied Science (Biochemistry, Biochemistry/ Psychology) and Bachelor of Engineering (Chemical and Bioprocess).

Aims and objectives
• To develop an understanding of the various factors that determine intra-cellular enzyme reactions, including the roles of co-enzymes, cofactors, activators and inhibitors. To further develop a practical appreciation of the techniques of handling enzymes.
• To develop detailed understanding of the main anabolic pathways especially in relation to the inter-relationships of the pathways and control mechanisms.

Content
Anabolic pathways, biosynthesis pathways leading to glucose, glycogen, lipid, protein, DNA.
Regulation and control of metabolism control mechanisms operating at the level of the gene and at enzyme level. Examples to be drawn from fermentation pathways.
Laboratory exercises include protein purification and analysis, experiments in metabolism and metabolic control.
Techniques used will include thin layer chromatography, gel filtration, selective precipitation, ion exchange, gel electrophoresis, spectrophotometric and enzymatic analysis of metabolites and the use of the oxygen electrode.

Recommended reading
Matthews, C.K. and Jan Holde, K.E., Biochemistry, 2nd Edn. Benjamin-Cummings 1996

ES2630 Microbiology
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Integrative Biology or equivalent  Corequisites: Nil  Teaching methods: Lectures/laboratory practicals  Assessment: Examinations;Laboratory Practical Test
This is a second year subject in the Bachelor of Applied Science (Environmental Health).

Aims and objectives
• To further develop concepts of microbiology.
• To develop the practical skills and techniques required in microbiological analysis.
• To prepare for studies in food microbiology.

Content
• Counting techniques as a method for measuring bacterial growth. These will also include simple field techniques such as MIU and MPN counts.
• Sterilisation methods covering a wide range of physical and chemical methods of sterilisation and disinfection. The methods will range from heat and radiation methods which are suitable for laboratories to chemicals and chlorine for water etc.

Recommended reading

ES2635 Food Microbiology
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Nil  Corequisites: Nil  Teaching methods: Lectures, laboratory practicals  Assessment: Examination; Laboratory Practical Test
This is a second year subject in the Bachelor of Applied Science (Environmental Health).

Aims and objectives
• To introduce the fundamental concepts involved in food microbiology and its importance to the food processing industry.
• To understand the role and importance of food microbiology in food safety and quality assurance issues.
• To gain the necessary laboratory skills to undertake final year food-related research projects.

Content
• The role of microorganisms in food spoilage, and conditions promoting food spoilage.
• Food-borne pathogens, inc Bacillus, Clostridium, Staphylococcus, Streptococcus, Listeria, Campylobacter, Vibrio, Pseudomonas, Enterobacteriaceae (E Coli, Salmonella, Shigella, Serratia) and other pathogens of current interest.
• Infective dose.
• Microbial toxins.
• Viral structure and replication. Viral variations. Food-borne viral diseases, inc Hepatitis, Norwalk, Enteroviruses, Rotavirus. Viruses in seawater, shellfish, sediments.
• Minimisation of microbial contamination of food.
• Acid fermentations in manufacture of food, eg cheese & meat products.

Recommended reading
Jay, James M., Modern Food Microbiology. Chapman & Hall.1996

ES2700 Food Science
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Introductory Chemistry  Corequisites: Nil  Teaching methods: Lectures/ laboratory practicals  Assessment: Assignments; Examinations; Lab Reports
This is a second year subject in the Bachelor of Applied Science (Environmental Health).

Aims and objectives
• To study food chemistry analytical techniques used in the food industry.
• To study the use purpose and function of permissible food additives.
• To examine natural hazards associated with food.
To study basic organic chemistry relevant to food composition.

Content

• Organic Chemistry: Molecules which play a major role in food composition.
• Food Chemistry: Techniques used in determination of carbohydrate, protein, and lipid in foods.
• Determinants of the amount of micronutrients in food. Methods used for determining the water content of foods. Determination of the calorie or joule content of foods.
• Other manual and instrumental techniques used in food analysis to determine compliance with the Food Standards Code.
• Chemical additives to food will be considered under the following headings: chemical classes of food additives, historical aspects, permitted compounds, reasons for use, function, advantages, disadvantages, breakdown pathways, toxicity testing, regulatory control.
• Classes of chemical additives to be considered will include the following: preservatives, antioxidants, flavouring compounds, sweetening agents, flavour enhancers, nutrients, emulsifiers.
• Natural hazards associated with food inc: MSG, Solanine, Mycotoxins, Seafood Toxocosis, Ciguatera.

Recommended reading
Potter N. N. & Hotchkiss J. H., Food Science. 5th Edn.. Chapman & Hall. 1995

ES2705 Water Science

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Introductory Chemistry
• Corequisites: Nil • Teaching methods: Lectures/field visits/laboratory practicals. • Assessment: Assignments; Examination; Lab Reports

This is a second year subject in the Bachelor of Applied Science (Environmental Health).

Aims and objectives

• To study water chemistry in terms of sources of pollutants and their effects.
• To study the analysis of water for polluting material.
• To study swimming pool chemistry.
• To examine the most appropriate methods of liquid waste water treatment & disposal.

Content

• Study of the environmental impact of industrial and domestic pollution on natural water. Sources of pollutants. Brief review of water treatment methods with emphasis on tertiary treatment.
• Use of portable test equipment for the evaluation of natural water purity: HACH, DO meters, conductivity, pH.
• Water sampling methods.
• Significance of various water testing parameters. Identifying problems.
• Chemistry and disinfection of swimming pool and spa water. Swimming pool portable testing equipment. Laboratory titrations to evaluate pool and spa water.
• Waste water management; study of appropriate options for on-site liquid waste treatment and disposal in non-sewered areas. Anaerobic (primary) treatment. Secondary treatment: inc absorption, transpiration, filtration, package treatment plants, Reed beds, re-use of waste water. Irrigation lay-outs.
• Site evaluation. Land assessment. Soil percolation tests. Soil characteristics.
• Maintenance of systems. Legislative and code requirements.

Recommended reading
Swinburne resource books

ES2725 Food Safety 1

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Microbiology, Introductory Law • Corequisites: Nil • Teaching methods: Lectures/field demonstrations/group work • Assessment: Assignments; Examinations; Tutorials

This is a second year subject in the Bachelor of Applied Science (Environmental Health).

Aims and objectives

• To develop the skills necessary to effectively monitor food safety against statutory and other requirements, and to institute legal proceedings if required.
• To develop a practical understanding of the principles of HACCP and HACCP plan development, particularly in relation to the retail sector.
• To describe major public health pests pertinent to the food industry, including measures for prevention, detection and control.

Content

• Food Safety Legislation: Food Act Codes. Statutory requirements and obligations of the food industry including Food Safety Programs.
• Registration. Legal proceedings, warranties, due diligence defences.
• Food contamination: types of contamination, conditions for presence. Food risk classification. Storage, thawing, and re-heating technique. Effective use of detergents and sanitisers. Cleaning schedules. HACCP principles and plan development/assessment in retail establishments.
• Food Handling Hygiene: personal hygiene, cross-contamination, safe/unsafe handling, case studies.
• Food Premises Fit-out Guidelines: space, product flow, lighting, ventilation. Surfaces and equipment construction, design and installation, plan review.
• Food Premises Assessment: effective communication technique, assessment procedure, equipment requirements and use. Sampling techniques.
• Pest Management: Pest vectors pertinent to the food industry. Detection, identification and control procedures. Integrated Pest Management strategies.

Recommended reading
Jacob, M. Safe Food Handling: WHO 1989

ES2735 Communicable Disease Control

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures; Assessment; Examination; Tests

This is a second year subject in the Bachelor of Applied Science (Environmental Health).

Aims and objectives

• To introduce the study of immunology and its relationship to the development of immunisation practices.
• To examine and understand Australian immunisation procedures.
• To study the nature, transmission and control of communicable diseases of public health importance, in a local and global context.

Content

• Overview, nature and scope of communicable diseases of public health significance, including nature, transmission and control.
• Immunology. Immunisation procedure. Communicable diseases eg: Diphtheria, Tetanus, Measles, Rubella, Poliomyelitis, Pertussis, Mumps, Meningitis, Hepatitis.
• Diseases spread by contact and aerosols inc: Mycobacterium marium, Leptospirosis. Legionnaire Diseases, Toxic Cyanobacteria, Pseudomonas aeruginosa. Tuberculosis
• Disease spread by ingestion, inc: bacterial, protozoa, viruses eg: cholera, Typhoid and Paratyphoid fevers, Shigella, E. coli (ETEC etc) Campylobacter, Salmonella, Clostridia, Cryptosporidia, Giardia, Entameoba, Hepatitis, Rotavirus, Norwalk.
• Diseases spread by direct contact inc: Impetigo caused by S. aureus, S. pyogenes, S pneumoniae, Herpes, Pediculosis, Scabies
• Zoonotic diseases inc: Anthrax, Brucellosis, Haematis, Taeniosis, Toxoplasmosis.
• Vector-borne diseases: Malaria, Dengue, Arbo viruses.
• Infection control for skin penetration practices.
• Principles of epidemiology. Approaches, data sources and measurements.
• Surveillance and outbreak investigation

Recommended reading
Berenson, Abram, S. Ed. Control of Communicable Diseases. American Public Health Assoc. 1987

Relevant Codes and Standards
Undergraduate Courses
## Undergraduate Course Chart

<table>
<thead>
<tr>
<th>Course Code</th>
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### Double Degrees

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### Honours Year

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### Dual Qualifications

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## Undergraduate Course Chart

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### Honours Year

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### Double Degrees

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### Multimedia

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### Double Degrees

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# Abbreviations of Undergraduate Awards

The abbreviation for Swinburne University of Technology is SUT and should appear after a Swinburne award in parentheses. For example: BBus(SUT). Awards received from Swinburne Institute of Technology (i.e. pre-1993) should have the abbreviation SIT placed after the award.

## Higher Education Division (Hawthorn/Prahran)

### Bachelor of Applied Science (Hons)

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<td>Computing</td>
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<td>Computer Science and Software Engineering</td>
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<tr>
<td>Computing and Advanced Technologies</td>
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<td>Computing and Applied Statistics</td>
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<td>Mathematics and Computing</td>
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<td>Medical Biophysics and Instrumentation</td>
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<td>Multimedia Technology</td>
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### Bachelor of Applied Science/Bachelor of Engineering (Hons)

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### Bachelor of Applied Science (Honours)

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### Bachelor of Arts (Honours)

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### Bachelor of Social Science

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### Bachelor of Social Science (Psychology)

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<td>Management</td>
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### Bachelor of Business (Human Resource Management)

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<td>Management</td>
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<tr>
<td>Manufacturing Management</td>
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<tr>
<td>Marketing</td>
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</table>

### Bachelor of Business (Languages)

<table>
<thead>
<tr>
<th>Field</th>
<th>Abbreviation</th>
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</thead>
<tbody>
<tr>
<td>with majors/minors in:</td>
<td></td>
</tr>
<tr>
<td>Business/Italian</td>
<td>BBus(BA)</td>
</tr>
<tr>
<td>Business/Japanese</td>
<td>BBus(BA)</td>
</tr>
<tr>
<td>Business/Korean</td>
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</table>

### Bachelor of Business (Honours)

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>with majors/minors in:</td>
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</tr>
<tr>
<td>Accounting</td>
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<tr>
<td>Business Law</td>
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<tr>
<td>Business Modelling</td>
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<tr>
<td>Economics</td>
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<tr>
<td>Finance</td>
<td></td>
</tr>
<tr>
<td>Human Resource Management/Organisation Behaviour</td>
<td></td>
</tr>
<tr>
<td>Information Systems</td>
<td></td>
</tr>
<tr>
<td>International Business</td>
<td></td>
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<tr>
<td>Management</td>
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<tr>
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### Bachelor of Design

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<tbody>
<tr>
<td>with majors/minors in:</td>
<td></td>
</tr>
<tr>
<td>Graphic Design</td>
<td>BDes(Graphic Design)</td>
</tr>
<tr>
<td>Industrial Design</td>
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<td>BDes(IE)</td>
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<tr>
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### Bachelor of Design Graphics

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<tr>
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</tr>
<tr>
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### Bachelor of Design Industrial

<table>
<thead>
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<tbody>
<tr>
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</table>

### Bachelor of Design Interior

<table>
<thead>
<tr>
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</table>

### Bachelor of Design Multimedia

<table>
<thead>
<tr>
<th>Field</th>
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<tbody>
<tr>
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### Bachelor of Design Industrial and Multimedia

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### Bachelor of Design Interiors

<table>
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### Bachelor of Design Multimedia and Industrial

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### Bachelor of Design Multimedia and Interiors

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</table>
## Bachelor of Design (Honours)
- Graphic Design
- Industrial Design
- Multimedia Design

## Bachelor of Engineering
- Chemical and Bioprocess Engineering
- Civil
- Electrical and Electronic Engineering
- Manufacturing
- Mechanical
- Product Design Engineering
- Robotics and Mechatronics
- Telecommunications and Internet Technologies

## Bachelor of Information Systems
- Computing
- Interactive Multimedia
- Psychology

## Bachelor of Health Science
- Environmental Health Management

## Bachelor of Social Science
- Sociology
- Social Statistics

## Bachelor of Applied Science
- Accounting
- Business Computing
- Economics
- Economics/Finance
- Human Resource Management
- Information Systems
- Marketing

## Bachelor of Technology
- Aviation
- Building Surveying

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### Bachelor of Design (Honours)
**BDes(Hons)(Graphic Design)**  
**BDes(Hons)(Industrial Design)**  
**BDes(Hons)(Multimedia Design)**

### Bachelor of Engineering
**BEng**
- Chemical and Bioprocess Engineering
- Civil
- Electrical and Electronic Engineering
- Manufacturing
- Mechanical
- Product Design Engineering
- Robotics and Mechatronics
- Telecommunications and Internet Technologies

### Bachelor of Information Systems
**BInfSys**
- Computing
- Interactive Multimedia
- Psychology

### Bachelor of Health Science
**BHHS**
- Environmental Health Management

### Bachelor of Social Science
**BSocSc**
- Media Studies
- Psychology
- Sociology
- Social Statistics

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### Swinburne at Lilydale Division

### Bachelor of Applied Science
**BApplSc**
with majors/minors in:
- Computing
- Interactive Multimedia
- Psychology

### Bachelor of Applied Science (Information Technology)
**BApplSc(Information Technology)**

### Bachelor of Business
**BBus**
with majors/minors in:
- Accounting
- Business Computing
- Economics
- Economics/Finance
- Human Resource Management
- Information Systems
- Marketing

### Bachelor of Business (Accounting)
**BBus(Accounting)**

### Bachelor of Business (Tourism and Enterprise Management)
**BBus(Tourism and Enterprise Management)**

### Bachelor of Business (Accounting) / Advanced Diploma of Business (Accounting)
**BBus(Accounting)** and **AdvDipBus(Accounting)**

### Bachelor of Business / Associate Diploma of Business (Marketing)
**BBus** and **AssocDipBus(Marketing)**

### Bachelor of Business (Tourism and Enterprise Management) / Diploma of Hospitality Management
**BBus(Tourism and Enterprise Management)** and **DipHospMan**

### Bachelor of Social Science
**BSocSc**
with majors/minors in:
- Media Studies
- Psychology
- Sociology
- Social Statistics

### Bachelor of Social Science (Interactive Multimedia)
**BSocSc(Interactive Multimedia)**

### Bachelor of Social Science / Diploma of Community Services (Welfare)
**BSocSc** and **DipCS(Welfare)**
**General Undergraduate Information**

**Admission with Advanced Standing**

For details on Advanced Standing refer to the 1998-1999 Swinburne Pathways Credit Transfer Guide. This Guide is freely available from the Swinburne Information Office.

**Application procedure**

- **Full-time: First year**
  Applications for entry to full-time study at the first year level must be made through the Victorian Tertiary Admissions Centre (VTAC), 40 Park Street, South Melbourne 3205.

- **Students studying VCE in 1999**
  1999 VCE students apply for courses listed in the VTAC Guide on the VTAC Infoline. Students should consult the VTAC publication Guide to University and TAFE Courses.

- **All other applicants**
  All other applicants should use Form E to apply for courses. Copies of the form, and the Guide to University and TAFE Courses in which it is enclosed, are obtainable from VTAC.

- **Alternative Category Entry (for applicants without VCE or equivalent)**
  Applications for all Higher Education full-time courses must be made to VTAC. Applicants for some courses may be required to attend an interview or sit an aptitude test.

- **Special Entry Category**
  Applicants who do not have a year 12 qualification or who have a non-competitive Year 12 score and no other tertiary study, and normally have at least five years related work experience, may be considered for admission if they can demonstrate motivation and ability to succeed. However, Engineering and Applied Science applicants must have passed the subject prerequisites.

- **Full-time: Second year and higher**
  Applications for Applied Science, Arts, Business, Social Science and Tourism courses should be made to VTAC, 40 Park Street, South Melbourne 3205.

- **Applications for Engineering**
  Applications for Engineering should be made directly to Swinburne. Forms can be obtained from the Admissions Office, (03) 9214 8386.

The closing date for full-time places in second and higher years in Engineering is 19 January 1999.

- **Part-time**
  Applications for admission to listed part-time Arts, Business, Social Science and Tourism courses must be made through VTAC (closing date 30 September 1998). All applications for part-time Engineering courses must be made directly to Swinburne (closing date 18 January 1999). Application forms are obtained from the Admissions Office, (03) 9214 8386.

- **Part-time places**
  Part-time places are not offered in Applied Science or the Swinburne National School of Design.

- **International students**
  Applications by international students for entry to all Swinburne courses must be made through the International Student Unit. Because of Australian government regulations, part-time study is not available to full-fee paying international students. Telephone: (03) 9214 9151 or (03) 9214 8647.

**Assessment**

Assessment of student performance is carried out in accordance with Assessment and Appeals Procedures (see the 1999 Higher Education Student Guide).

Student performance is assessed by various methods, such as formal examinations, tests held during the semester, project work, assignments and laboratory reports. A statement of the workload requirements and the assessment program for each subject is given to all students by the second week of each semester.

- **Awards (application to receive qualification)**
  Students eligible to be admitted to a degree or to be awarded a diploma, graduate diploma or certificate are required to apply for the award on the form prescribed. Forms are available from and must be lodged at the Awards Office, Room AD127 Administration Building.

- **Applications**
  Applications for all awards close on 30 May (for students completing their courses at the end of first semester) or 30 October (for students completing their courses in December) of the year in which the student anticipates completion of the academic work for the award.

**Certification of official documents**

It is the policy of the University to certify official documents relating to individual students and graduates of the University. The purpose of certification is to authenticate photocopies of official documents of Swinburne University of Technology.

Only official documents which have originated from within the Registrar's Department and from the administrative sections of the Divisions and Schools of the University will be certified.

**Official documentation**

The following are the various documents available from the University:

- **Academic Transcript**
- **Enrolment Status letter**
- **Exemption letter**
- **Letter of Completion**
- **Result Certificate**
- **Testamur/Certificate**

**Certification**

Only staff of the Student Administration Enquiries Section of the Registrar's Department may certify documents.

Staff will certify copies of official documents only upon presentation of the original by the applicant.

- **Academic transcripts**
  Results are also available on the University's Campus Wide Information System (CWIS) on the World Wide Web.

Academic transcripts are available, on request, at the fees shown:

- **List of results and a statement indicating completion of course if applicable.** $15.00
- **A list of all results plus a list of those remaining to be passed for the completion of the course.** $25.00

These statements are normally produced within five working days after the request has been made.

**Confirmation of University records**

The University recognises that errors can be made in the transcription of enrolment details from original copies of enrolment forms to the computer-held files. It also realises that such errors can cause a great deal of inconvenience to students (and staff) if not detected.

Students are therefore asked to check their confirmation of enrolment report at the time of enrolment.

Students who do not check their confirmation of enrolment report, or who do not by the due date notify the School Office of any errors existing in the records, will be required to pay a substantial fee for each amendment to be made. (Refer ‘Adding Subjects’ under ‘Amendment to Enrolment’ section.)

**Course requirements**

The syllabus for all courses in the Higher Education Division and Swinburne at Lilydale Division may be found in the separate sections of the Higher Education Handbook.

Provisional timetables for all courses in the Divisions will be displayed at enrolment. Students should note that these timetables are provisional only and may be changed depending on staff and facilities available. Where it is necessary to change a timetable, details will be posted on the division or school notice board, as appropriate.

**Enrolment**

- **Definitions of Enrolment terms**
  In this section:
  - **Enrolment** includes ‘re-enrolment’.
  - **Enrolment form** includes ‘re-enrolment form’.
Enrolment at Swinburne University of Technology is conditional upon:

- the information which is supplied by the applicant to the University, upon which an offer of a place in a course is based, being accurate and complete;
- the approval of the head of the awarding school (or his/her nominee) of the subjects concerned;
- the completion of the requisite enrolment and statistical information forms required by the University;
- the undertaking of the student to abide by the statutes, regulations, policies and procedures and standards of conduct of Swinburne University of Technology;
- the payment of any prescribed general service fee;
- the lodging of a Payment Options form in regard to the Higher Education Contribution Scheme (HECS) and, if appropriate, making an ‘up front’ payment.

Deferred entry

Students who are offered a place in a first year undergraduate program for 1999 may apply for a deferment until 2000. Applications must be addressed to the School Administration Manager, and must be made at the time an offer is received. Deferment is not automatic.

Students who have been granted deferment will be informed in writing. The Deferment Procedures policy can be found under Leave of Absence in the 1999 Higher Education Student Guide.

Single subject enrolments

Under the conditions set out below, it is possible to study single subjects offered by the University without enrolling in a full degree or diploma course.

The minimum fee per semester for single subject enrolments in 1999 will be at the rate per weekly contact hour as set by the individual school, plus the appropriate general service fee.

The offering of places in single subjects is at the discretion of the School concerned and can be done only after full credit students have been accommodated. Therefore offers may be as late as the first week of teaching.

An application form is available from the Division or School Office concerned or the Admissions Officer.

Entrance requirements

The general criterion for consideration for entry to a Swinburne course is Swinburne’s assessment of an applicant’s ability to complete a chosen course.

1. To satisfy the general entrance requirements and to be considered for admission to the first year of a degree or diploma course a student must have satisfactorily completed the VCE including the satisfactory completion of the work requirements in Units 3 and 4 of English.

   Any person offered a place at Swinburne may be required to present for a proficiency test in the English language. Applicants found to be below the necessary standard in this test may be required to undertake a remedial English course concurrently with their undergraduate course or may have their provisional offer of a place withdrawn.

2. In addition to meeting the general requirements above, applicants must also satisfy any prerequisite or special requirements specified by the Higher Education Division and listed in the Swinburne Handbook.

3. The Higher Education Division may specify criteria for special entry schemes, covering applicants who may not hold the necessary formal entry qualifications but who, in the course selection officer’s view, have the motivation and potential to successfully complete the course concerned.

Other qualifications

Applicants must have a qualification deemed to be the equivalent of VCE by the Victorian Board of Studies. Such qualifications may include interstate and overseas qualifications and associate diploma studies at a TAFE institution unless entering through a special entry scheme.

Special Entry Schemes

Swinburne’s Special Entry Schemes enable applicants with no VCE or equivalent qualification to be considered for acceptance into undergraduate courses.

The categories are:

- Age and Education

There are no age restrictions. This category is for applicants with no VCE or equivalent. Selection is based on the personal history provided with the application for all courses except Business, which requires applicants to sit the Special Admissions Test administered by VTAC for the Australian Council for Educational Research.

Continuing Difficulties During Schooling, Applicants with Disabilities & Aborigines and Torres Strait Islanders

Applicants in these categories may provide additional information with their application form and contact the Swinburne Equity Unit for further assistance. Applicants who have passed VCE may also provide additional information with their applications.

In all cases, applicants for courses offered by Engineering and Science must have passed the course prerequisites.

Fees

General Service Fee

The General Service Fee is applied to the provision of amenities and services by the University. It does not confer membership of the Swinburne Student Union or any other student organisation.

All enrolling students are required to pay a general service fee.

The fees for 1999 are:

<table>
<thead>
<tr>
<th>Student Status</th>
<th>Total GSF $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time, full year</td>
<td>240.00</td>
</tr>
<tr>
<td>Full-time, semester</td>
<td>120.00</td>
</tr>
<tr>
<td>Part-time, full year</td>
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</tr>
<tr>
<td>Part-time, semester</td>
<td>60.00</td>
</tr>
<tr>
<td>Industry Based Learning/Distance Education: full-time</td>
<td>48.00</td>
</tr>
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<td>Industry Based Learning/Distance Education: semester</td>
<td>24.00</td>
</tr>
<tr>
<td>Full-time student: 1 semester IBL</td>
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</tr>
<tr>
<td>1 semester full-time</td>
<td>120.00</td>
</tr>
<tr>
<td>Total</td>
<td>144.00</td>
</tr>
<tr>
<td>Part time student: 1 semester IBL</td>
<td>24.00</td>
</tr>
<tr>
<td>1 semester part-time</td>
<td>60.00</td>
</tr>
<tr>
<td>Total</td>
<td>84.00</td>
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</tbody>
</table>
International Students

Full-fee paying international students do not pay HECS fees. Please contact the International Student Unit for information on fees applicable to international students.

Part-time students

For all University purposes a part-time student is one enrolled for subjects which require a total class, tutorial and/or laboratory contact time of less than seventy-five per cent of the full-time course load.

Industry Based Learning

Students studying under the industry based learning (cooperative) format are considered to be full-time students. They qualify for the special rate only in those years which include work experience. These courses are:
- Applied Science Degree
- Business Degree
- Graphic/Industrial Design Degrees
- Engineering Degree

Late re-enrolment fee

A late enrolment/payment fee may be applied in the following situations:

(i) Students who do not complete re-enrolment details by the date specified by the Division, e.g. failure to return forms required to facilitate confirmation of enrolment, will incur a $100 late enrolment/payment fee.

(ii) Students who do not pay enrolment fees by the due date nominated by the Division as shown on the liability statement will incur a $100 late enrolment/payment fee.

Note: After the Higher Education Division census date the above fee would be in addition to individual subject penalty fees listed under Amendments to Enrolment.

Additional fees

A part-time student who adds any subject to those for which he or she was enrolled and thereby increases the course load involved in his or her course to more than seventy-five per cent of the full-time course load, will be required to pay the difference between the part-time and the full-time general service fee.

Refund of fees

A student who withdraws from a course may receive a refund of fees, if notice of withdrawal is lodged at the School Office before 31 March 1999 for semester one and 31 August 1999 for semester two.

No refunds of fees will be made where a student withdraws from study after 31 March 1999 for semester one and 31 August 1999 for semester two.

Higher Education Contribution Scheme (HECS)

The Higher Education Contribution Scheme (HECS) is a government initiative to assist students by providing a loan to cover the cost of their studies. The scheme is designed to cater for students who do not have financial support from their families and who are not eligible for Government Student Assistance.

Students commencing Higher Education studies for the first time after 1 January 1997 are liable to pay HECS contributions at ‘Differential HECS’ rates. This means that HECS contributions charges will vary according to the subjects in which you enrol.

For example students enrolled in Band 1 subjects eg. Arts, Humanities will pay a maximum contribution of $31409 and students enrolled in Band 2 subjects eg. Business, Engineering, will pay a maximum of $4855. Part-time students pay a contribution in proportion to the full-time load.

HECS payment options

Students have the option of:

(i) Paying the contribution on an ‘Upfront’ basis i.e. a lump sum payment attracting a 25% discount; or

(ii) Paying the contribution on an ‘Upfront’ basis and authorising the ‘Safety Net for Upfront’ option (Swinburne will automatically convert the student status to the ‘Deferred’ Option should the lump sum payment not be received by Census date); or

(iii) Paying the contribution on a ‘Deferred’ basis through the taxation system; or

(iv) Making one partial payment ‘Upfront’ (minimum $500) and having the balance collected via the taxation system. Partial payments will attract a discount. If permission is given to make more than one partial payment a handling fee may be charged.

Tax File Numbers

All students selecting (ii) ‘Upfront with the Safety Net’ or (iii) ‘Deferred’ options must provide their Tax File Number to the University at the time of their enrolment. Students who do not have a Tax File Number must apply to the Australian Tax Office before enrolment and submit their Tax File Number to the University before the census date. Failure to provide the University with a Tax File Number will result in cancellation of enrolment.

Change of HECS Payment Option

Students have an opportunity of changing their option by completing a new Payment Options form before the census date for each semester. If a new form, notifying a change of option, is not received by the HECS Officer, the student’s HECS status remains unchanged and carries over into the following semester.

Census dates:
- First semester 1999: 31 March 1999
- Second semester 1999: 31 August 1999

HECS Exempt categories

Students exempt from the Scheme include:

- those who have paid fees to the University for a postgraduate course in accordance with Commonwealth guidelines;
- those enrolled in a non-award course;
- those fully sponsored under a foreign aid program;
- full-fee paying students;
- student otherwise subject to Overseas Student Charge arrangements;
- holders of a HECS postgraduate scholarship;
- holders of an undergraduate equity scholarship;
- those enrolled in a non-award (single subject course excluding Overseas Students.)

Further details about the Scheme are available from the Student Administration Enquiries Office or by contacting the HECS Officer on (03) 9214 8632.

HECS refunds

HECS refunds will be made to ‘Upfront’ payees where a student withdraws from the course on or before 31 March for semester one and 31 August for semester two. Students who require a refund must apply to their Division or School Administration Office. A copy of the receipt must be provided.

HECS liability

Students who withdraw from subjects or total enrolment after 31 March 1999 for subjects concluding at the end of the first semester or after 31 August 1999 for subjects concluding at the end of the second semester, will incur a HECS liability for that semester.

Students who withdraw from a full-year subject after 31 March 1999 will incur a HECS liability for semester 1. Students who withdraw from a full-year subject after 31 August 1999 will incur a HECS liability for two semesters.

HECS Exemption Scholarships (Undergraduate)

In 1999 the Commonwealth government will provide a small number of merit-based equity scholarships to help people with special needs undertake university study. These scholarships are administered by the University Equity Office. Further information can be obtained by contacting the Equity Office on (03) 9214 8855 or fax (03) 9214 8932.

Industry Based Learning

Industry Based Learning (IBL) is a major feature of many of the academic programs in Higher Education at Swinburne. This cooperative education program is strongly supported throughout the Higher Education sector and is one of the significant illustrations of the many contacts that the University has with industry that benefit the student, industry and the University. Cooperative education is a strategy of learning that involves the student participating in a paid placement in industry before the final year of their degree. The student receives support during the placement from both the employer and the University.

Whilst on IBL, students are supervised by their employers and a member of the Higher Education Division’s academic staff who acts as the student’s industrial tutor.
The placements provide students with the valuable opportunity to apply the knowledge they have gained to that point while gaining confidence and experience in the workplace of their future profession. Students then have this ‘hands-on’ experience as a most significant reference in their final year of study. The experience places students at the front of the line for employment opportunities at the end of their degree.

Swinburne was a pioneer of Industry Based Learning (IBL) in Australia, with the first programs offered to Production Engineering students in 1963. Over the years the benefits of IBL have spread to other disciplines in the University and have been recognised by many other universities. Today, Swinburne is at the forefront of ensuring that IBL is accepted worldwide.

At Swinburne IBL is generally optional and is normally taken for two semesters (or 48 weeks) between the second and third years of study. Swinburne places approximately 800 students each year in industry in the areas of:

<table>
<thead>
<tr>
<th>Area</th>
<th>IBL Coordinator</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Chemistry</td>
<td>Bob Laslett</td>
<td>(03) 9214 8569</td>
</tr>
<tr>
<td>Biophysical Sciences and</td>
<td>Doug McKenzie</td>
<td>(03) 9214 8753</td>
</tr>
<tr>
<td>Multimedia Technology</td>
<td>Kirsten Jeffrey</td>
<td>(03) 9214 5479</td>
</tr>
<tr>
<td>Business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Science, Software</td>
<td>Kon Mouzakis</td>
<td>(03) 9214 8585</td>
</tr>
<tr>
<td>Engineering and Building</td>
<td>Karen Brown</td>
<td>(03) 9214 8364</td>
</tr>
<tr>
<td>Surveying</td>
<td>Ron Morris</td>
<td>(03) 9214 8769</td>
</tr>
<tr>
<td>Design</td>
<td>John Bassani</td>
<td>(03) 9214 6910</td>
</tr>
<tr>
<td>Information Technology</td>
<td>Paul Kindler</td>
<td>(03) 9214 8303</td>
</tr>
<tr>
<td>Mathematics and Computer</td>
<td>Don Handle</td>
<td>(03) 9214 8214</td>
</tr>
<tr>
<td>Science</td>
<td>Marion Blackburn</td>
<td>(03) 9215 7057</td>
</tr>
</tbody>
</table>

Benefits to students

Students who undertake an IBL course derive many benefits from their involvement in the program. Some of these are:

- Academic performance is often seen to improve following industrial experience;
- Students work with professionals on real industrial problems under authentic conditions applying theoretical concepts learnt in the classroom;
- Students are able to sample particular areas of the chosen branch of their profession before graduation;
- IBL during the course is an advantage when graduates are seeking their first jobs;
- IBL gives students one year of practical experience, enabling them to learn about the working environment, to understand employers’ expectations, ethics and relationships with colleagues;
- IBL gives students a head start to a successful future. As they already have a point of comparison, career decisions are made easier and IBL students have more to offer to prospective employers;
- Students earn while they learn (recognised rates are paid during periods of IBL);
- There is the potential for IBL students to have a job waiting on graduation. Alternatively, part-time employment during final year of study may become available with the employer;
- Students have financial freedom through the opportunity to earn and save money.

Placement information

Swinburne makes every effort to place students in an appropriate industrial environment. Opportunities for placement are normally allocated based on academic merit. However, students may wish to take the initiative to secure their own IBL placement, and this must be with the approval of the appropriate IBL Coordinator.

In courses where IBL is compulsory and an all reasonable effort to find an IBL position has been made by the Division and the student, but no placement has been found, the student may apply to the appropriate Head of School to consider the possibility of rescheduling the IBL component(s) of the course.

In courses where IBL is compulsory and no placement is found before the academic component of the course is completed and the requirement to complete IBL is waived, then the student will be allowed to graduate. The testamur, however, will not contain the wording “a four/five year program in the cooperative education format”. Students without permanent resident status should be aware that IBL may not be available for certain courses. In other courses, it is subject to the availability of industrial places and the achievement of a suitable level of English language skills. IBL is possible in a student’s home country (subject to approval of the appropriate IBL Coordinator).

During and at the end of the IBL placement, students are required to successfully complete a detailed report on their IBL experience.

In some courses, students are permitted to study one subject per semester while working.

Support services

Assistance is given by Swinburne to secure an IBL position by way of information sessions, lectures on interview techniques and skills, resume writing, and general support in making sure that each participating student is placed.

Overseas IBL

Some Australian students have the opportunity to obtain work experience overseas. In such cases, academic staff from local educational institutions visit the student at their place of work. Countries where Swinburne students have recently undertaken IBL include England, USA, Canada, and Germany.

Employers and Swinburne

IBL can provide employers with the opportunity to assess potential employees in a work situation thereby defraying the costs of recruitment. At Swinburne there is a close liaison between participating companies and the University. Participating companies comprise large and small enterprises from all sectors of industry including manufacturing, finance, professional services and government. Swinburne University has supported its own program for several years now and places students in Human Resources, Information Technology and Marketing.

Leave of Absence

The Leave of Absence policy can be found in the 1999 Higher Education Student Guide.

Mobile phones in classes

The policy for mobile phones is:

- all mobile phones should be silenced in classes and lectures;
- students talking on mobile phones or permitting a phone to ring will be asked to leave the room for the remainder of the lecture or class.

Part-time study

With changes in the programs of study leading to degree qualifications, some part-time students may be unsure of the subjects they are required to pass in order to qualify for an award.

The following guidelines which the relevant School Board has established should be used to determine the subject requirements for students undertaking programs (including conversion programs) on a part-time basis:

- In general, students who have not at some time discontinued their program without permission will follow the program of study in operation at the time of their initial enrolment if this program is still available in the Higher Education Division of the University and as specified in the appropriate section of the Handbook for that year.
- Despite the above, students who are undertaking a program of study which has been unduly prolonged, or who would benefit from transfer to a later program of study, may be transferred by the school board on the advice of the head of the student’s school.
- Students who discontinue study without permission and who later wish to renew their enrolment in the Higher Education Division of the University in that same program will be treated as new students but may receive such credit for the subjects previously passed as is determined by the school board on the advice of the head of the student’s school.
- Where subjects have been discontinued since students’ initial enrolment, students will be required to undertake the presently operating equivalent subjects. Information regarding superseded subject equivalents is available from the head of the student’s school.
- As students will realise, there is often benefit in transferring from the program of study in operation at the time of enrolment to a later program of study. With the permission of the head of the student’s school, students may

Swinburne University of Technology | 1999 Higher Education Handbook
Pathways: Articulation and Credit Transfer

Detailed information on the extent of credit transfer and specific additional requirements which would attract maximum credit is contained in the 1998-1999 Swinburne Pathways Credit Transfer Guide which is available from the Information Office, Student Administration Office and within schools.

Prizes and scholarships

School of Biophysical Sciences and Electrical Engineering

Postgraduate Scholarship
For students undertaking full-time postgraduate research in an area of study relevant to the School.

At least one twelve-month scholarship is normally provided, the value of which, is determined by the Head of School. Scholarships may also be made available to international students engaged in full-time postgraduate research in an area of study relevant to the School.

Brain Sciences Institute Postgraduate Scholarship
To a student undertaking full-time postgraduate research in an area of study relevant to the Centre.

One scholarship is normally provided, the value and duration of which is determined by the Director of the Institute.

BSI Prize
To the best student in the final year of Psychology/Psychophysiology course.

The amount of $200 and a plaque are awarded based on the highest weighted average marks in final year. The award is sponsored by the BSI.

Computing and Instrumentation Prize
The Computing and Instrumentation Prize is awarded by the School to the best student in the final year of Computing and Instrumentation course.

An amount of $200 and a plaque is awarded based on the highest weighted average marks in final year.

Harold E.R. Steele Prize
To the best student in the course leading to the degree of Bachelor of Engineering (Electrical & Electronic Engineering).

A prize of $100 and a plaque is awarded.

Kenneth Clarke Prize
To the best student in the final year of the Medical Biophysics and Instrumentation course.

An amount of $200 and a plaque, The Kenneth Clarke prize is awarded based on the highest weighted average marks in final year. The award is sponsored by the School in recognition of Mr Kenneth Clarke, a former long service member of the Biophysics Advisory Committee.

School of Business

Annual Scholarships are made by the following donors:

Sir Reginald Ansett Memorial Scholarship
Awarded on interview, financial need and academic ability to a business student commencing full-time studies.

Bowen Griffiths & Swinburne Entrepreneurial Accountant Scholarship
Awarded on interview to a student entering final stage accounting.

William Buck Business Accounting Scholarship
Awarded for both academic achievement and other personal qualities to a business student who has completed at least two years of full-time study.

T.W. Higgins Scholarship
Awarded on the basis of need and academic performance to a full-time second or third stage student in the Bachelor of Business. Applications close in April.

Corporate Prizes
The following prizes are made by corporate donors for the best Swinburne students in the course, study discipline or specific subjects.

ANZ Bank
The best student in the BE335 International Finance subject.

Arthur Andersen Prize
The best student in the BC224 Financial Management 1 subject.

Australian Institute of Management Prizes
The best graduate student with a major in economics and marketing and Australian Society of Certified Practising Accountants Prizes
The best students in:
- Stage 1 accounting subject;
- Stage 2 accounting subjects; and
- Stage 3 accounting subjects.

Australian Society of Corporate Treasurers’ Prize
The best graduating student with a major in Finance.

Butterworths Book Prizes
The best students in the subjects:
- BC386 Advanced Taxation;
- BL222 Marketing Law; and
- BL331 International Business Law

Coopers & Lybrand Prizes
The best students in the subject:
- BC222 Management Accounting 1; and
- BC223 Management Accounting 2.

DMR Consulting Group Prize
The best student in BT222 Information Systems subject.

Economic Society of Australia Prize
The best graduating student with a major in Economics.

The T.W. Higgins Prize
The best graduating student of the Bachelor of Business.

The Insight Group Award
Two awards of $1000 available to members of the HRM Swinburne Student Society. The awards are based on academic results in two post core HRM/OB subjects, extra curricular activities within Swinburne and the greater community and an interview. Members will be sent an invitation to apply midway during the academic year. Enquiries should be directed to Richard Ballantyne on (03) 9214 8490.

Martin Executive Solutions Prize
The best student in BH110 Organisations and Management subject.

National Australia Bank Prize
The best student in BE110 Microeconomics subject.

ORICA Prize
The best final year Computing student.

Siddons-Ramset Prize
The best student in BE336 Economics of Social Issues subject.

William Buck and Company Prize
The ten best students in first year accounting (BC110 Accounting 1 & BC220 Accounting 2).

Swinburne School of Business Prizes
The following prizes are presented by different disciplines within the School of Business to the best student in the following course, study disciplines or specific subjects.

Economics Section of School of Business Prizes
The best students in:
- BE220 Macroeconomics;
- BE226 Macroeconomics Policy; and
- BE333 Financial Institutions and Monetary Policy.

Italian and European Studies Section of School of Business Prizes
The best students in:
- third year Italian; and
- Bi392 The European Union Business Context subject.
Japanese Section of School of Business Prizes
The best student overall in Japanese

Korean Section of School of Business Prizes
The best students in:
- first year Korean, and
- second year Korean.

Jim Watkins Memorial Prize
The best student in BE227 Environmental Economics subject.

School of Engineering and Science
The Australian Institute of Building Surveyors Prize
Awarded to the student with outstanding academic results and executive involvement in the Building Surveyors student’s organization. The prize includes a certificate and a free membership to the AIBS and free entry to AIBS seminars for one year.

The Australian Institute of Building Prize
This prize is awarded to the student with outstanding academic results including outstanding results in the Management subjects.

Eric Bode Prize
The best student in the final year of the degree courses in applied science.
A bronze plaque and a cash prize, donated by Dr E.H. Bode, are awarded by the Divisional Board.

Miles Hancock Prize
To an outstanding student in the area of postgraduate colloid science.
The value of the prize is between $500-$1000 and is awarded on an occasional basis by the Colloid Centre.

T.G.O. Jordan Memorial Prize
To the environmental health student with the highest overall result in the final year.
Awarded by the Australian Institute of Environmental Health (Victorian Division)
The annual prize is usually books or an attaché case to the value of $120.

Undergraduate Scholarships
To students completing first year of the chemistry or biochemistry courses.
A limited number of scholarships are available upon application. The scholarship value is $9000 per annum for three years.

Bachelor of Engineering Students
Industry Based Learning scholarships
To full-time engineering students in second and later years of their engineering degree course.
The Division in conjunction with industry, offers industry based learning scholarships to the value of $8000 per annum. Interested students should apply to the Divisional office by November for the forthcoming year.

W.P. Brown Medal
To the best all-round student in the final year of an engineering course.
The award is a medal and a premium of $150. This is awarded by the Institution of Engineers, Australia.

Esso Prize
To the outstanding final-year mechanical engineering student.
A prize of $500 awarded annually.

F.W. Green Memorial Prize
To the most outstanding final-year engineering student graduating each year.
The award is $150.

James Smith Memorial Prize
To the best student in structural design in the final year of the civil engineering degree course.
Books to the value of approximately $50 are awarded.

Major Furnace and Engineering Prize
To the best managed final year project in mechanical engineering.
The award consists of $150 and an engraved pewter mug and is awarded.

Molyneux Medal
To the student in the final year of the manufacturing engineering degree, undertaking major studies in chemical engineering.
A silver medal and a prize of $300 are awarded to the student who submits the best project thesis.

Postgraduate awards
The Department of Education, Employment, Training and Youth Affairs provides awards for full-time research leading to the degree of Masters by Research or Doctor of Philosophy. The closing date for applications is 31 October in any year.
Some industrial organisations also make available awards for full-time research leading to the degree of Master or Doctor of Philosophy. Further information may be obtained from the Office of Research.

School of Information Technology
Postgraduate research scholarships
Postgraduate research scholarships for Master of Applied Science, Master of Business or Doctor of Philosophy are available under the following two schemes. (Entry qualifications of at least an honours degree or equivalent are required.)
- Fee Exemption Scholarship
  Scholarships covering tuition fees only are available to students who are not Australian permanent residents. These scholarships are awarded for one year in the first instance and may be extended. Additional income from tutorial duties may be available to students with appropriate skills.
- School Scholarship
  This scheme provides a stipend of $12,000 p.a. In addition, a teaching assistantship may be negotiated up to an additional $5100 p.a. The successful candidate may hold the scholarship for up to two years for a Masters program or three years for a PhD program. Renewal of the teaching assistantship shall be subject to adequate performance of teaching duties.

A number of prizes are currently available to Information Technology students:

Aspect Computing Prize
To a student in the final year of a computing degree course (not BIT)
The amount of $1000 will be awarded on the basis of results in second year computing subjects. The School nominates up to three students. Aspect Computing interviews these students and then awards the prize. (Note: Bachelor of Business (Computing) students also compete for this prize.)

Australian Computer Society Prize (2)
To the “best” student on a degree accredited by the ACS at level one or two.
The amount of $150 will be awarded by the ACS to students who are evaluated on the basis of their aggregate performance on final year computing subjects. Also to the “best” student in the Graduate Diploma of Information Systems.
The amount of $150 will be awarded by the ACS to students who are evaluated on the basis of their aggregate performance.

School of Information Technology Staff Prize
To the student nominated by the School for the Eric Bode Prize.
An amount of up to $300 will be awarded by the School.

Darren Golden Memorial Prize
To the most outstanding student in the final two years of the Bachelor of Information Technology.
This prize is funded from the Darren Golden Memorial Trust. The award is based primarily on academic merit but extra-curricular performance in areas such as leadership and contribution to course activities will be taken into account.

School of Mathematical Sciences
The ASOR Medal (Australian Society of Operations Research)
To the best final year Operations Research student at the University.
Awarded by the Operations Research Society of Australia on the recommendation of the School of Mathematical Sciences.

Swinburne at Lilydale Scholarships
Swinburne at Lilydale Scholarships may be available to selected students at Lilydale. A number of scholarships of $1500 each are offered to students entering first year.

Swinburne Graduate School of Management Prizes
Australian Institute of Management Prizes
The best graduate of Graduate Diploma in Business Administration.
Carlton and United Breweries Prize
The best graduating student in Master of Business (Organisation Behaviour).

National Mutual Prize
The best student in BH505 Social Psychology in Organising subject.

VicRoads Prize
The best student in BH407 Leadership and Change in Organisations subject.

Swinburne Graduate Society Prize
The best student in Graduate Diploma in Business Administration.

Reading guides
In most subjects, conveners will issue detailed reading guides during the first week of classes. Reading material is listed under individual subject entries according to the following definitions.

Recommended reading and textbooks: Students are advised not to purchase any books unless classes have met.

References: Material referred to throughout the duration of the subject. Students are not required to purchase these references and copies of the majority are available for borrowing from the library.

Re-enrolment
Continuing students will be sent a re-enrolling form in September/October, which needs to be completed and returned to the appropriate School. An enrolment advice form and liability statement will be sent to re-enrolling students in November/December. Students who need to amend their enrolment will need to attend an amendment session as determined by each School.

Re-enrolling students who require advice about their course should consult their School. If an old syllabus is being followed, changes may be necessary either to complete the old syllabus or to effect the changes to a new syllabus. Students who are in doubt about their course should consult their School before attempting to re-enrol.

Quotas - Bachelor of Engineering
As quotas exist for entry into second year of the Bachelor of Engineering the following criteria for continuance apply:
(a) all students who pass all subjects outright will be admitted to the program of their choice
(b) those students with Conceded Passes will be admitted to a discipline but not necessarily that of their choice.

Results
Students automatically receive records of their academic progress. Result Certificates are posted to each student at the end of each semester.

Students enrolled in subjects spread over both semesters should note that mid-year progress reports are displayed on divisional and school noticeboards by the end of the first week of the second semester. These reports are not formally published results but are an indication of students’ progress at mid-year. Results are also available on the University’s Campus Wide Information System (CWIS) on the World Wide Web.

Where a subject is completed in first semester, the assessment result is published as soon as possible after the end of semester.

Note: No certification of current or past academic results will be produced or made available to any student or previously enrolled student or to any other person on behalf of a student or previously enrolled student of the university who:
(a) has failed to return outstanding materials borrowed from the University Library;
(b) has failed to meet outstanding financial commitments to the University.

Result categories and percentage scores
See the Assessment and Appeals Procedures in the 1999 Higher Education Student Guide.

Selection
Selection is based primarily on academic merit as assessed by results achieved in Year 12 subjects, or their equivalent.

Consideration will be given to the full range of an applicant’s VCE studies and results, the level of performance in CATs in prerequisite studies and any other information available to the Selection Officer.

Semester address for correspondence
Throughout the year information regarding HECS, examination results and other special notices are sent to students.

Students must provide a correct address otherwise they may jeopardise their chances of meeting deadlines and observing other special requirements.

If a student changes an address an Amendment to Personal Details form must be completed and lodged immediately at the School Office.

Standards of progress
All full-time and part-time students enrolled in undergraduate and postgraduate courses in the Division are expected to maintain a minimum academic standard to be allowed to continue their studies. Unless otherwise specified, these standards of progress apply to undergraduate and postgraduate students. See Assessment and Appeals Procedures in the 1999 Higher Education Student Guide.

Time limit for completion of degree

Undergraduate courses
Full-time students at Higher Education Division (Hawthorn/Prahran) must complete their degree program within six years of their first enrolment in the course (excluding any periods of leave of absence). Part-time students must complete their degree program within nine years of their first enrolment in the course (excluding any periods of leave of absence).

The maximum time for completion of a degree at Swinburne at Lilydale is ten years.

Postgraduate courses
Except where otherwise specified in course rules, full time students are normally expected to complete their course of study within a period equal to the minimum duration of the course plus one year (excluding any periods of leave of absence). Part time students are normally expected to complete their course of study within a period equal to twice the full time completion time for their course plus one year (excluding any periods of leave of absence).

Student Administration Enquiries Office
The Student Administration Enquiries Office provides information and procedural advice on admissions, examinations and awards. Other functions include processing identity cards, production of passport photos, providing enrolment processing forms (e.g. amendment to enrolment form), result certificates, academic statements, enrolment status letters, authorising travel concession forms and international student card forms, certifying University documents, maintenance of students’ result records, hire of lockers and academic gowns.

Location and office hours

Hawthorn campus
Enquiries (03) 9214 8086, (03) 9214 8039
The Student Administration Enquiries Office is located in Room AD121, Administration Building (AD), John Street, opposite the Business and Arts Building (BA) and the Library (see map on page XX).
Office hours are as follows:
During teaching weeks pre census date:
8.00am - 6.00pm Monday to Thursday
8.00am - 5.00pm Friday
During teaching weeks post census date and non-teaching weeks:
8.00am - 5.00pm Monday to Friday
Note: The office is closed on public holidays.

Prahran campus
Enquiries (03) 9214 6744 or (03) 9214 6761
The Student Administration Enquiries Office is located in Room D107, BuildingO, High Street, Prahran
Office hours are as follows:
8.30am - 5.00pm Monday to Friday
Note: The office is closed on public holidays.

Swinburne at Lilydale campus
Enquiries (03) 9215 7000
Office hours are as follows:
8.30am - 5.30pm Monday to Friday
Student workload and credit point system
The Higher Education Division operates a student workload model based on a credit point system. In this model, the standard workload for a full-time student undertaking a program of study for one year comprises subjects with a total value of 100 credit points. To complete, for example, a full-time three-year bachelor degree program, a student must pass subjects to the value of at least 300 credit points.

The credit point value of a subject is a notional measure of the relative workload associated with that subject. Normally, a full-time student enrols in subjects totalling fifty credit points per semester. However, small variations in this total are permitted according to the choice and availability of elective subjects.

Credit for Swinburne TAFE Division diplomas
Refer to separate University publication 1998-1999 Swinburne Pathways Credit Transfer Guide.

Submission of assignments
Students should note that assignments will not be accepted by facsimile (fax).

Victorian Universities’ Languages Consortium
The Victorian Universities’ Languages Consortium was established in 1996 with membership including all universities in Victoria. One central aim of the Consortium is to facilitate and encourage cross-institutional enrolments in languages.

The guidelines governing Cross-institutional enrolment as specified in the Consortium’s Memorandum of Understanding (section 7) are as follows:

7.1 A student who is enrolled in an award course program at a home university may apply to enrol in a language program at another university and expect to be admitted, provided that:

7.1.1 where courses in the relevant language are offered by the home university, a student shall normally undertake them there;

7.1.2 the enrolment is approved by the relevant faculty/school department at the home university; and

7.1.3 the enrolment is also approved by the relevant faculty/school/department of the host university;

7.1.4 the language studies are part of an award course at the home university

7.2 The home university shall create its own codes for cross-institutional enrolments and determine the appropriate credit to be given to a course undertaken at another university.

7.3 Both home and host universities retain the right to limit the number of students who may enrol in language courses under such arrangements.

7.4 Where a student commences a sequence of language units under such arrangements, he/she will normally be permitted to take such further units as the sequence offers, provided progress is deemed satisfactory by the host institution and recognising that such courses may be offered on a different campus.

The following languages, taught at the universities listed, are available to students:

- Ancient Greek: La Trobe
- Arabic: Deakin, Melbourne
- Cambodian: Monash
- Chinese: Ballarat, Deakin, La Trobe, Melbourne, Monash, RMIT, VUT
- French: La Trobe, Melbourne, Monash
- German: Melbourne, Monash
- Greek (Modern): Deakin, La Trobe, Melbourne, Monash, RMIT, VUT
- Hebrew (Modern): Deakin, Melbourne
- Hindi: La Trobe
- Indonesian/Malay: Deakin, La Trobe, Melbourne, Monash
- Italian: ACU, La Trobe, Melbourne, Monash, RMIT, Swinburne
- Japanese: ACU, Ballarat, La Trobe, Melbourne, Monash, RMIT, Swinburne, VUT
- Korean: Monash, Swinburne
- Latin: La Trobe, Melbourne
- Polish: Monash
- Russian: Melbourne, Monash
- Sanskrit: La Trobe
- Spanish: La Trobe, Melbourne, Monash, VUT
- Swedish: Melbourne
- Thai: Monash
- Turkish: Deakin
- Ukrainian: Monash
- Vietnamese: Monash, RMIT, VUT

Students wishing to undertake complementary studies should first seek approval from their home institution and then contact the host institution for an application form.

Youth Allowance/Austudy
Generally Youth Allowance/Austudy provides financial help, on an income and asset test basis, to students who are studying approved secondary or tertiary programs.

Application forms and information can be obtained from all Centrelink offices and from the University’s Housing, Part-time Employment, and Finance Office.

Students applying for Youth Allowance/Austudy are required to provide details of their HECS load as calculated by Swinburne. The Confirmation of Enrolment provided to each enrolling and re-enrolling student gives details of this HECS load. Enquiries should be directed to the appropriate School Office.

Students must submit a new calculation of the HECS load (which will be provided by the Division) if their load changes after any Amendment to Enrolment. Students should be aware that a change from full-time to part-time status may affect their Youth Allowance/Austudy entitlement.
HET550 Design and Development Project 1

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: Nil • Assessment: Assignments; Examinations; Pracs

A subject in the BEng (Electrical & Electronic Engineering), BAppSc (Computer Science & Software Engineering) / BEng (Telecommunications & Internet Technologies), BEng (Mechatronics & Networks), BEng (Electrical & Electronic Engineering) / BArts, BEng (Electrical & Electronic Engineering) / BBus, BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering) and BMultimedia (Networks & Computing) / BEng (Telecommunications & Internet Technologies).

Content

Students are expected to select a project from a list prepared by academic staff, or students may suggest their own topic based on an individual interest or arising from their period of Industry Based learning.

The project may be university or industry based. It may take various forms in which technology, research and development, experimental work, computer analysis, industry liaison and business acumen vary in relative significance. It is expected that the project will involve a substantial software development component. Students are expected to conduct literature surveys, to investigate probable solutions, prepare designs, analyse, and where appropriate, implement and test designed products and processes.

Recommended reading

As recommended by the supervisor to support the student’s project.

HET556 Design and Development Project 2

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: EE456, EE458, EE459 • Assessment: Assignments; Examinations; Pracs

A subject in the BEng (Electrical & Electronic Engineering), BAppSc (Computer Science & Software Engineering) / BEng (Telecommunications & Internet Technologies), BEng (Telecommunications & Networks), BEng (Electrical & Electronic Engineering) / BArts, BEng (Electrical & Electronic Engineering) / BBus, BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering) and BMultimedia (Networks & Computing) / BEng (Telecommunications & Internet Technologies).

Aims and objectives

To develop skills in planning and completing a major project relevant to the course of study; to develop skills in preparing a major project report; to apply knowledge acquired during the course; to develop an individual ability to pursue an engineering objective; and to prepare and present a professional seminar on the project.

Content

Students are expected to have selected a project during Final Year Project 1. The project may be university or industry based. It may take various forms in which technology, research and development, experimental work, computer analysis, industry liaison and business acumen vary in relative significance. It is expected that the project will involve a substantial software development component.

Students are expected to investigate probable solutions, prepare designs, analyse, and where appropriate, implement and test designed products and processes.

Recommended reading

As recommended by the supervisor to support the student’s project.

HET559 Power Electronics

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: HET225 Electrical Machines • Corequisites: HET489 Robotic Control • Teaching methods: Lectures, tutorials, and laboratory work • Assessment: Assignments; Examinations; Labs

A subject in the BEng (Electrical & Electronic Engineering).

Aims and objectives

To study the characteristics of modern semiconductor power electronic devices for best selection to a certain application. To study the application of power electronic circuits in the fields of AC and DC drives, power generation and transmission and energy conservation.

Content

Introduction. A revision of power semiconductor devices in the transistor; thyristor and hybrid families. Driver and trigger circuits for power devices;

Protection of power semiconductor devices. A revision of the principle of pulse width modulation and its advantages. Switched mode power supplies;

Machine Drives. A detailed study of modern AC and DC variable speed electrical machines drives. Calculation of component ratings, power factor, utilisation factor, retrieval of energy etc. for a given application. Principle of regenerative braking;

Application and implementation of closed loop control to machine drives;

Power Generation and Transmission. A review of alternators and power systems;

The application of power electronics modern alternator field control and in transmission of power including DC transmission. The superposition of information transmission on power lines; and

Energy Conservation. Solar energy and other sources of energy. Battery technology as applied to the storage of electrical energy. The application of semiconductor inverters including uninterruptable power supplies to battery sources.

Recommended reading


Leonhard, W., Control of Electrical Drives, Springer-Verlag, 1985

HET602 Exploring the Solar System

12.5 Credit Points • 1 Semester • Prerequisite: Nil • Teaching methods: This unit will be presented in online delivery mode, with course material available via CDROM and Internet links, and contact via newsgroup and email • Assessment: Group Work; Projects


Aims and objectives

To provide an introduction to our solar neighbourhood and the challenges of extraterrestrial exploration. The emphasis will be on conceptual astronomy, not mathematical techniques.

Content

Star gazing, Star trails, the planets as wanderers; Modelling the formation of the Solar System; Lunar orbit, phases, synchronous rotation, the tides, The Earth, Modelling its evolution, observing the Earth; Space missions to the Moon, lunar surface characteristics & interior; Mercury, Venus and Mars; Planets as habitats; Space missions to the Gas Giants, exploring the Asteroid Belt; Jupiter and the other Jovian planets - Saturn, Uranus & Neptune; Major Satellites, minor satellites & rings of the Jovian planets; Pluto, Charon & the Plutons, the Kuiper Belt; Comets & the Dirty Snowball Model, Solar System Debris & its Effects on Earth; The Sun, its structure, the Sun as nuclear powerhouse & solar dynamo; Solar activity and its effects on Earth.

Recommended reading


HET603 Exploring Stars and the Milky Way

12.5 Credit Points • 1 Semester • Prerequisite: Nil • Teaching methods: This unit will be presented in online delivery mode, with course material available via CDROM and Internet links, and contact via newsgroup and email • Assessment: Assignments; Group Work


Aims and objectives

To provide an introduction to the birth, life and death of stars and the structure of our galaxy. The emphasis will be on conceptual astronomy, not mathematical techniques.

Content

The bulk properties & structure of the Sun; Distance, magnitudes, colours and spectral types of the stars; Binary star systems and masses of the stars; Gas, dust and nebulae and the birth of stars.

Evolving onto the Main Sequence; Life on the Main Sequence, lifetime and mass-luminosity relations; How a 1 solar mass star evolves off the main sequence; Red giants and variables, planetsaries and white dwarfs Supernovae, supernovae remnants and creation of the elements; Neutron stars and pulsars, millisecond pulsars; Noveae, CVs and supernova type I’s; X-ray astronomy, black holes; Globular clusters, the structure of the Milky Way, the galactic centre; Merging matter and brown dwarfs The search for extra-solar planets; The search for extraterrestrial intelligence.

Recommended reading


HET604 Exploring Galaxies and the Cosmos
12.5 Credit Points  •  1 Semester  •  Prerequisite: HET603 and Introductory Tertiary-Level Mathematics & Physics or (or Equivalents)  •  Teaching methods: This unit will be presented on on-line delivery mode, with course material available via CDROM and internet links, and contact via newsgroup and e-mail  •  Assessment: Assignments; Group Work; Projects

Aims and objectives
This unit is designed to provide an introduction to galaxies & galaxy clustering, theories of dark matter, galactic evolution and introductory cosmology.

Content

Recommended reading
Fix, J.D. Astronomy: Journey to the Cosmic Frontier, McGraw-Hill, 2nd edition, 1999

HET605 Theories of Space and Time
(Not running in 1999)
12.5 Credit Points  •  1 Semester  •  Prerequisite: HET603 & HET604  •  Teaching methods: This unit will be presented in online delivery mode, with course material available via CDROM and internet links, and contact via newsgroup and email  •  Assessment: Assignments; Group Work

Aims and objectives
This unit provides a general introduction to the theories of Special and General Relativity and to Cosmology.

Content
Galilean relativity, the Michelson-Morley experiment, Einstein's relativity postulates, Lorentz transformations, length contraction and time dilation, the space-time 4 vector, Minkowski Diagrams, Simultaneity & causality, the relativistic Doppler Effect, redshifts. Relativistic momentum and energy, rest mass, mass-energy equivalence. The energy-momentum invariant, general energy-momentum conservation law, relativistic collisions Gravitation and curvature of space, covariance and equivalence, Physics in curved spacetimes, the cosmological principle, metrics, coordinates, Einstein's field equations, gravitational radiation, Schwarzschild geometry & black holes, pre-relativistic cosmology, cosmological principles, Olber's paradox, the Cosmic Microwave Background, the Big Bang theory, Friedman & de Sitter cosmologies, nucleosynthesis, cosmology & particle physics, dark matter, cosmic inflation, galaxy formation.

Recommended reading
Roos, M. Introduction to Cosmology, Wiley, 1994

HET606 Tools of Modern Astronomy
(Not running in 1999)
12.5 Credit Points  •  1 Semester  •  Prerequisite: HET603 & HET604  •  Teaching methods: This unit will be presented in online delivery mode, with course material available via CDROM and internet links, and contact via newsgroup and email  •  Assessment: Group Work; Projects

Aims and objectives
This unit is designed to provide a familiarity with and understanding of the basics plus latest developments in the design and use of telescopes and detectors, applied to amateur optical astronomy and professional astronomy at all wavelengths. The principles involved in the design and deployment of space probes and their associated instrumentation are also investigated.

Content
The electromagnetic spectrum, the eye as an optical instrument, refracting & reflecting telescopes, principles of telescope mount & housing design, telescope control systems, astrophotography, photometry, filters, colour magnitudes & colour indices, CCD imaging, optical spectroscopy, infrared astronomy, high-energy astronomy, neutrino astronomy, gravity wave detectors, single-dish radio telescopes, principles of radio & microwave receivers, correlators, precision timing techniques, radio interferometry; data analysis, radar astronomy, space exploration, strategies used to search for signs of extraterrestrial life, detecting extra-solar planets.

Recommended reading
Lena, P. Observational Astrophysics, Springer-Verlag, 1988
- Multivariate analysis of variance;
- Analysis of change;
- Analysis of change; and
- The critical review of statistical designs and analytical techniques.

**Recommended reading**

**HET631 Psychophysiology**

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: SEJ231/HET231 and SF528/HET528 • Teaching methods: Lectures, Tutorials, Seminars • Assessment: Assignments; Examinations; Tests

**Aims and objectives**
- Provide an understanding of the psychophysiology of emotional processes, the affective and anxiety disorders, schizophrenia, and the processes of normal and abnormal aging.

**Content**

**Emotional Processes**
Psychophysiological correlates of emotional processes.

**Psychopathology**
Psychophysiology of affective disorders, anxiety disorders, somatoform and dissociative disorders, substance abuse and organic disorders.

**Schizophrenia**
Biological factors including biochemical abnormalities and brain imaging studies, information processing abnormalities, behavioural measures, models of the disorder and therapeutic approaches.

**Aging**
Psychophysiology of normal aging in the brain, and in the dementias.

**Recommended reading**

**HET704 Neurophilosophy**

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures and tutorials • Assessment: Examinations; Research Paper
A subject in the Bachelor of Applied Science Honours (Psychophysiology).

**Aims and objectives**
To critically evaluate the case for mental states being comprehensible in terms of neurobiological states.

**Content**
Introduction to the Philosophy of Science: Logical Empiricism, Falsificationism, Globalism (non-foundationalism), status and role of theory in the neurosciences.
Introduction to Philosophy of Mind: substance and property dualism, functionalism, reductionism, revisionist materialism as they related to consciousness and free will.
Philosophical Underpinnings of Cortical Localisationism.
Reductionism in the Neurosciences: ontological, methodological, inter-theoretic.
Examples: Process Philosophy: alternatives to ontological reductionism.
Physicalism and Non-computability: Penrose’s reinterpretation of Godel. Algorithmic versus Dynamical.
Paradigms in Neuroscience: Sherringtonian, Conventionalism, Mass Action.
Connectionism and Attractor Neural Networks (ANN): implications of ANN for analysis/description/explanation of cognitive/behavioural states.
Mass Action: The neural dynamics of the mammalian olfactory bulb.
Metaphysics and Science: relationship of metaphysics to science. Utility of metaphysical concepts in the Neurosciences.

**Recommended reading**
- Chalmers, A.F. *What is this Thing Called Science*. UQP, St Lucia, Qld., 1982
- Chalmers, A F. *What is this Thing Called Science*. UQP, St Lucia, Qld., 1982

**HET722/HET822 Research Thesis**
HET722 = 25 Credit Points, HET822 = 37.5 Credit Points • Two Semesters • Assessment: Literature review; Statistical design; Thesis (10,000 words) • Teaching Method: Supervision; References

**Aims and objectives**
To provide students with the skills and knowledge necessary to design, execute and conduct independent research within the area of psychophysiology.

**Content**
In collaboration with primary and associate supervisors students should:
- Define a general research area within psychophysiology.
- Conduct a thorough literature review that provides a complete background of the research area and provides theoretical support for the hypothesis under investigation.
- Design an experiment or set of experiments to test the hypothesis with regard to the statistical methodology that will be used to analyse the data collected.
- Consider the ethical implications of the experiment and submit applications for consideration by the institutional ethics committee.
- Execute the experiment and analyse the data.
- Write a thesis which gives detail about all stages of the research process and which considers the consequences of the experiment.

**HET738 Neuropsychology Methods**

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures & Tutorials • Assessment: Case Studies & Examinations
A subject in the Bachelor of Applied Science Honours (Psychophysiology).

**Aims and objectives**
To examine issues in physiological psychology and neuropsychology.

**Content**
- Methods in neuropsychology;
- Frontal lobes structure, function and disorders associated with damage;
- Parietal lobes structure, function and disorders associated with damage;
- Temporal lobes structure, function and disorders associated with damage;
- Occipital lobes structure, function and disorders associated with damage;
- Hemispheric asymmetry and related asymmetries in cognition;
- Biological basis of mood disorders; and
- Biological basis of schizophrenia.

**Recommended reading**

**HET740 Project Management and Research Methods**

12.5 Credit points • Hawthorn • Prerequisite: Nil • Assessment: assignments; projects and class participation

**Aims and objectives**
By the end of the subject, the students will be able to:
- Understand how to approach a research and development problem at philosophical and practical levels, with emphasis on planning, budgeting, scheduling and monitoring;
- Know how to use standard statistical methods and computer packages relevant to their research and development needs;
- Critically review representative research in their respective fields, and;
- Write research and development reports that satisfy all referencing, organisation and presentation standards for publication, using available document preparation computer packages.
Subject Details

HET750 Communication Systems

12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: HET752

Aims and objectives
To develop an understanding of basic communications principles and techniques.

Content
- Electrical/electromagnetic elements of communication;
- Spectrum, bandwidth, filtering and noise concepts;
- Spectral analysis, time and frequency domains;
- Signal transmission: transfer functions, amplitude, phase, frequency, hybrid;
- Digital modulation basics;
- Noise effect in modulation systems, detection performance;
- Transmission lines;
- Antennas; and
- Fiber optics.

Recommended reading
Haykin, S.  An Introduction to Analogical Digital Communications, Willey, N.Y., 1989

HET751 Telecommunication's Networks: Design and Management

12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: HET754

Aims and objectives
To develop an understanding of the engineering of telecommunications networks, and proficiency in the use of network simulation as a design and evaluation methodology.

Content
- PSTN analogue switched network, FDM, long haul links;
- digital transmission basics: sampling, quantising, companding, PCM, framing, TDM, transmission hierarchies, synchronisation;
- circuit switching; setting up and clearing calls;
- teletraffic theory, traffic carrying capability, GoS, dimensioning of networks;
- network simulation (OPNET);
- traffic monitoring and forecasting;
- network traffic control;
- network transmission planning;
- signalling, CCITT No. 7.

Recommended reading
OPNET manuals

HET752 Digital Communications

12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: HET757

Aims and objectives
To develop an understanding of basic communications techniques used in modern digital transmission systems.

Content
- Baseband and Passband modulation and demodulation, and error rates due to noise;
- Modulation of sequences;
- Data transmission error protecting codes;
- Digital modulation codes;
- Synchronisation; and
- Robustness and diversity.

Recommended reading
Blahut, R.E.  Digital Transmission of Information. N.Y., Addison-Wesley, 1980

HET754 Broadband Multimedia Networks

12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: HET751

Aims and objectives
The aim of this subject is to explore the key ideas of the emerging high speed broadband networks, and the mixed services and traffic types they carry. The significance of broadband capability is explored, together with its promises and difficulties, including some important unsolved problems.

Content
The changing role of telecommunications - computers, networks and applications; multimedia services, quality of service expectations, traffic models and their behaviour, statistical multiplexing, multiplexing gain, effective (statistical) bandwidth, SONET/SDH - capabilities and mode of transport; packet switching, frame relay, cell relay; ISDN and frame relay cell networking and asynchronous transfer mode; switch architectures and performance; internetworking protocols; customer access networks - competing technologies and their performance; call admission control, traffic shaping, congestion control, ABR and adaptive sources; flow setup and point to point routing, reliable multicast; mirroring, caching and proxies in the internet; approaches to guaranteeing quality of service on the internet; and distributed gigabit computing on LAN’s and WAN’s.

Recommended reading

HET757 Personal and Mobile Communications

12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: HET752

Aims and objectives
- Understand and use common mobile communications terminology;
- Explain the behaviour of mobile communications systems and techniques;
The student is instructed in methodical approaches to the researching, analysis, specification and implementation of solutions to that engineering task, and then embarks on the research, analysis, specification, implementation, evaluation and reporting of the project solution. The student consults regularly with the project supervisor, and produces a formal project report.

**HET783 Digital Signal Processing Systems Engineering**

**Aims and objectives**

To present the principles of power spectrum estimation, adaptive filtering, array processing and discuss their applications in geophysics and oil exploration, biomedicine, speech, echo cancellation and equalisation of telephone channels.

**Content**

- Definition of power spectrum, conventional spectrum estimation methods;
- Maximum likelihood method of Capon, maximum entropy method;
- AR and ARMA spectrum estimation, harmonic decomposition;
- Adaptive linear combiner;
- Adaptation with stationary signals, gradient estimation;
- Adaptive algorithms and structures;
- Adaptive modeling, system identification, deconvolution, equalisation, adaptive interference cancellation and array processing.

**Recommended reading**

IEEE Transaction on Information Technology
IEEE Transaction on Signal Processing

**IM101 Introduction to Complementary Medicine**

**Aims and objectives**

To introduce the principles of complementary/integrative medicine plus the purpose and content of the course.

**Content**

- What is complementary/integrative medicine?
- The purpose of complementary/integrative medicine
- The politics and economics of medicine
- How to run a complementary/integrative medical practice

**Recommended reading**

B.M.A. Complementary Medicine, Oxford University Press, Oxford 1993
Archer J., Bad Medicine, Simon and Schuster Aust. 1995
Moinihan, R., Too Much Medicine, ABC Books, 1998

**IM102 Introduction to Nutritional and Environmental Medicine**

**Aims and objectives**

To introduce the principles of nutritional and environmental medicine plus the purpose and content of the course.

**Content**

- The science of nutrition and environmental medicine
- The role of nutrition in disease prevention and treatment
- The relationship between nutrition and the environment
- The effects of environmental pollutants on human health

**Recommended reading**

B.M.A. Complementary Medicine, Oxford University Press, Oxford 1993
Archer J., Bad Medicine, Simon and Schuster Aust. 1995
Moinihan, R., Too Much Medicine, ABC Books, 1998
Aims and objectives
The emphasis in this subject will be to introduce the principles of nutritional and environmental medicine and its potential for practical application to common clinical problems.

Content
The following gives an outline of topics covered in this subject:

- Diet and prevention of disease;
- Nutrients - macro and micro;
- Nutrients - micro in including phytochemicals and their role in the treatment of specific diseases;
- Food sensitivity; Environmental chemicals and disease;
- Environmental triggers in toxicology; Illness;
- Nutritional aspects of coronary and other arterial disease;
- Antioxidants;
- Nutrients in the cause and treatment of cancer;
- Nutritional management of diabetes including hypoglycaemia;
- Nutritional aspects of men's health;
- Nutritional aspects of women's health;
- Nutritional aspects of paediatric disorders;
- Gastrointestinal disease including gut ecology;
- Neurological disorders including headache and migraine;
- Management of heavy metal toxicity;
- Nutritional aspects of behavioural problems including eating disorders, neurosis and psychosis;
- Osteoporosis, arthritis and back pain;
- Geriatric problems including dementia;
- Four hour clinical demonstration.

Recommended reading

IM202 Introduction to Musculoskeletal/Physical Medicine and Sports Medicine
20 credit points  5 contact hours per week  8 weeks  Hawthorn  Prerequisites: Nil
Teaching Method: Lectures/Tutorials, clinical demonstrations, journal review, distance education (including clinical intensives)  Assessment: Continuous assessment and final examination
A subject in the Graduate Certificate/Diploma of Integrative Medicine

Aims and objectives
Basic information relating to musculoskeletal/physical medicine to be presented as well as an introduction to clinical methods. Introduction to the physiology of exercise and the management of sports injury including the health benefits of exercise.

Content
Emphasis on diagnosis of musculoskeletal problems through history and examination followed by mobilization and manipulation techniques. These topics will be covered:

- Review of the history of musculoskeletal/physical medicine and basic anatomy;
- Diagnostic approach to musculoskeletal/physical medicine;
- Mobilization and manipulation in general;
- Mobilization and manipulation of the spine;
- Mobilization and manipulation of the limbs;
- Mobilization and manipulation of sports and work-related injury;
- Preventive aspects of musculoskeletal/physical medicine;
- Writing medical reports;
- Clinical sessions.

Emphasis on benefits of exercise including factors that enhance performance. The basics of sports injuries and their management will be included. Topics will include:

- History and sociology of exercise/sports;
- Exercise physiology;
- Nutrition and sports performance;
- Exercise psychology and promotion of exercise;
- Exercise prescription in prevention and treatment of disease; S
- Sports medicine - contact sport;
- Sports medicine - non-contact sport;
- Sports medicine - in children

Recommended reading
Kenna C., Murtagh J., Back pain and spinal manipulation. A practical guide, Butterworth 1989
Wolinska I., Hickson J., Nutrition in exercise and sport, CRC, Ann Arbor, 1995

IM203 Introduction to Acupuncture
10 credit points  5 contact hours per week  4 weeks  Hawthorn  Prerequisites: Nil
Teaching Method: Lectures/Tutorials, clinical demonstrations, journal review, distance education (including clinical intensives)  Assessment: Continuous assessment and final examination
A subject in the Graduate Certificate/Diploma of Integrative Medicine

Aims and objectives
Principles of acupuncture and introduction to its clinical application.

Content
The following topics will be presented:

- Introduction to acupuncture including its history and relationship to traditional Chinese medicine theory;
- Physiological mechanisms of acupuncture;
- Acupuncture meridians - their pathways and points;
- Acupuncture techniques;
- Acupuncture for analgesia;
- Acupuncture for the treatment of other diseases;
- Four hour clinical demonstration.

Recommended reading

IM204 Introduction to Herbal Medicine
10 credit points  5 contact hours per week  8 weeks  Hawthorn  Prerequisites: Nil
Teaching Method: Lectures/Tutorials, clinical demonstrations, journal review, distance education (including clinical intensives)  Assessment: Continuous assessment and final examination
A subject in the Graduate Certificate/Diploma of Integrative Medicine

Aims and objectives
Principles of herbal medicine and their role in the treatment of specific disease.

Content
An overview of the various herbs that have been scientifically shown to be useful in the prevention and treatment of illness. The following topics will be presented:

- The development of herbal therapies in traditional Chinese medicine, Ayurvedic and western medicine;
- Introduction to available herbs and their properties including toxicology;
- Role of herbal therapies in the prevention of disease;
- Role of herbal therapies in the treatment of disease;
- Four hour clinical demonstration.

Recommended reading
Mawrey D., The Scientific Validation of Herbal Medicine, Keats, New Canaan 1990:86
Werbach M., Murray M., Botanical Influences on Illness, 3rd Line Press, Tarzana 1994
Daly P., Herbal Medicines, Kyle Cathe 1996
**IM205  Introduction to Mind/Body Medicine**

20 credit points • 5 ccw • 8 weeks • Hawthorn • Prerequisites: Nil
- Teaching Method: Lectures/Tutorials, clinical demonstrations, journal review, distance education (including clinical interviews)
- Assessment: Continuous assessment and final examination

A subject in the Graduate Certificate/Diploma of Integrative Medicine

**Aims and objectives**

Emphasis will be on the importance of the brain and how it conducts the body mechanisms. To demonstrate the role of the mind in disease mechanisms. Introduction to relaxation techniques.

**Content**

These topics will be presented:
- Description of neural + hormonal and other transmitters between the brain and the body;
- What is mind/body medicine?
- The anatomy and physiology of mind body connections;
- Stress, emotions and influence on health and disease;
- Mind and its influence on immunity, hormones, growth factors and genes;
- Mind and vascular disease;
- Mind and cancer;
- Mind and other diseases;
- Mind in treatment and prevention of disease;
- Mental relaxation including meditation, yoga, hypnosis, autogenic training, imagery, bio feedback and group support;
- Clinical sessions.

**Recommended reading**


Gawler I., You Can Conquer Cancer, Hill of Content, Melbourne, 1984

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**IR501 Manufacturing Enterprise Concepts**

12.5 credit points • Hawthorn • Prerequisites: must satisfy course entry requirements
- Assessment: exam and assignments

**Aims and objectives**

To introduce students to the organisational and operational aspects of an industrial enterprise

**Content**

- An overview of modern manufacturing operational and management concepts
- Basic supply chain concepts covering demand planning, production environments and supply issues

**Recommended reading**

Basic of Supply Chain Management - APCS material APCS Dictionary 8th ed 1995


Vickery M., Operations Management Concepts in Manufacturing and Services - Davis, ITP 1997


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**IR502 Manufacturing Systems**

12.5 credit points • Hawthorn • Prerequisites: must satisfy course entry requirements
- Assessment: exam and assignments

**Aims and objectives**

To enable students to identify and understand the various manufacturing technological approaches that are commonly used within modern manufacturing enterprise. To provide an introduction to current engineering best practices.

**Content**

- Manufacturing processes
- Concurrent Engineering
- Computer Aided Design
- Flexible Manufacturing Systems
- Robotics & Automation
- Process Control
- Expert Systems
- Simulation
- Sensors
- Holonic Manufacturing Systems
- Concepts of mission critical requirements

**Recommended reading**


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**IR601 Process Improvement**

12.5 credit points • Hawthorn • Prerequisites: must satisfy course entry requirements
- Assessment: assignments

**Aims and objectives**

To introduce students to the various aspects of process improvement and issues associated with Change Management.

To provide understanding of the meaning, measurement and management of productivity and quality

**Content**

Cover methodologies such as:
- Productivity concepts and definition
- Quality concepts and definition
- Performance measurement
- Mathematical models and benchmarking concepts
- Issues related to change management
- Introduction to team dynamics

**Recommended reading**


Kaydos W., Measuring, Managing and Maximising Performance, Productivity Press, 1991


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**IR602 Enterprise System Concepts**

12.5 credit points • Hawthorn • Prerequisites: basic computing, networking and programming
- Assessment: exam and assignments

**Aims and objectives**

Introduce students to major components and concepts within enterprise systems, including the architecture overview of major ERP systems.

**Content**

- Architecture Overview of Enterprise systems
- Introduction to configuration of Enterprise Systems

**Recommended reading**

Compiled lecture notes and reference manuals supplied by system vendors

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**IR603 Implementing Enterprise Systems**

12.5 credit points • Hawthorn • Prerequisites: basic computing, networking and programming
- Assessment: Assignments

**Objective**

To enable students to study and understand the typical implementation process of an enterprise system
**Content**
- Overview of major components and tasks within the implementation process
- Typical issues related to the implementation process
- Case studies of implementation using SAP/JDE/Visual Manufacturing within manufacturing enterprise

**Recommended reading**
Compiled lecture notes and reference manuals supplied by system vendors

**IR604 Factory Communication and Interfacing**
12.5 credit points • Hawthorn • Prerequisites: basic computing, networking and programming • Assessment: exam and assignments

**Aims and objectives**
To provide a theoretical background within the field of factory communication and interfacing. To develop practical programming skills in the area of interfacing production equipment within the factory environment

**Content**
- Computers and Controls within manufacturing
- Principal of data communication
- Serial data communication
- Data Acquisition
- Wireless communication technologies

**Recommended reading**

**IR701 Project**
25 credit points • Hawthorn • Prerequisites: Completion of 2 approved Level 2 subjects • Assessment: Written report and presentation

**Aims and objectives**
To allow students to undertake a special project to apply and develop practical skills based on the knowledge gained from earlier subjects.

**Content**
Students will work on an approved project (practical industry based applications) under staff supervision. Beside contributing and participating in the project, student will also usually require a literature survey. Students will present their work experience and research results to staff and students in a school seminar or equivalent.

**Recommended reading**
There is no prescribed text. Students will be directed to appropriate books and journal articles.

**IR702 Minor Thesis**
50 credit points • Hawthorn • Prerequisites: Completion of 4 approved Level 2 subjects • Assessment: written report and presentation

**Aims and objectives**
To provide an opportunity for students to develop analytical, research and report writing skills while exploring a topic in depth

**Content**
Students will work on an approved project under staff supervision. Projects will require a literature survey and a theoretical or experimental investigation. Where appropriate, the projects should be industry sponsored and have direct relevance to the student’s area of employment.

There will be a requirement for formal monthly reporting by the candidates, both oral and written throughout the project. Failure to meet satisfactory standards of progress may preclude final submission for the Masters degree. Students will present their research results to staff and students in a school seminar or equivalent. The thesis will be examined by at least two examiners.

**Recommended reading**
There is no prescribed text. Students will be directed to appropriate books and journal articles.

**IT302 Organisation Behaviour (OB)**
Hawthorn • Prerequisite: IT105 Behaviour and Communication in Organisations • Assessment: Assignments, Group Project, Test

A Bachelor of Information Technology subject studied at the end of 1st year, during the Summer Semester.

**Aims and objectives and objectives**
It enables students to learn how to apply the theory and skills of organisation behaviour and to transfer that learning into information systems contexts.
- to enable students to develop a perspective which demonstrates the place of IS departments in the total organisation;
- to give an understanding of themselves, their impact on others and of the way others influence their behaviour;
- to allow students to experience the satisfactions and difficulties inherent in working in groups;
- to learn behavioural skills applicable to IS environments to be able to analyse and provide solutions for people/technology problems;
- to enable students to make sense of interdepartmental relations and suggest some ways of overcoming intergroup conflict;
- to apply OB knowledge to and further learn from industry based learning experiences.

**Content**
Organisational socialisation; theories of managing people; motivation; personal growth; career development; group dynamics and team performance; managing multigroup work; leadership; organisation culture and change; power and influence; managing presentations.

**Recommended reading**
To be advised.

**IT509 Software Engineering 1**
10 credit points • 4 Hours per week • Hawthorn • Prerequisite: Nil • Assessment: Assignment and Exam

A second year subject in the Bachelor of Information Technology. This subject compliments IT501 by concentrating on managing software and development and on the latter stages of the software lifecycle, particularly design.

**Aims and objectives**
- To develop an understanding of the basic problems which are encountered in the development and maintenance of computer software and the current tools and techniques which are used by industry to overcome these problems.
- Students develop management and design documentation and experience working as a member of a software project team.

**Content**
The software life cycle, human factors, planning tasks, resource allocation, structured design, object oriented design, interface design and evaluation, implementation, testing and maintenance.

**Recommended reading**
Sommerville, I., Software Engineering, Wokingham, UK, Addison Wesley

**IT590 Information Technology for Management**
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Assessment: Continuous

A subject in the core of the Master of Business Administration and is required to complete the Graduate Diploma of Business Administration.

**Aims and objectives**
To examine the relationship between information and technology, and its organisational context. Students will study the ways in which information technology can be used for competitive advantage and planning methods which integrate information systems and business strategies. The role of an information system as part of an overall business plan will be examined and associated costs, benefits and risks will be considered. At the end of the course the students will be able to:
- understand the way that managers think and work and the need for computer systems to improve their effectiveness in decision making;
- justify effectiveness the need for careful analysis, risk assessment and control procedures suitable for different system approaches;
- understand the role of information technology and the need to achieve alignment between IT and corporate strategy
Content
- Information systems theory.
- Decision support systems.
- Information systems issues for management.
- Information systems planning network.
- The organisational role of end user computing.
- Aligning IT with business strategy.
- Quality and risk strategies.

Recommended reading

IT804 Computing and the Human Context
Hawthorn • Prerequisite: satisfactory completion of segments one to seven; • Assessment: Examination/Assignment.
A Bachelor of Information Technology subject studied at the end of 3rd year, in Summer Semester.

Aims and objectives
- To guide students to analyse the effects of computers in society.
- To formulate and justify opinions on pertinent social, legal and ethical issues.

Content
A selection from
- Social implications of computer applications in an information society.
- Impacts of information technology on workplace and organisations.
- Human issues effects of standardisation.
- The nature of values, leisure and technology.
- Social issues within the computer industry.
- Professionalism, codes of conduct, codes of practice.
- The copyrights of software and hardware.
- Surveys about computers, technological change and forecasting.
- Privacy and security issues.
- Computer crimes and fraud.
- Societal issues and perspectives.
- Information systems in economic development.
- Goals in computer usage, motivating forces, computers in developing countries.
- Computers and the arts.
- Mind and machines.
- User liaison strategies.

Recommended reading

IT1004 Business Applications and Systems 1
12.5 Credit Points • one semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
Teaching methods: Lecture: 1 hour per week. Tutorial/Laboratory: 1.5 hours per week. Assessment: Assignments; Case Studies; Examination Pracs; Research Paper; Tutorials

Aims and objectives
- To introduce various types of information systems and their importance in organisations.
- To examine the use of computers in accounting information systems, other transaction processing systems, and management information systems.
- To introduce the component parts of common business applications such as inventory, accounts receivable and accounts payable.
- To give students skills in using some personal computer productivity tools.

Content
- Introduction to Information Systems (including types of information systems).
- Transaction processing cycle in business.
- Problem analysis.
- Information systems documentation: flowcharts, data flow diagrams.
- Transaction reporting: format and design.
- Information systems: OE (Order Entry), Inventory, A/C Receivable, A/C Payable, General Ledger.
- Technology-related and application controls.
- Other types of systems: Electronic Commerce, personal and group productivity management support systems, data integration, enterprise systems.

Recommended reading
Sala, P., Excel 4 or 5 for Windows/LOTUS 1-2-3 Course Guide, from SUT bookshop.

IT1005 Business Applications and Systems 2
12.5 Credit Points • one semester • Hawthorn • Prerequisite: IT1004 • Corequisites: Nil
Teaching methods: Lecture: 1 hour per week. Tutorial: 1.5 hours per week. Lab: 1.5 hours per week. Assessment: Assignments; Examinations

Aims and objectives
- To examine the relationship and distinction between different types of application systems within the business environment, with major emphasis on computer-based information systems.
- To explore in detail typical business systems, including those using spreadsheets, DBMS, EIS and MIS software.
- To examine strategies for the management of technology within a business environment.

Content
- Database management concepts, file concepts and reporting using a PC based database management system.
- Systems development concepts, packages versus tailored software, systems life cycle, prototyping, and professional development versus user development.
- Internal controls developing effective internal controls and audit trails.
- Justification and selection of systems.
- Production systems: job cost, bill of materials.
- Systems implementation, operation and maintenance.
- Types of application systems: transaction - general purpose and vertical market, decision support and expert systems - examination of the necessary hardware, software and people resources required.
- Data transportability: PC-mainframe links, PC to PC links, integrated software.
- Case study presentations.

Recommended reading

IT1009 Business Programming 1
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
Teaching methods: Lecture/ tutorial/ laboratory • Assessment: Assignments; Examinations

Aims and objectives
To introduce students to the programming concepts most widely used in business and organisational computing.

Content
- An overview of modern business computing: the context, the structure, declarative and event driven approaches.
- An introduction to object oriented programming.
- An introduction to the structured programming approach including sequence, selection and iteration. Students will be exposed to these ideas through examples drawn from a selected programming language.

Recommended reading


**IT1015 Computer Systems**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lecture: 2 hours per week. Laboratory: 1 hour per week • Assessment: Assignments; Examinations

**Aims and objectives**

Computer Systems is a core subject in all Computer Science degrees providing a general introduction to the hardware and software in today's computer systems. It aims:

- to introduce the fundamental concepts of computer systems;
- to introduce the DOS, UNIX and Windows environments.

**Content**

- functions and components of computers;
- history of computing;
- data representation;
- computer logic;
- hardware;
- software;
- secondary storage and input/output devices;
- the UNIX operating system;
- UNIX file management;
- UNIX commands and filters;
- data communications;
- emerging technology;
- security and ethics;
- the internet;
- DOS and Windows.

**Recommended reading**


**IT1025 Introduction to Information Systems**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lecture/tutorial/laboratory • Assessment: Assignments; Examinations

**Aims and objectives**

- to give students a broad understanding of information technology in the business environment;
- to develop an awareness of how computers are used to solve business problems;
- to endow students with strong practical skills in current microcomputer software, which will be of immediate benefit in other units, and of later use in their careers;
- to provide a firm basis for later computing units.

**Content**

- management needs and information technology solutions;
- information systems;
- fundamentals of computing;
- hardware & software;
- data communications;
- artificial intelligence;
- security;
- word processing (to advanced level);
- spreadsheets (good design & practice);
- database (theory & practice);
- internet (theory & practice).

**Recommended reading**


**IT1031 Introduction to Software Engineering**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT1051 • Corequisites: IT1052 • Teaching methods: Lectures: 2 hours per week Tutorials: 1 hour per week • Assessment: Assignments; Examinations

**Aims and objectives**

- to introduce the basic problems that are encountered in the development of software in a small team environment;
- to examine some of the current techniques and tools which are used by industry to address the above problems;
- to allow students to experience the preparation of systems development documentation, working as members of small (2-4 person) teams using an object-oriented development perspective.

**Content**

- What is software engineering?
- The software development lifecycle;
- Techniques for requirements elicitation;
- Software Design as an incremental, iterative process;
- Computer aided software engineering (CASE);
- Software defect management, including defect identification and fault detection;
- Software Validation and Verification.

**Recommended reading**


Graham, I., Migrating to Object Technology, Addison-Wesley, 1995


Schach, S., Software Engineering with Java, Ivin, 1997

**IT1046 Professional Skills for Software Engineers**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT1051 • Corequisites: IT1052 • Teaching methods: Lecture: 1-2 hours per week Tutorial: 1 hour per week • Assessment: Assignments; Examinations

**Aims and objectives**

This is a foundational subject for computer science and software engineering degrees providing a general introduction to the context of software development, and the skills needed to function as a professional software developer. It aims:

- to introduce the organisational context of software development;
- to introduce the basic forms of business communication;
- to give students experience in group project work.

**Content**

- communication skills and strategies;
- software development as a team process;
- the role of meetings in software development;
- learning about the organisation and its problems through fact gathering;
- project management;
- documenting software systems;
- organisations as systems and structures;
- introduction to ethics.

**Recommended reading**


Somervaille, I., Software Engineering. 5th Edn., Addison-Wesley, 1998

**IT1051 Software Development 1**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT1051 • Corequisites: IT1052 • Teaching methods: Lecture/tutorial/laboratory • Assessment: Assignments; Examinations
Aims and objectives
- to introduce basic concepts of object-oriented analysis and design;
- to introduce object-oriented programming using Java;
- to study the main features of the software development process in an object-oriented framework.

Content
- the object-oriented world view;
- introduction to object-modelling;
- introduction to implementation of objects and classes;
- contracts: pre and post conditions and assertions;
- control structures;
- input-output;
- event-driven programs;
- introduction to class libraries;
- use of an notation.

Recommended reading
Lewis, J. & Loftus, W., Java Software Solutions, Addison-Wesley, 1998
Allen, R.K., Bluff K. & Oppenheim, A.B., Object-Oriented Software Development 1, 2nd Edn. 1998, Swinburne 1998 (contains lecture notes and laboratory material)

IT1052 Software Development 2
12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT1051 • Corequisites: Nil • Teaching methods: Lecture: 2 hours per week Laboratory/Tutorial: 2 hours per week • Assessment: Assignments; Examinations

Aims and objectives
- to extend and strengthen basic concepts of object-oriented analysis and design;
- to continue and extend object-oriented programming using Java;
- to study the main features of the software development process in an object-oriented framework;
- to study the GUI development process using Java.

Content
- advanced object-modelling;
- the dynamic model;
- Java language and Java system
- the Java awt
- exceptions
- files and streams;
- design principles and design heuristics.

Recommended reading
Allen, R.K. & Creek, M.J, Object-Oriented Software Development 2, Swinburne 1998
Allen, R.K., Bluff, K. & Oppenheim, A., Object-Oriented Software Development 1, Swinburne, 1998

IT2006 Business Computing
12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT1025 • Corequisites: Nil • Teaching methods: Lecture/ tutorial/ laboratory • Assessment: Assignments; Examinations; Tests

Aims and objectives
- to enable students to understand the development process for business systems
- to identify and evaluate technological solutions which my be applied to business problems;
- to consider how such solutions can work with the people within organisations.
- to enhance verbal and written communication skills.

Content
- business computing from the manager’s and user’s point of view
- hands-on exercises to build upon the practical skills gained in earlier subjects,
- the utilisation and evaluation of business packages.
- advanced skills in business software packages.

Recommended reading
A detailed reading guide will be issued for each topic and will include articles from industry journals and newspapers.

IT2010 Business Programming 2
12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT1009 • Corequisites: Nil • Teaching methods: Lecture/ tutorial/ laboratory • Assessment: Assignments; Examinations; Tests

Aims and objectives
- to build on the programming skills and concepts learned in Business Programming 1
- to give students an understanding of sound software engineering principles through programming in structured language within an event-driven environment (currently Visual Basic).

Content
Topics covered include the following:
- program structure
- data structure
- algorithm design
- data validation
- multiple dimension arrays
- subprocedures and functions
- modules and multiple forms
- reporting
- database links and manipulation
- testing
- user defined data types and classes
- Active-X controls

Recommended reading

IT2013 COBOL Programming
12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT1051 or IT1009 • Corequisites: Nil • Teaching methods: Lecture/ tutorial/ laboratory • Assessment: Assignments; Examinations; Tests

Aims and objectives
- to give students a sound understanding of the principles and practice of procedural programming.
- to produce students worthy of immediate hire as trainee programmers in a commercial environment.

Content
- programming process, from problem definition through to program testing;
- importance and philosophy of testing, and designing a testing strategy for a given program specification;
- designing a logical structured solution to a problem using structure charts and pseudocode;
- reading, understanding, modifying and debugging COBOL programs;
- how to design, write, test and document attractive, well-structured programs in COBOL involving - sequential files, indexed files, reports, control breaks, data validation, character string manipulation, tables, arithmetic.
IT2014 Computer Organisaton and Operating Systems

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT2053 • Corequisites: Nil • Teaching methods: Lecture: 2 hours per week Laboratory: 1 hour per week • Assessment: Assignments; Examinations

Aims and objectives
To introduce computer architecture principles and fundamentals of operating systems.

Content
• An overview of computer systems, future trends;
• Computer system performance evaluation methods;
• Instruction set design: RISC vs CISC processors, MIPS, Pentium and Pentium M/MMX instruction set architectures;
• Number representations, computer arithmetic;
• Processor design: datapath and control;
• Memory system design;
• Cache system design, a study of Pentium cache structure;
• Virtual memory design issues: paging and segmentation;
• File systems;
• Process management;
• I/O systems, buses, secondary storage: magnetic discs, CD-ROMs and graphics displays.

Recommended reading

IT2016 Database 1

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT1015 or IT1025 • Corequisites: Nil • Teaching methods: Lecture/ tutorial/ laboratory • Assessment: Assignments; Examinations

Aims and objectives
• to provide a solid theoretical foundation to the fundamentals of database design and database systems development.
• to provide sufficient practical exposure to designing and using database so as to equip students for basic database tasks in industry and government;
• to provide students with experience in the analysis, design and generation of a simple inquiry and update system, using Microsoft Access or ORACLE;
• to give students an understanding of the problem in its context, the need for adequate documentation of the system and management of this data to ensure that the information produced is relevant, accurate and maintainable. Students will use conceptual data analysis methods to produce a logical data model.

Content
• information in the organisation
• the relational data model
• Structured Query Language (SQL)
• functional dependency diagrams
• entity relationship analysis
• client server database technologies
• normalisation of data
• DBMS terminology and concepts
• data integrity

Recommended reading
Eden, P., Entity Relationship Analysis, 3rd Edn., 1997

IT2020 Data Communications

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT1051 • Corequisites: Nil • Teaching methods: Lecture: 2 hours per week Laboratory: 1 hour per week • Assessment: Assignments; Examinations

Aims and objectives
• to introduce the fundamental concepts and components involved in data communications;
• to develop an understanding of communication protocols and computer networks.

Content
• historical evolution of computer communications, standards, codes, introduction to the ISO reference model;
• basic communication principles and terminologies: transmission media, signal types, interface standards;
• protocol basics: error control methods, flow control, link management;
• terminal based networks: statistical multiplexers, concentrators, front-end processors and terminal network protocols;
• local area networks: topologies and access methods, LAN management;
• public data networks: characteristics, packet-switched data networks, circuit switched-data networks, ISDN, standards, wide area networks;
• OSI: the seven layer model, layer interaction, comparison of architectures;
• The Internet: architecture, TCP/IP, services.

Recommended reading

IT2024 Introduction to Human-Computer Interaction

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Introductory Programming, eg. IT1009 or IT1015 • Corequisites: Nil • Teaching methods: Lecture: 2 hours per week Laboratory: 1 hour per week • Assessment: Assignments; Examinations

Aims and objectives
• to introduce the process of user centred system design;
• to introduce the technology of the user interface;
• to introduce the basic underlying theory of interaction.

Content
• What is HCI and why is it needed?
• Human user;
• Performance, behaviour, cognition and social action;
• Interface technology, devices, styles and applications;
• Development paradigms, formal cognitive, participative and usability approaches;
• Up stream usability engineering, task, user and situation analysis;
• Down stream usability-engineering, experimental, interpretive and predictive evaluation;
• Guidelines, standards and metrics;
• Tools, user-interface management systems;
• Groupware and Computer Supported Cooperative Work;
• Organisational issues.

Recommended reading

IT2049 Systems Analysis and Design

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT1015 or IT1025 • Corequisites: Nil • Teaching methods: Lecture/ tutorial/ laboratory • Assessment: Assignments; Examinations

Recommended reading
Bailey E., Cobol Course Notes, SUT, 1998.
Aims and objectives
- to utilise skills learnt in previous units, relating to the analysis, design and implementation of a straightforward transaction processing system, emphasising procedural aspects.
- to extend basic information technology user and data analysis skills to the analysis of business problems with a view ultimately to building of an information system to support the business functions.

Content
- understanding a problem in its business context;
- the tools and techniques the analyst can use in the adequate documentation of the system to ensure that the information produced is relevant and accurate;
- classical and structured tools for describing data flow, data structure, process flow, input and output design;
- modelling organisational data;
- modelling organisation activities;
- setting implementation priorities;
- estimation;
- database design; forms, screen and reports design; process design;
- development strategies;
- implementation and installation;
- evaluation.

Recommended reading

IT2053 Software Development 3
12.5 Credit Points  One semester  Hawthorn  Prerequisite: IT2053  Corequisites: Nil  Teaching methods: Lecture: 2 hours per week  Laboratory: 1 hour per week  Assessment: Assignments; Examinations

Aims and objectives
- to increase skills in O0 analysis, design and programming;
- to present the C language, and its differences from Java.

Content
- Advanced Java
  - Java 1.1 event model
  - threads
  - serialization
  - Java Beans;
- C language
  - fundamentals: intrinsic types, classes and inheritance, console I/O
  - compiler directives, separate compilation, exceptions
  - pointers, references and polymorphism
  - file I/O
  - introduction to templates
  - introduction to operator overloading.

Recommended reading

IT2054 Software Development 4
12.5 Credit Points  One semester  Hawthorn  Prerequisite: IT2053  Corequisites: Nil  Teaching methods: Lecture: 2 hours per week  Laboratory: 1 hour per week  Assessment: Assignments; Examinations

Aims and objectives
- to present the implementation of standard data structures;
- to study the fundamentals of design patterns and software architecture.

Content
- Algorithm complexity;
- stacks and queues, table implementations, trees, heaps and priority queues, graphs;
- generic and standard container classes, using container classes in implementation;
- Object-oriented design patterns;
- Object-oriented frameworks.

Recommended reading
Gamma, E., Helm, R., Johnson, R. & Vissides, J., Design Patterns - Microarchitecture for Reusable Object-Oriented Software, Addison-Wesley, Reading, Mass., 1994

IT2079 Computing for Chemists
12.5 credit points  Hawthorn  Prerequisite: Nil  Assessment: laboratory assignments; examination
A first year subject for students in the Environmental Health and Psychology and Psychophysiology streams of the Bachelor of Applied Science.

Aims and objectives
- Introduce students to computing concepts; provide an appreciation of computer systems, their hardware and software;
- Provide training and insights into a selection of relevant software application packages;
- Provide a brief exposure to programming.

Content
Computer hardware: typical Personal Computer systems, an overview of computer architecture, peripheral devices, communications and up to date means of input and output of data.
Software tools: Operating system commands and their use; relevant application packages such as a word-processor, spreadsheet, database etc.
An introduction to programming in a high-level language, including particular reference to its use in the software packages being studied.

Recommended reading
Manuals or texts referring to Microsoft Windows, Word and Excel.

IT2080 Introduction to Programming
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Nil (non-IT courses only)  Corequisites: Nil  Teaching methods: Lecture: 2 hours per week  Laboratory: 2 hours per week  Assessment: Assignments; Examinations

Aims and objectives
- to introduce imperative programming principles;
- to introduce the C programming language.

Content
- Algorithmic approach to problem solving
- Program design methodology
- C Basics
- The simple data types (int, float, etc.)
- Control of flow
- Arrays
- Functions
- C string handling with standard libraries
- Elementary data structures and data types
- Sequential file I/O
- Common Algorithms - Sorting and Searching
- Pre-processor commands
Recommended reading
(Many other texts using ANSI C are suitable.)

IT2082 Systems Programming
12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT1052 or C Knowledge • Corequisites: Nil • Teaching methods: Lecture: 2 hours per week; Laboratory: 1 hour per week • Assessment: Assignments; Examinations
Aims and objectives
• to study the implementation of the UNIX system by a consideration of a selection of the system calls.
• to study the development of network-aware software.
Content
• low level I/O
• file system access and manipulation
• time under UNIX
• process control
• accessing user information
• signals and interrupts
• interprocess communication and networking
• remote procedure calls (RPC) and distributed computing environment (DCE) services
• I/O to terminals and device control
Recommended reading

IT2100 Industry Based Learning
Hawthorn • Prerequisite: satisfactory completion of the subjects of the first three semesters • Assessment: assignment
A second-year subject in the Bachelor of Information Technology.
Aims and objectives
The objectives of the placement are threefold:
• personal development;
• learning first hand the environment and culture of business/industry;
• development of information technology skills.
Specific objectives are:
• To gain first hand experience of the operation of the information technology environment.
• To extend the learning of the preceding segments of the course.
• To provide an opportunity for personal development and social maturation of the student.
• To address issues which can better be learned from within the industrial environment, such as user liaison and systems security.
• To allow the student to obtain an understanding of the ways in which business organisations function and the context in which they operate.
• To provide a practical basis for further Information Technology and business related studies.
Content
Students will work under the supervision of both an Industrial Supervisor and an Academic Manager. Projects and assignments and participation in the professional activities of sponsors information systems and information technology environments are assessed by the student manager and industry supervisor.
Students will be expected to gain experience in the following areas:

Programming, User Liaison, Systems Design; and to be closely involved with the application of some of the following: Data Base, Communications, User Support, Object Oriented Techniques, Imaging.

IT3002 Introduction to Artificial Intelligence
12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT1052 or equivalent • Corequisites: Nil • Teaching methods: Lecture: 2 hours per week Tutorial: 1 hour per week • Assessment: Assignments; Examinations
Aims and objectives
• to introduce the basic concepts and tools of symbol-based Artificial Intelligence and their application in Expert Systems;
• to contrast the symbol-based with the more recently emergent non-symbolic AI paradigm;
• to study the difficulties involved in encoding knowledge, even in restricted domains, in such a fashion that ‘intelligent behaviour’ can be elicited;
• to introduce an alternative programming paradigm.
Content
• Non-procedural programming;
• Problem solving and search;
• Knowledge representation;
• Expert systems as applied AI;
• Machine learning;
• Evolutionary systems;
• Artificial neural networks;
• Intelligent agents;
• Philosophy and ethics.
Recommended reading

IT3007 Business Computing Applications
12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT2006 • Corequisites: Nil • Teaching methods: Lecture/ tutorial/ laboratory • Assessment: Assignments; Examinations
Aims and objectives
• to provide students with an understanding of the characteristics and requirements of business information systems applications, including Marketing, Manufacturing, Financial and Human Resources computer-based systems;
• to examine the impact of information quality and effective reports and reporting on both the operational and managerial area of an organisation.
• to give an understanding of the impact of information and communications technology within enterprise-wide and global business context, especially electronic commerce.
• to identify the essential elements of an Executive Information System, and a Decision Support System.
• to design, implement and manipulate files using electronic spreadsheet, DBMS and MIS software.
• to facilitate mastery of an Executive Information System / MIS package.
Content
• the relationship and distinction between different types of application systems within the business environment, with major emphasis on computer-based information systems.
• typical business systems, including project management, spreadsheet, DBMS, EIS and MIS software.
• strategies for the management of technology within a business environment.
Recommended reading
**IT3008 Business Data Communications**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT2053  •  Corequisites: Nil  •  Teaching methods: Lecture/ tutorial  •  Assessment: Assignments; Examinations

**Aims and objectives**
- to look at data communication technology and its potential uses in business and industry.
- to give an understanding of how data communications has developed, future trends of data communications, the technology available and its impact on the information systems industry.
- to examine important standards and how these are used in data communications.
- to examine the different network architectures.
- to give an understanding of how groupware has changed the way an organisation works.
- to study technologies of different networks in organisations from local to wide area networks.
- to identify the issues involved in selecting, designing and implementing networks.

**Content**
- Principles of data communications, covering the fundamental concepts.
- Local area networks, covering all the different aspects of network architectures used including medium access methods and topologies and network operating systems.
- Internetworking which looks at the devices and technology used in expanding and communicating across different network architectures.
- Wide area networks: ATM technology, SONET architecture, other switching technologies.
- Client-server architecture: advantages and disadvantages; use of enterprise networking and intranets to implement more flexible, scalable networks; how software and hardware are distributed across the network.
- Network administration: network development life cycle, network management, and network security when implementing a network.
- Multimedia networks: the current move to electronic delivery of documents and other media including voice, the requirements of a network and its impact on shared networks.
- Trends to watch in data communications & the Internet.

**Recommended reading**
Curle, K., Data Communications in Australia, John Wiley & Sons, 1st Edn., 1996
Halsall, F., Data Communications, Computer Networks and Open Systems, Addison-Wesley, 5th Edn., 1997
Stallings, W., Data and Computer Communications, Prentice-Hall, New Jersey, 1987

**IT3011 Compiler Design**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT2053  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week  •  Tutorial: 1 hour per week  •  Assessment: Assignments; Examinations

**Aims and objectives**
- to introduce formal language theory;
- to investigate the major methods of compiler design;
- to develop a new language and its compiler.

**Content**
- Introduction to compiler theory and practice;
- Introduction to formal language theory, grammars, finite state machines and regular expressions;
- Lexical analysis;
- Top-down parsing;
- Non-deterministic push-down automata;
- Recursive-descent parsing;
- Conditions for predictive parsing;
- Left recursion;
- Implementation of non-recursive predictive parser;
- LL(1) grammar;
- FIRST and FOLLOW sets;
- The algorithm of a parser;
- Introduction to bottom-up parsing;
- Code generation;
- Quadruples;
- A practical solution of typical problems of code generation;
- Putting the compiler together.

**Recommended reading**

**IT3017 Database 2**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT2016 and IT1051 or IT1009 or IT2049 recommended for BBus  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week  •  Laboratory/ tutorial: 1 hour per week  •  Assessment: Assignments; Examinations

**Aims and objectives**
- To equip students with a practical and theoretical knowledge of database management systems so that they can work productively on projects involving database applications. The emphasis is on relational database management systems;
- To give students the opportunity of working with a major commercial relational database management system.

**Content**
- DBMS terminology and concepts, including:
  - Database objects
  - Data dictionaries
  - Data integrity
  - Data independence
  - Transaction management
  - Concurrency control
  - Recovery
  - Triggers
  - Stored procedures
  - Cursors
  - Designing on-line database transactions using a forms tool
  - Performance issues.

**Recommended reading**
Date, C. J., An Introduction to Database Systems, Addison-Wesley, 6th Edn., 1995
Krishn, M., Using the Oracle Toolset, Addison-Wesley, 1993

**IT3018 Database 3**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT3017  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week  •  Laboratory/ tutorial: 1 hour per week  •  Assessment: Assignments; Examinations

**Aims and objectives**
To build upon the concept and skills gained in Database 2, by examining database design, implementation and performance issues in both local and distributed client-server environment.

**Content**
- Programming using SQL embedded in a third generation language.
- Physical design issues.
- The use of database and transaction analysis and optimiser plan information to check/improve performance.
• The effective use of views to achieve data independence;
• Design and implementation of distributed systems;
• Object-oriented and Object-relational systems.

Recommended reading
Bell, D. & Grensen, J., Distributed Database Systems, Addison-Wesley, 1992
Date, C. J., An Introduction to Database Systems, Addison-Wesley, 6th Edn., 1995

IT3022 Emerging Information Technologies

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: Satisfactory completion of Semesters 1 to 7  •  Corequisites: Nil  •  Teaching methods: Seminar style: Where appropriate, specialist speakers will be invited from industry.  •  Assessment: Assignments (BIT summer) A detailed treatment of selected technologies determined on a year-to-year basis, as a result of consultation with sponsor organisations.

Aims and objectives
To introduce students to selected technologies, which are deemed to be of emerging significance. Specific aims vary according to the selected technologies being investigated.

Content
A detailed treatment of selected technologies determined on a year-to-year basis, as a result of consultation with sponsor organisations. Topics that have been covered in the past have included object-oriented analysis, design and programming, and multimedia systems. Object oriented analysis and design is no longer an emerging technology, and has been incorporated into the core curriculum. Areas that could be considered in the future include advanced multimedia technology and object relational databases.

Recommended reading
The core references for this subject will be journal articles rather than text books.

IT3028 Interactive System Design

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: A Distinction in IT2024  •  Corequisites: Nil  •  Teaching methods: Lectures: 1 hour per week Seminars/Laboratory: 1 hour per week  •  Assessment: Assignments; Examinations

Aims and objectives
To introduce students to the concepts and methodologies relevant to the systematic analysis and design of interactive technology.

Content
• The role of HCI in systems development;
• HCI and systems methodologies;
• approaches to user involvement in development;
• task/requirements analysis;
• principles, guidelines, standards and rules;
• specification techniques: design prototyping, storyboarding, animation and video, rapid prototype implementation;
• predictive modelling;
• user guidance integrated into user interfaces.

Recommended reading
Schuler, D. & Namioa, A., Participatory design: Principles and practices; Hillsdale, NJ: LEA, 1993
Leveson, N., Safeware: System safety and computers, Reading, MA, Addison-Wesley, 1995

IT3029 Information Systems Analysis

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT1000, IT2016 and IT2049  •  Corequisites: Nil  •  Teaching methods: Lecture/tutorial  •  Assessment: Assignments; Examinations

Aims and objectives
• to provide a thorough understanding of the requirements of information systems to meet the needs of businesses and organisations.
• to give practice in problem solving using a variety of object-oriented techniques applied to business type problems.
• to introduce the fundamental principles of object-orientation: a method for information systems analysis which employs techniques such as class, state and use case modelling.
• to explore popular methods from the literature.
• to enable students to apply these approaches to analysis correctly to produce an object oriented model for a given case study.

Content
• introduction, object oriented paradigm, object modelling;
• class modelling;
• dynamic modelling;
• specification modelling;
• case studies.

Recommended reading
Brosch, G., Object Oriented Analysis and Design, 2nd Edn., Benjamin Cummings, 1994

IT3034 Information Systems Project

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT3017 and IT2010 or IT2013 or IT1025  •  Corequisites: Nil  •  Teaching methods: Seminars, supervised reading, and individual consultation as required  •  Assessment: Oral Presentation; Project Report

Final year team project for BIS, GDIT.

Aims and objectives
• to provide students with the opportunity to work in a formal project team environment in the areas of analysis, design, development and implementation of an information system, using a variety of software engineering and development tools.
• to increase the depth and breadth of the students' understanding of practical computing, and reinforce the theory learned in other subjects.

Content
Students will employ the skills learned in other subjects, such as
• systems analysis strategies
• software engineering techniques
• project control
• standards development
• database implementation
• programming
• unit and system testing
• software package implementation design
• risk analysis

Recommended reading
Sommerville, I., Software Engineering, 5th Edn. Addison-Wesley, 1996
Connolly, T., Begg, C., Strachan, A., Database Systems, Essex, Addison-Wesley, 1996

IT3036 Information Technology Strategies

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: Any four subjects in the program  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week Tutorials: 1 hour per week  •  Assessment: Research Paper IS requirements of organisations; comparison of IS development methodologies; control and risk management; current trends

Aims and objectives
• to examine the information systems requirements of business and other organisations;
• to examine the history of software development methods applicable to IS; the main methods currently in use, and associated technical, managerial and social issues;
• to examine appropriate methods of information system development;

Recommended reading
to understand the need for careful analysis, risk assessment and control procedures suitable for different system development approaches;

- to investigate current trends and competing claims about future directions.

Content

- Information System Development - an Organisational Context
  - Information Systems - Establishing the framework
  - Evolution of information systems in organisations;
- The Information Technology (IT) Perspective
  - Life cycle variations and managing IT development.
- Newer technologies;
- Business Perspectives
  - End-User developed applications
  - Software risk and software quality
  - Business, management, and information systems in organisations
  - Information and systems as a resource;
- Ethics
  - Building a responsive IT infrastructure and ethics issues
  - Community concerns & privacy, etc.

Recommended reading


IT3038 Knowledge-Based Systems

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT2016 and IT3051 or IT3020 • Corequisites: Nil • Teaching methods: Lecture: 2 hours per week/Laboratory/ tutorial: 1 hour per week • Assessment: Assignments; Examinations

Aims and objectives

- to develop in students an understanding of the nature and uses of Expert Systems in business and industry;
- to explore the related fields of Artificial Neural Networks, Natural Language Processing and Case Based Reasoning;
- to provide students with the opportunity to design and build an Expert System prototype.

Content

- basic concepts of Artificial Intelligence, Knowledge Based Systems and Expert Systems;
- what expert systems are, how they are developed and who is using them;
- how expert systems differ from conventional software programs and human experts;
- basic concepts of knowledge engineering that affect design and implementation;
- various forms of knowledge representation;
- evolutionary process of knowledge acquisition needed to put expertise into a machine;
- principles of rule based systems and induction systems;
- handling of uncertainty;
- inference;
- use of PC based Expert Systems Shell;
- introduction to natural language processing, neural networks and case-based reasoning.

Recommended reading

Zahedi, F., Intelligent Systems for Business, Expert Systems with Neural Networks, Belmont, California, 1993

IT3039 Local Area Networks

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT2020 and IT3008 • Corequisites: Nil • Teaching methods: Lecture: 2 hours per week/Laboratory: 2 hours per week • Assessment: Assignments; Examinations

Aims and objectives

Local area networks are fundamental components of Open Systems, providing the framework within which all components must participate. IT3039 provides the background knowledge and concepts used in all other areas of the course.

By the end of this subject, students should be able to:

- appreciate the relative merits and weaknesses of common network topologies and media;
- explain the operation of common network protocols;
- understand how repeating, bridging and routing work and relate to the OSI (Open Systems Interconnection) Model;
- understand configuration and management issues.

Content

- Data communications networks and open system standards;
- Protocol basics;
- Ethernet, token ring, token bus networks;
- High speed and bridged local area networks;
- Application specific protocols: TCP/IP Protocol Suite, Novell’s IPX/SPX, Windows NT;
- Emerging LAN technologies: Gigabit Ethernet, ATM LANs;
- Security aspects;
- Network management: SNMP.

Recommended reading

Stallings, W., Local and Metropolitan Area Networks, Prentice Hall, 1996

IT3040 Multimedia Systems

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT3051 • Corequisites: Nil • Teaching methods: Lecture: 2 hours per week/Laboratory: 1 hour per week • Assessment: Assignments; Examinations

Aims and objectives

To introduce the technologies, concepts and techniques associated with the development of multimedia systems.

Content

- Introduction and review - definition, fundamental concepts, media types and application areas;
- Media Types - text, graphics, images, audio, animation, video - digital representation, formats, standards, capturing hardware, processing software;
- Compression - compression methods, binary image compression schemes, color, grey scale and still-image compression, video image compression audio compression;
- Multimedia hardware and software - components of a multimedia system, optical storage, input and output technologies, authoring software, processing software;
- Multimedia documents, databases and hypertext - hypermedia, SGML, HTML, OpenDoc, MHEG;
- Multimedia user interfaces and design fundamentals - general design issues and approaches, navigation issues, methodologies;
- Multimedia communication systems - multimedia servers, high speed LANs, distributed multimedia databases, video conferencing and collaborative work environments;
- Evaluation of multimedia systems - evaluation techniques and methods;
- Current research and future directions.

Recommended reading

Koege-Buford, J. F., Multimedia Systems, Addison-Wesley, 1994
Gibbs S. J. & Tsichritzis, D.C., Multimedia Programming: Objects, Environments and Frameworks, Addison-Wesley, 1995
IT3041 Multimedia Web Development

Aims and objectives
To introduce the technologies, concepts and techniques associated with the development of multimedia World Wide Web systems.

Content
- Introduction to Multimedia - definition, fundamental concepts, media types and application areas;
- Introduction to the World Wide Web - definition, history and fundamental concepts;
- HTML - document structure, tags, images, links, image maps, tables, frames, applets;
- Site Architecture - site development tools, server tools, principles of navigation, page design principles, intranets;
- JavaScript - applications of JavaScript, entities, variables, operators, statements, functions, event handling, objects, forms processing;
- CGI programming - principles, JavaScript and CGI scripts;
- Advanced WWW Development - style sheets, push and pull technology, agents;
- Standards - HTML, W3C.

Recommended reading

IT3042 Object-Oriented Systems 1

Aims and objectives
To introduce to Object Oriented (OO) software engineering with emphasis on analysis and design techniques and project management.

Content
- Introduction to Object Oriented concepts;
- comparison of object oriented analysis and design methods;
- detailed study of OPEN methodology;
- tasks and techniques in OPEN.

Recommended reading

IT3044 Professional Issues in Information Technology

Aims and objectives
- to introduce and review Codes of Ethics and Codes of Conduct governing the behaviour of software engineering professionals;
- to provide a broad understanding of the impact of information technology on various human activities;
- to explore the importance of knowing one’s belief system and values when confronting issues at the work place, and to monitor one’s own personal development.

Content
A broad-ranging variety of topics involving:
- social, legal and ethical aspects of computing in the human context;
- values (including religious values) and cultural influences;
- computing in a global community;
- ethical behaviour in the work place;
- a personal framework for ethical behaviour.

Recommended reading
Arnold, R. & Hess, D., The Paradox of Economic Growth and Inequality, Victorian Association for Peace Studies, Hampton, Victoria, Australia, 1994

IT3045 Personal Software Process

Aims and objectives
- to establish the need for discipline in software engineering;
- to guide students to discover the methods of software development which make them personally most effective (eg. time and defect recording, coding standards, size measurement, task planning, schedule planning, design reviews, design templates, code reviews);
- to provide students with the knowledge base required to manage their own personal software process and to come to believe that the methods are of benefit to them.

Content
The course closely follows the ‘Personal Software Process’ course developed by Watts S. Humphrey, Software Engineering Institute, Carnegie Mellon University, USA. It addresses:
- the baseline personal process (time/defect recording, coding standards, size measurement);
- the personal planning process (size estimating, task planning, schedule planning);
- personal quality management (design reviews, design templates, code reviews);
- cyclic personal process (cyclic process improvement).

Recommended reading
Humphrey, W.S., A Discipline for Software Engineering, Addison-Wesley, Reading, Ma, 1995
Humphrey, W.S., Introduction to the Personal Software Process, Addison-Wesley, Reading, Ma, 1997
**IT3048  Software Platforms and the Internet**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT3008 and IT1009 or IT2010 (is also recommended)  •  Corequisites: Nil  •  Teaching methods: Lecture/tutorial/ laboratory  •  Assessment: Assignments; Examinations

**Aims and objectives**

To develop the students’ understanding of operating systems and networking to include multi-user timesharing operating systems, heterogeneous systems, client-server environment and the Internet.

**Content**

- system architecture
- open systems
- operating systems characteristics, and operating systems history
- UNIX history and character, UNIX commands, command line syntax
- job control, pipes, backgrounding, file management, text processing
- paged virtual memory, process management system calls, logical file system organisation
- UNIX file types
- client-server communication
- TCP/IP, network addressing, Internet services, World Wide Web, Internet Security

**Recommended reading**

Glass, G., UNIX for Users and Programmers, Prentice-Hall, 1993

Comer, D., The Internet Book, Prentice-Hall, 1995


**IT3050  Soft Computing**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT1052 and IT3002  •  Corequisites: Nil  •  Teaching methods: Lecture: 1 hour per week. Laboratory: 2 hours per week  •  Assessment: Assignments; Examinations; Prac

**Aims and objectives**

To introduce and investigate non-deterministic computational methods and their application to complex problem domains.

**Content**

- Introduction:
  - Methods of inference, Deductive logic, Induction
  - Approximate reasoning
  - Symbolic and sub-symbolic processing;
- Neurocomputing:
  - An introduction to parallel processing in networks
  - Perceptrons
  - Multi-layer networks (back-propagation)
  - The associative memory problem (the Hopfield model)
  - Unsupervised competitive learning
- Other neural networks architectures;
- Evolutionary computation:
  - Foundations of evolutionary computation
  - Genetic algorithms
  - Genetic programming
  - Applications.
- Fuzzy systems:
  - Fuzzy sets, logic; the basics of fuzzy systems
  - Fuzzy systems applications;
- Hybrid Systems.

**Recommended reading**


**IT3056  Software Engineering 1**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT1031 or IT2049  •  Corequisites: IT1016  •  Teaching methods: Lecture: 2 hours per week. Tutorial/ Laboratory: 1 hour per week. During the module on CASE Tool development some laboratory based work may be scheduled to facilitate student’s use of CASE environments available in open laboratories.  •  Assessment: Assignments; Examinations

**Aims and objectives**

- to broaden student’s understanding of possible software development paradigms (eg, structured analysis and design, object-oriented approaches);
- to introduce the concepts and techniques required to direct and control the development of medium to large-scale software, including project management, quality assurance, software process improvement and software metrics;
- to present students with the capabilities of modern Computer Aided Software Engineering (CASE) environments, and provide experience in the use of one such tool;
- to explore some of the problems of software maintenance and a selection of tools and techniques to facilitate the maintenance process.

This subject builds on the work done in IT1031 on small software development projects, introducing some of the problems of large software development projects.

**Content**

- Software Project Management;
- Structured Analysis and Design / Introduction to Object-Orientation;
- Introduction to Software Quality Assurance;
- Introduction to Software Process Improvement;
- Introduction to Software Metrics;
- Introduction to Computer Aided Software Engineering;
- Maintenance.

**Recommended reading**


Sallis, P., Tate, G. & MacDonell, S., Software Engineering, Practice, Management, Improvement, Addison-Wesley, 1995

Summerville, I., Software Engineering, 5th Edn., Addison-Wesley, 1996

**IT3057  Software Engineering 2**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT3056  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week. Tutorial/Workshop: 1 hour per week  •  Assessment: Assignments; Examinations

**Aims and objectives**

- to facilitate an in-depth study by students of a selection of current approaches and techniques in the advanced technologies that underpin the conduct and control of contemporary software development.

**Content**

Modules selected from a collection, covering important issues in software engineering, such as:

- Computer Aided Software Engineering (CASE);
- Maintenance;
- Metrics;
- Risk Management;
- Software Architecture;
- Software Quality Assurance/Software Process Improvement;
- Testing;
- Validation and Verification.

**Recommended reading**


Gibb, T. & Graham, D., Software Inspection, Addison-Wesley, Reading, Mass, 1993

IT3058 Software Engineering Project
12.5 Credit Points  •  Two semesters  •  Hawthorn  •  Prerequisite: IT2053 and IT3058  •  Corequisites: Nil  •  Teaching methods: Lectures: 2 hours per week in 1st semester; Regular contact with supervisor and project team sessions (1 hour per week)  •  Assessment: Research Paper

Aims and objectives
• to develop a software system in a large team (10 or more members);
• to apply the range of knowledge and skills gained throughout the course, especially in Software Engineering, Programming, Data Communications, Database and Multi-User/Multi-Platform Technologies.

Content
• Initiation, specification, design, implementation, testing and initial maintenance of a large software system development, requiring students to function as members of a sizable team (where possible these projects will be relevant to identifiable industry needs);
• theoretical material will encompass the tools that will be required for the software development.

Recommended reading

IT3061 SoftwareTeam Project
12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT1052 and IT2016  •  Corequisites: Nil  •  Teaching methods: A combination of lectures, group meetings and consultation with project supervisor  •  Assessment: Assignments

Aims and objectives
• to teach students how to apply software engineering principles to the development and successful implementation of a major piece of software which satisfies user needs;
• to give students an understanding of how to work effectively and efficiently in a team.

Content
Students work as a team (typically 4 - 6 individuals) to develop a software product for a nominated client. Where possible, clients are external to the University. Each group is supervised closely by a member of staff who acts as a project manager. Three milestones must be satisfied. Teams are required to produce a formal Management Plan and Software Requirements document that are in accordance with currently accepted software engineering principles and practise. These requirements involve analysis of project requirements, project design and development. The final milestone involves a formal oral presentation of the completed software at which the user is present.

Recommended reading

IT3063 UNIX Systems Programming
12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT2014 or IT2082  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week. Laboratory: 2 hours per week  •  Assessment: Assignments; Examinations

Aims and objectives
• To study the implementation of the UNIX system by a consideration of a selection of the system calls;
• to study the development of network-aware software.

Content
• Low level I/O;
• file system access and manipulation; time under UNIX;
• process control;
• accessing user information;
• signals and interrupts;
• interprocess communication and networking;
• remote procedure calls (RPC) and distributed computing environment (DCE) services;
• I/O to terminals and device control.

Recommended reading
Petzold, C., Programming Windows 95, Microsoft Press, 1995

IT3064 Wide Area Networks
12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT3039  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week. Laboratory: 2 hours per week  •  Assessment: Assignments; Examinations

Aims and objectives
To provide students with an understanding of the operational principles of wide area networks and Internet protocols.

Content
• A Review of Metropolitan Area Network (MAN) and Wide Area Network (WAN) technologies;
• Internetworking concept and architectural model
  - Connectionless datagram delivery
  - Routing IP datagrams
  - Error and control messages (ICMP)
  - Subnet and supernet address extensions;
• User Datagram Protocol (UDP);
• Reliable stream transport service (TCP);
• Routing:
  - Cores, peers, and algorithms (GGP)
  - Autonomous systems (EGP)
  - Routing in an autonomous system (RIP, OSPF, HELLO);
• Internet multicasting (IGMP);
• The Domain Name System (DNS)
  - Internet security and firewall design;
• The future of TCP/IP and the Internet (IPv6, Internet-II).

Recommended reading

IT3065 Windows Programming
12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT2054  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week. Laboratory: 2 hour per week  •  Assessment: Assignments; Examinations

Aims and objectives
• to study the Windows interface programming paradigm
• to provide a theoretical and practical background for the development of software under Window NT

Content
• Windows interface and architecture
• The Microsoft Foundation Class Library
• Documents and Views
• Dialogue Boxes, Menus, Toolbars
• Enhanced Views
• Dynamic Link Libraries
• Object Linking and Embedding
• Processes and Threads
• Data Management via Data Access Objects
• A brief look at Delphi

Recommended reading
Holzner, S., Advanced Programming in the UNIX Environment, Mass, Addison-Wesley, 1992
Petzold, C., Programming Windows 95, Microsoft Press, 1995
Richter, J., Advanced Windows, Microsoft Press, 1995

IT3072 Introduction to C++

12.5 Credit Points  •  8 sessions, usually run over 4 weeks  •  Hawthorn  •  Prerequisite: Proficiency in at least one procedural programming language  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per session  •  Laboratory: 2 hours per session  •  Assessment: Assignments; Examinations

Aims and objectives
• to introduce the fundamentals of C++ programming.
• to explore the basic features of the C++ programming language as a vehicle for object-oriented programming.

Content
• Introduction to C++ programming - simple programs and control structures
• Functions (definitions, prototypes, storage classes, recursion)
• Arrays
• Pointers and strings
• Classes and data abstraction
• Operator overloading
• Inheritance
• Virtual functions and polymorphism
• C++ Stream Input/Output
• Templates
• File processing

Recommended reading

IT3081 Software Development for Engineers

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: Assignments; Examinations

Aims and objectives
• to understand the stages of the software life cycle
• to learn to develop engineering software in a disciplined way.
• to participate as a successful member of a project team in software development
• to improve skills in C programming

Content
• The software lifecycle
• Software specification
• Software design specification
• Testing techniques
• Data structures and algorithms
• Random-access files
• Elementary use of C++ enhancements to C

Recommended reading

IT3084 E-Commerce - A Business Perspective

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT1004 or IT2006 and IT2020 or IT3008  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week  •  Laboratory: 1 hour per week  •  Assessment: Assignments; Examinations

Aims and objectives
This subject examines the key organisational and societal issues relating to electronic commerce. It aims to introduce the fundamental organisational and societal issues in e-commerce.

Content
• impact on organisational forms
• business process design
• e-commerce enabled business applications
• the legal framework for e-commerce

Recommended reading

IT3085 E-Commerce: A Technical Perspective

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT1015, IT1051 and IT2020 or IT1009, IT2006 and IT3008  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week  •  Laboratory: 1 hour per week  •  Assessment: Assignments; Examinations

Aims and objectives
This subject examines the key technologies enabling the development of electronic commerce. It aims to introduce the fundamental technical issues in e-commerce.

Content
• architectural issues
• telecommunications requirements for e-commerce
• network management
• internet security
• EDI, EFT and electronic banking systems
• Push technology
• image processing
• on-line trading and retailing systems
• smart cards

Recommended reading
To be determined

IT3086 Software Development for Mobile Computing Devices

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT2020 and IT2054  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week  •  Laboratory: 1 hour per week  •  Assessment: Assignments; Examinations

Aims and objectives
This subject examines the key technologies associated with mobile computing, and introduces programming techniques for mobile computing devices. It aims:
• to enable students to gain a broad understanding of the technical issues related to mobile computing devices
• to present the current technologies associated with mobile computing device applications.
• to introduce techniques for designing and programming applications for mobile computing devices.

Content
• Global Positioning Systems
• Introduction to Windows programming
• Windows APIs
• System Design issues
• Screen layout design and HCI issues
• Serial and network communications for mobile computing devices
• Programming for non-keyboard inputs - voice and handwritten recognition
• Future trends

Recommended reading
To be determined

IT3100 Industry Based Learning 2

Prerequisite: satisfactory completion of the first six semesters of the course  •  Assessment: Assignment

Aims and objectives
The objectives of the placement are threefold:
• personal development;
• learning first hand the environment and culture of business/industry;
- development of information technology skills.

Specific objectives are:
- To gain first hand experience of the operation of the information technology environment.
- To extend the learning of the preceding segments of the course.
- To provide an opportunity for personal development and social maturation of the student.
- To address issues which can better be learned from within the industrial environment, such as user liaison and systems security.
- To allow the student to obtain an understanding of the ways in which business organisations function and the context in which they operate.
- To provide a practical basis for further Information Technology and business related studies.

Content
Students will work as members of the information systems environment to which they are assigned. Students will work under the supervision of both an Industrial Supervisor and an Academic Manager. Projects and assignments and participation in the professional activities of sponsors information systems and information technology environments are assessed by the student manager and industry supervisor.

Students will be expected to gain experience in the following areas:
- Programming, User Liaison, Systems Design, and to be closely involved with the application of some of the following: Data Base, Communications, User Support, Object Oriented Techniques, Imaging.

**IT3101 Industry based Learning**
50 credit points
A six-month period of industry based learning occurring as part of the third year of the course leading to the degree of Bachelor of Applied Science (Computer Science and Software Engineering). Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor.

**IT3102 Industry Based Learning**
50 credit points
A six-month period of industry based learning occurring as part of the third year of the course leading to the degree of Bachelor of Applied Science (Computer Science and Software Engineering). Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor. This program is normally taken at the end of SQ523.

**IT5009 Business Programming 1**
12.5 Credit Points • one semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lecture: 1 hour per week Tutorial: 1 hour per week. Laboratory: 1 hour per week • Assessment: Assignments; Examinations

**Aims and objectives**
To introduce students to the programming concepts most widely used in business and organisational computing.

**Content**
- An overview of modern business computing: the context, the structure, declarative and event driven approaches
- An introduction to object oriented programming
- An introduction to the structured programming approach including sequence, selection and iteration. Students will be exposed to these ideas through examples drawn from a selected programming language.

**Recommended reading**
Sebesta, R., Concepts of Programming Languages, 2nd Edn., Addison-Wesley, 1992
Wilson, I.B., and Clark, R.G., Comparative Programming Languages, 2nd Edn., Addison-Wesley, 1993

**IT5015 Computer Systems**
12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT5025 • Corequisites: Nil • Teaching methods: Lecture: 2 hours per week. Laboratory: 1 hour per week • Assessment: Assignments; Examinations; Tests

**Aims and objectives**
Computer Systems is a core subject in all Computer Science degrees providing a general introduction to the hardware and software in today’s computer systems. It aims:
- to introduce the fundamental concepts of computer systems;
- to introduce the DOS, UNIX and Windows environments.

**Content**
- functions and components of computers;
- history of computing;
- data representation;
- computer logic;
- hardware;
- software;
- secondary storage and input/output devices;
- the UNIX operating system;
- UNIX file management;
- UNIX commands and filters;
- data communications;
- emerging technology;
- security and ethics;
- the internet;
- DOS and Windows.

**Recommended reading**

**IT5025 Introduction to Information Systems**
12.5 Credit Points • one semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lecture: 1 hour per week Tutorial: 1 hour per week. Laboratory: 1 hour per week • Assessment: Assignments; Examinations

**Aims and objectives**
- To give students a broad understanding of information technology in the business environment.
- To develop an awareness of how computers are used to solve business problems.
- To endow students with strong practical skills in current microcomputer software, which will be of immediate benefit in other units, and of later use in their careers.
- To provide a firm basis for later computing units.

**Content**
- Management needs and information technology solutions
- Information systems
- Fundamentals of computing
- Hardware & software
- Data communications
- Artificial intelligence
- Security
- Word processing (to advanced level)
- Spreadsheets (good design & practice)
- Database (theory & practice)
- Internet (theory & practice)

**Recommended reading**
Adamski J.J. et al, Microsoft Office 97 Professional, USA, ITP, 1997
Bailey E. Thuranusa S., Course Notes BT1110 Information Technology etc., SUT, 1998
ES2740 Environmental Health Technology

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures/field exercises • Assessment: Assignments; Tests

This is a second year subject in the Bachelor of Applied Science (Environmental Health).

Aims and objectives

- To introduce students to the processes of statutory control and plan checking of buildings.
- To impart to students an understanding of the major requirements and underlying principles in the Regulations, Acts and Standards pertaining to larger low rise industrial and commercial buildings.

Content

- Administration and law (10%) A more detailed study of the building surveyor’s role and legislative requirements including decision making processes within his/her area of responsibility, and the building surveyor as manager.
- Functions (20%) Responsibilities, procedures and effective organisation of duties related to statutory requirements and management principles. Understanding of other department requirements for Building Approval and liaison to speed up processes.
- Acts and regulations (20%) Expansion of understanding of Regulations including detailed principles and application of major regulation parts. Basic understanding of Building Act, its functions and major areas of control. Application of individual Regulation Parts to various building examples. General reference to codes, standards, Acts. Protection work.
- Plan checking (30%) Plan checking will cover Building Approval processes, and responsibility during construction and will include the use of visual aids and case studies related to industrial and commercial buildings.

Recommended reading

Irwin, J., Graf, E., Industrial Noise and Vibration Control. Prentice Hall 1979

Relevant Codes and Standards

Building Code of Australia 1996 Volume 1 Class 1610
Building Regulations 1994
Building Act 1993

ES2810 Building Control 3

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES1815 • Corequisites: Nil • Teaching methods: Lectures: 48 hours. Tutorials: 12 hours. • Assessment: Assignments; Examinations

This is a second year subject in the Bachelor of Technology (Building Surveying).

Aims and objectives

- To impart to students an understanding of the major requirements and underlying principles in the Regulations, Acts and Standards pertaining to larger low rise buildings.
- To introduce the requirements of other related authorities dealing with such buildings.
- To introduce students to planned development in urban and regional environments.

Content

- Administration and law (10%). A more detailed study of the building surveyor’s role and legislative requirements including decision making processes within his area of responsibility, and the building surveyor as manager.
- Functions (20%) Responsibilities, procedures and effective organisation of duties related to statutory requirements and management principles. Understanding of other department requirements for Building Approval and liaison to speed up processes.
- Acts and regulations (20%) Expansion of understanding of Regulations including detailed principles and application of major regulation parts. Basic understanding of Building Act, its functions and major areas of control. Application of individual Regulation Parts to various building examples. General reference to codes, standards, Acts. Protection work.
- Plan checking (30%) Plan checking will cover Building Approval processes, and responsibility during construction and will include the use of visual aids and case studies related to industrial and commercial buildings.

Recommended reading

Irwin, J., Graf, E., Industrial Noise and Vibration Control. Prentice Hall 1979

Relevant Codes and Standards

Building Code of Australia 1996 Volume 1 Class 1610
Building Regulations 1994
Building Act 1993

ES2815 Building Control 4

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES2810 • Corequisites: Nil • Teaching methods: Lectures: 48 hours. Tutorials: 12 hours. • Assessment: Assignments; Examinations

This is a second year subject in the Bachelor of Technology (Building Surveying).

Aims and objectives

- To impart to students an understanding of the major requirements and underlying principles in the Regulations, Acts and Standards pertaining to commercial building.
- To introduce students to the processes of statutory control and plan checking of low rise industrial and commercial buildings.

Content

- Acts and Regulations (50%) Expansion of understanding of Regulations including detailed principles and application of major regulation parts. Basic understanding of Building Act, its functions and major areas of control. Application of individual Regulation Parts to various building examples. General reference to codes, standards, Acts. Protection work.
- Plan Checking (50%) Plan checking will cover Building Approval processes, and responsibility during construction and will include the use of visual aids and case studies related to industrial and commercial buildings.

Recommended reading

Building Code of Australia 1998/Volume 1 Class 1610
Building - Housing Provisions CCH Australia 1996

ES2820 Construction 3

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES1825 • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials/Field Excursions: 24 hours. • Assessment: Assignments; Examinations; Project

This is a second year subject in the Bachelor of Technology (Building Surveying).

Aims and objectives

- To impart to students an understanding of the general principles of details of buildings with load bearing walls up to three storeys in height.
- To enable students to understand basic land surveying techniques applicable to building projects.
- To expose students to architectural and engineering drafting related to buildings.

Content

- Structural systems (20%) Basics of design, structural materials used for building up to three storeys. Foundations, footings.
- Land survey (30%) Principles and types of surveys and plans. Levelling, setting out. Cadastral surveying and surveys related to surveying: Principles of land subdivision, identification and location of land from titles, check/relocation surveys, Transfer of land
- Act 1958, encumbrances, easements, adverse possession.
- Drafting (20%) Architectural and engineering drafting techniques.

Recommended reading

Barnister & Raymond Surveying London, Pitman 1972

ES2825 Construction 4

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES2820 • Corequisites: Nil • Teaching methods: Lectures: 48 hours. Tutorials/Field Inspections: 12 hours. • Assessment: Assignments; Examinations

This is a second year subject in the Bachelor of Technology (Building Surveying).

Aims and objectives

- To impart to students an understanding of the principles and details of buildings and load bearing walls up to three storeys.
- To familiarise students with the various cranes and lifting devices used in building construction.
- To introduce students the regulations, methods of ventilation.
• To provide a building surveyor with the necessary knowledge of geomechanics.

**Content**

- Finishes (15%) Processes and techniques in post look-up stage.
- Cranes and lifting devices (15%) Types, methods of use on site.
- Demolitions (20%) Regulations, methods, design for demolition.
- Inspections (25%) Inspection of appropriate sites.
- Geomechanics (30%) Stresses in soils, strength of soils, field or laboratory tests, soil work, foundations.

**Recommended reading**

AS 2820

Site Investigation Code

Residential Footing Code

Principles of Geotechnical Engineering, Das B.M.

**ES2830 Materials and Services 2**

12.5 Credit Points • Hawthorn • Prerequisite: ES1830 • Corequisites: Nil • Teaching methods: Lectures: 48 hours. Tutorials: 12 hours. • Assessment: Assignments; Examinations

This is a second year subject in the Bachelor of Technology (Building Surveying).

**Aims and objectives**

- To provide students with knowledge of the properties of building materials used in commercial buildings.
- To enable students to make informed selection of appropriate materials.
- To inform students of the services and requirements provided in commercial buildings.

**Content**

- Materials (20%) Properties, quality structures, testing performance and visual characteristics of materials commonly used in commercial buildings such as concrete, masonry, structural steel, plaster, plastics.
- Joining methods (10%) Welding, brazing, soldering, adhesive bonding, mechanical fasteners.

**Recommended reading**

Fundamental Building Materials 2nd Edn K Wont-Harvey RAIA 1984

Building Services - Engineering for Architects RP Parlour 1994

Site Investigation Code

Residential Footing Code

Principles of Geotechnical Engineering, Das B.M.

**ES2835 Materials and Services 3**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES1830 • Corequisites: Nil • Teaching methods: Lectures: 48 hours. Tutorials: 12 hours. • Assessment: Assignments; Examinations

This is a second year subject in the Bachelor of Technology (Building Surveying).

**Aims and objectives**

- To provide students with knowledge of the properties of building materials used in commercial buildings.
- To enable students to make informed selection of appropriate materials.
- To inform students of the services and requirements provided in commercial buildings.

**Content**

- Materials (40%) Properties, quality structures, testing performance and visual characteristics of materials commonly used in commercial buildings such as concrete, masonry, structural steel, plaster, plastics.
- Joining methods (20%) Welding, brazing, soldering, adhesive bonding, mechanical fasteners.
- Services (40%) Electrical paver distribution including emergency lights and exit signs. Fire extinguishers. Hose reels and hydrants. Water supply and pressure calculations. Drainage.

**Recommended reading**


Building Services - Engineering for Architects, RP Parlour Integral 1994

Site Investigation Code

Residential Footing Code

Principles of Geotechnical Engineering, Das B.M.

**ES2845 Management**

12.5 Credit Points • Hawthorn • Prerequisite: ES1845 • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials 24 hours. • Assessment: Assignments; Examinations

This is a second year subject in the Bachelor of Technology (Building Surveying).

**Aims and objectives**

To introduce students to accounting, financial reports and project evaluation.

**Content**

- Introduction to accounting (25%) Budget preparation and monitory, accounting environment, financial accounting.
- Analysis and Interpretation (25%) Examination of underlying facts of financial reports.
- Cost accounting (25%) Cost systems, costs for decision making in short run.
- Project evaluation (25%) Financial analysis techniques applicable to long term projects.

**Recommended reading**

Swinburne Institute of Technology and Royal Melbourne Institute of Technology, Introductory Accounting and Finance for Management 1989


Duffy, L. and Miero, I., Introductory Accounting Principles and Practice, 2nd Edn, Longman Cheshire 1983

Hunter, M.H., Alport, N.J., Accounting, Revised Edn Hold Reinhar Winston


**ES2850 Applied Structure 2**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES1855, MS100, ES1825 • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials: 24 hours. • Assessment: Assignments; Examinations

This is a second year subject in the Bachelor of Technology (Building Surveying).

**Aims and objectives**

- To familiarise students with the processes of design and checking of structural documents, specifically structural drawings with emphasis on the provision of costs of practice for steel structures, timber structures and for glazing.
- To give students and understanding of the principles and structural details of scaffolding.

**Content**

- Loads and structures (10%) The main provisions of the loading code, load selection and placement.
- Analysis (10%) Analysis methods, concepts of computer methods.
- Design (10%) Concepts of elastic and ultimate strength design methods.
- Steel structures (20%) Design of simple, fully restrained steel beams. Design of steel columns.
- Timber structures (20%) Design of simple, fully restrained timber beams and columns.
- Glazing (15%) Glazing in building.
- Temporary structures (10%) Types of temporary structures.
- Structural plan checking (15%) Checking of structural drawings.

**Recommended reading**

AS 1170-1 Loading Code

AS 4100 Steel Structures Code

AS 1720-1 Timber Engineering Code

AS 1288 Glazing in Building

**ES3015 Laboratory Projects**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of second year • Corequisites: Nil • Teaching methods: Laboratory: 30 hours. Tutorials: 20 hours. Assignments: 10 hours. • Assessment: Assignments; Pracs; Tutorials

Bachelor of Engineering (Chemical & Bioprocess)
Aims and objectives

- To design experiments to determine various data used in Chemical Engineering design, calculation and operation.
- To run experiments so as to demonstrate a level of sophistication reflecting the standard of study and match the expectations of industry.
- To incorporate the state of the art skills applicable to today using the latest Chemical Engineering and other software where applicable.
- To further develop current experiments so as to incorporate greater automation.
- To develop skills in problem solving, communication, teamwork and report writing.

Content

Laboratory Work (60%). Experiments involving heat and mass transfer, distillation, multiple stage and climbing film evaporator, separation processes, liquid-liquid extraction, filtration and others. The incorporation of data loggers, PLCs and computer control into pilot scale type experiments.

Tutorials (20%). Used to develop the associated skills of accessing and management of information, data handling, use of computers, use of Chemical Engineering design software and report writing.

Assignments (20%). The development of self learning, creativity, innovation, decision making and the enhancement of cognitive skill development.

Recommended reading

Annual Book of ASTM Standards. ASTM MD USA. (Lib Cat No. R061-JME-A)
Kirk-Othmer. Encyclopedia of Chemical Technology. Wiley Int. (Lib Cat No R660.3ENC)
CRC Handbook of Physics and Chemistry. (Lib. Cat. No.540.2 CRC)

ES3021 Heat Transfer

12.5 Credit Points • One semester • Hawthorn • Prerequisites: Substantial completion of second year • Corequisites: Nil • Teaching Methods: Lectures, guest lectures, tutorials, plant visits and laboratory • Assignment: Assessments, Examinations

Aims and objectives

To develop competence in the application of heat transfer theory to the analysis of practical heat transfer problems, design and selection of heat exchangers, and evaluation of heat exchanger performance.

Content

Convection: Heat transfer coefficient. Fluid flow in convection; laminar and turbulent flow; boundary-layer theory. Concept of similarity; dimensional analysis.
Prediction of heat transfer coefficients in forced and natural convection, condensation and boiling heat transfer. Heat exchangers: types and construction; Film and overall coefficients; log-mean temperature difference; effectiveness-NTU method; fouling factor; pressure drop; optimum design of shell and tube heat exchangers.
Radiation: Nature of thermal radiation; black-body and real-body radiation; Stefan-Boltzmann’s equation; Planck’s law of radiation. Radiation properties of surfaces: absorptivity and emissivity.
Radiation exchange among surfaces in a non-participating medium; view factor. Gas radiation; Solar radiation

Recommended reading


ES3025 Mass Transfer

12.5 Credit Points • One semester • Hawthorn • Prerequisites: Substantial completion of second year • Corequisites: Nil • Teaching Method: Lectures, guest lectures, tutorials, plant visits, and laboratory • Assessment: Assignments, Examinations

Aims and objectives

To apply the principles of mass transfer and phase equilibrium to problems involving diffusion with or without chemical reactions, to separation processes, and to the design of equipment used in mass transfer operations.

Content

Convective mass transfer: mass-transfer coefficient; film and overall coefficients. Fluid flow in convection; laminar and turbulent flow; boundary-layer theory.
Interphase mass transfer, phase equilibrium; theories of interphase mass transfer. Film theory, penetration theory, random surface renewal theory.
Design of continuous differential contactors. Height of transfer unit and number of transfer units.
Combined heat and mass transfer: humidification, drying, and crystallization.

Recommended reading


ES3041 Fluid-Particle Systems

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of second year • Corequisites: Nil • Teaching methods: Lectures : 36 hours. Tutorials : 24 hours. • Assessment: Assignments, Examinations

Aims and objectives

- To impart understanding of the physical phenomena involving particulate materials and the interaction between fluids and particles. The application of these to unit operations in the Chemical industry and the importance they play will also be studied.
- A separate section will investigate advanced fluid flow in non-Newtonian systems, and mixing and similarity studies as a case study of similarity techniques for Chemical Engineers.

Content

Fluid Particle systems: Motion of single particles through an infinite medium, terminal settling velocities, hydraulic classification, hindered settling, thickener design.
Flow through Packets beds: Laminar and Turbulent flow in packed beds, Carman Kozeny equation, Ergun equation, Applications to design and analysis of sand filters, filtration equipment and fluidised beds, pneumatic and hydraulic conveying, centrifugation.
Handling and transport of powders: Powder mixing, crushing, grinding and screening, sieve analysis of particulate matter, other size measuring techniques for particles.
Mixing: nature of processes requiring mixing, dimensional analysis of mixing, power requirements for mixing systems, scale up techniques, similarity studies in mixing, application of these techniques and concepts in the solution of problems on mixing.
Non Newtonian fluid flow: classification of fluids, viscosity, pipe flow of non Newtonian fluids.

Recommended reading

Coulson and Richardson Chemical Engineering Vol 2, 4th Edn, 1990
Feust and others, Principles of Unit Operations, 2nd Edn, 1980
Skelland, Non Newtonian Fluid flow and Heat Transfer

ES3045 Separation Processes

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of intermediate studies • Corequisites: Nil • Teaching methods: Lectures : 36 hours. Tutorials : 24 hours. • Assessment: Assignments, Examinations
Aims and objectives

To develop an understanding of the types of separation processes that can be used in Chemical Engineering plants

To apply basic engineering science in the design of separation systems

To develop basic design skills for selecting and sizing separation systems

To develop an understanding of, and a sensitivity to the environmental impact of the selection of particular separation processes.

Content

Teaching: mass transfer in leaching operations, countercurrent washing of solids, calculation of number of stages, graphical methods

Distillation: the methods of distillation (two component mixtures), the fractionating column, multi-component mixtures, azeotropic and extractive distillation, steam distillation. Liquid-liquid extraction. extraction processes, calculation of number of theoretical stages.

Adsorption: the nature of adsorbents, adsorption, adsorption equilibria

Membrane separation processes: classification of processes, micro filtration, ultra filtration.

Recommended reading


ES3095 Microbial Biotechnology

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of fourth year including Biochemistry 2 • Co-requisites: Nil • Teaching methods: Lectures: Laboratory. Site visits. Assessment: Assignments; Examinations; Reports

A subject in the Bachelor of Engineering (Chemical & Bioprocess)

This subject is adopted from a course in biochemistry which will soon be re-accredited. It is therefore subject to change. The re-accredited course in biochemistry will contain a subject substantially the same as the one described here, and will be used

Aims and objectives

To provide a thorough understanding of the processes involved in biotechnology and their applications in industry and human welfare.

To understand and appreciate the role of microorganisms in the degradation of pollutants and the production of useful products.

Content

Microbiology overview.

Microbial Genetics and Gene Manipulation: structures, inter-relationships and functions of nucleic acids. Transcription and translation, Genetic Control mechanisms, Mutations, Recombinant mechanisms in bacterial microbial genetics and industrial fermentation processes.

Fermentation Technology: nutrition and kinetics in batch and continuous fermentations, Design of Bio-reactors.

Yeast Technology: Fermentations involving Saccharomyces cerevisiae in the production of alcohol, wines and beers. Descriptions to include processing of starting material, methods of fermentation, biochemical reactions and enzymes.

Enzyme technology: Industrial enzymes, sources, production and industrial use of a range of selected enzymes. Immobilised enzymes, cells, organelles and co-enzymes and their theoretical stages,

Adsorption: the nature of adsorbents, adsorption, adsorption equilibria

Membrane separation processes: classification of processes, micro filtration, ultra filtration.

Recommended reading


ES3110 Civil Design and Materials

12.5 Credit Points • One semester • Hawthorn • Prerequisite: All second year subjects • Co-requisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials: 24 hours • Assessment: Assignments; Examinations

A subject in the Bachelor of Engineering (Civil)

Aims and objectives

To provide an appreciation of the systematic approach to design, construction and maintenance of civil engineering systems, and the comparative merits of common materials, and to develop basic skill in design practice; in the context of road, foundation and drainage design associated with residential subdivisions.

Content

Introduction to the design process: (25%) Problem formulation, user requirements, problem analysis, design specification; developing alternative solutions, creativity; evaluating design options, decision criteria and processes; documenting chosen design - drawings, specifications. Application to traffic and pedestrian case studies. System reliability, failsafe design, risk.

Residential foundation systems (20%) Site investigation and interpretation, site classification, selection of footing type, design of residential slabs and footings to AS2870-1998, effect on adjacent structures.

Drainage and flood mitigation systems (35%) Optional components, effects on surrounding areas, community use of floodways, water quality issues, system overload, floodway and reticulated drainage design.

Overview of engineering materials applicable to residential building and services construction (20 %) Comparison of principal characteristics of steel, timber, concrete, plastics, as used for shallow foundations, precast pipes, building trusses.

Recommended reading


Concrete Structures Institute of Engineers, Australia, 1997. Australian Rainfall and Runoff.
ES3120 Structural Design
12.5 Credit Points  One semester  Hawthorn  Prerequisite: ES2120 Structural Mechanics  Corequisites: Nil  Teaching methods: Lectures: 36 hours. Tutorials: 24 hours.  Assessment: Assignments; Examinations
Bachelor of Engineering (Civil).
Aims and objectives
- To enable students to use limits and load factors in the design of structures.
- To understand the nature of the loads that structures are subject to.
- To understand the design of deep foundations and the interaction of structures and the ground on which they are built.

Content
Structural design philosophes and loadings (5%) Design codes; drawings; planning and building permits; limit state and permissible stress design. Loading on structures; live and dead load codes; other loading codes.
Concrete structures; reinforced concrete design; design of reinforced concrete structures; limit state design requirements; durability, fire resistance, detailing of reinforcement. Design and detailing of plain concrete; reinforced concrete beams and one way slabs; short columns; simple footings and retaining walls. Design and testing of concrete mixes.
Steel design (42%) Behaviour and design of steel structures; principles; stability; design of tension members; compression members; beams; beam-columns and simple connections.
Timber design (8%) Behaviour and design of timber beams and columns.

Recommended reading

ES3150 Geotechnical Engineering
12.5 Credit Points  One semester  Hawthorn  Prerequisite: ES2155 Geomechanics  Corequisites: Nil  Teaching methods: Lectures: 36 hours. Tutorials/Projects: 24 hours.
Assessment: Assignments; Examinations
Bachelor of Engineering (Civil).
Aims and objectives
- To enable students to:
  - understand bearing capacity and the behaviour of shallow and deep foundations under load;
  - estimate lateral earth pressures on retaining structures;
  - understand the compaction of materials for strength and construction purposes;
  - understand the seepage or water flow through soils;
  - analyse slope stability;
  - recognise simple design and construction technology for retaining walls, deep foundations and dam/embankment construction.

Content
Shallow foundations (30%) Expand to include various methods of calculations, eccentric loading, inclined loading, factor of safety (n=1 and 2), effect of water table, layered soils, sloping ground and combined footings.
Lateral earth pressures (15%) Earth pressure theory for rigid retaining walls; stability and sizing of retaining walls; sheet pile walls; general design factors for retaining walls to Australian Standards.
Deep foundations (15%) Selection and size of single pile and pile group deep foundations; settlement and consolidation of deep foundations; construction of deep foundations; AS2159-1995.
Earth dam/embankment construction (20%) General principles of compaction; laboratory compaction; field compaction; relevance of compaction to road and dam construction; water flow through soil; seepage and protection from erosion and overtopping; cutoff and sealing dams.
Slope stability (20%) Stability of infinite slopes, ordinary method of slices, Bishop’s method of slices, factor of safety vs embankment construction or excavation, field measurements for monitoring slopes, site investigation for slope stability.

Recommended reading
Standards Australia AS1726-1993 Geotechnical Site Investigation Code

ES32159-1995 Piling - Design and Installation Code

ES3310 Control Engineering
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of first year including ET182 Electronic Systems  Corequisites: Nil  Teaching methods: Lectures: 24 hours. Tutorials/Seminars: 24 hours. Laboratory: 12 hours  Assessment: Assignments; Examinations; Labs; Pracs; Tests; Tutorials
Bachelor of Engineering (Chemical & Bioprocess, Manufacturing, Mechanical).
Aims and objectives
- To develop an understanding of the operational behaviour of a wide range of control systems.
- To develop the ability to determine a system’s transfer function and performance characteristics using theoretically and experimentally derived data.
- To develop the ability to apply classical linear control theory in designing and improving steady state and dynamic performance.
- To determine transfer functions from response-data for systems having a single input and output.

Content
Modelling and performance of control systems (8%). Overview of on/off and continuous control of mechanical, thermal and chemical systems. Physical relationships of basic components. Transfer functions. Block diagrams and their reduction. Overall system transfer function.
Fluid power control (24%). Hydraulic and pneumatic components and circuit design. Design of on/off and electro-hydraulic systems. Dynamic characteristics.
Dynamic response (32%) Time response - classical solution and Laplace transforms; transient response and steady-state error; Dominant poles and Root Locus analysis.
Frequency response - Bode diagrams. Stability analysis in time and frequency domain.
Experimental methods (8%) Determination of transfer functions and stability.
Design and compensation (24%) Improve steady state and dynamic performance using compensation techniques.

Recommended reading
Ogata, K., Modern Control Engineering, 3rd Edn, Prentice Hall, 1997
Shahin, B., and Hassul, M., Control System Design using Matlab. Prentice Hall, c1993
Henke, R., Introduction to Fluid Power Circuits and Systems, Addison-Wesley, 1970

ES3334 Thermofluid Systems
12.5 Credit Points  One semester  Hawthorn  Prerequisite: MS112 Engineering Mathematics 2, ET124 Energy and Motion.  Corequisites: Nil  Teaching methods: Lectures: 36 hours. Laboratories/ Tutorials: 24 hours.  Assessment: Examinations; Labs; Tutorials
This is a subject in the Bachelor of Engineering (Product Design Engineering).
Aims and objectives
- To introduce the fundamentals of thermodynamics.
- To develop the ability to use thermodynamics in product design.
- To introduce the fundamentals of fluid mechanics.
- To develop the ability to use fluid mechanics in product design.

Content
Thermodynamics (52%) Heat, work and the system, units, the state of a working fluid, reversibility, conservation of energy and the First Law of Thermodynamics, the non-flow equation, the steady-flow equation, liquid, vapour, gas, vapour tables, perfect gases, reversible non-flow processes, reversible adiabatic non-flow processes, polytropic processes, reversible steady flow processes, irreversible processes, the heat engine, entropy, the T-s diagram, processes on the T-s diagram, entropy and irreversibility, exergy, the Carnot cycle, the constant pressure cycle, the air standard cycle, the Otto cycle, the Diesel cycle, mean effective pressure.
Fluid Mechanics (48%) Introduction to fluid mechanics, fluid properties, fluid statics, fluid dynamics, Bernoulli’s equation, momentum, continuity, dimensional analysis, drag and lift, scaled models, applications to product design.

Required Text

References
**ES3350 Machine Design**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: Substantial completion of first year  •  Corequisites: Nil  •  Teaching methods: Lectures: 36 hours. Tutorials / Projects: 24 hours.  •  Assessment: Assignments; Examinations

A subject in the Bachelor of Engineering (Mechanical, Manufacturing, Robotics and Mechatronics, Product Design Engineering).

**Aims and objectives**
- To develop skills in the art of machine component design through design assignments.
- To develop the ability to perform design analysis with sufficient depth to enable innovation.
- To develop the ability to creatively design quality products for a sustainable environment.

**Content**
Introduction to design (8%)  Course aims. Course structure. Relationship with other subjects. Design as an applied subject. The role of analytical techniques in design. Introduction to design modelling.


Gears (16%) Spur, helical, bevel and worm gears: geometry, gear-tooth stresses, design approaches.

**Required text**

**References**
Singh, K., Mechanical Design Principles, Nantel Publications, Melbourne, 1996

**ES3360 Human Factors**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: Substantial completion of first year including EF1005 Engineering project, EF1009 Professional Engineering  •  Corequisites: Nil  •  Teaching methods: Lectures: 36 hours. Tutorials: 24 hours.  •  Assessment: Assignments; Examinations

A subject in the Bachelor of Engineering (Mechanical, Manufacturing, Robotics and Mechatronics).

**Aims and objectives**
- To provide a foundation engineering management skill set to prepare candidates for the requirements of their industry-based learning experience.
- To begin the preparation of engineering students for a world in which successful engineering requires more than the straightforward solution to clean-cut problems and demands the exercise of broad-based knowledge, skills and judgement.
- To introduce the multi-disciplinary nature of management and the profession of engineering.

**Content**
Introduction to engineering management (24%)  Evolution of engineering management thought, functions of technology management, managing technology and its elemental parts, engineering management processes.


Organisation behaviour (32%) Attitudes-motivation-leadership-morale within technical teams. Organisation culture, change and group dynamics. Organisation for OH&S.

Interpersonal skills: self-awareness-listening-goal setting-providing feedback-running meetings, delegating-persuading-politicking-coaching-team building, conflict management-resolving-conflicts.

**Required texts**

**References**
Babarock, D.L., Managing Engineering and Technology, Prentice Hall, 1995
Samson, D., Management for Engineers, Longman Cheshire, 1995
ES3700/3705 Industry Based Learning
12.5 Credit Points  Full time employment in relevant industry for 48 weeks  Prerequisite: Year 3  Corequisites: Nil  Teaching methods: Professional practice at the workplace. Placement supervision. Assessment: Report
This is a subject in the Bachelor of Applied Science (Environmental Health).

Aims and objectives
- To complete 48-weeks of full-time paid employment in an environmental health setting.
- To work as an environmental health trainee under the supervision of an accredited environmental health practitioner and be an effective member of a multi-disciplinary team within the industry.
- To complete the placement period with an appropriate level of attained technical competence in environmental health practice as required by the University IBL assessment process.
- To develop and refine verbal and written communication skills and personal qualities to an appropriate professional standard.

Content
Work requirements are established by the employer in consultation with environmental health staff of the University.

Recommended reading
As suggested by the academic and placement supervisors to support the student's progress and professional development.

ES4115 Civil Engineering Applications
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of third year  Corequisites: Nil  Teaching methods: Lectures: 36 hours. Tutorials: 24 hours. Assessment: Assignments; Examinations
This is a subject in the Bachelor of Engineering (Civil).

Aims and objectives
- To introduce students to environmental concepts, and natural systems.
- To develop an understanding of the environmental effects of construction practices, and construction site management required to control such effects.
- To develop engineering principles and design applications relevant to property services.
- To develop problem-solving and teamwork skills through group work on a substantial project.

Content
Introduction to the environment (15%). Sustainability and diversity, ecological systems, natural cycles and systems, evaluation of sites for contamination and preparation for re-use.
Environmental effects of construction (15%). Sources, effects of erosion and sediments, noise, vibration, air and water pollution, solid waste, monitoring, standards and regulation (including water quality)
Site management (10%). Site establishment, site control of pollutants.
Property services (45%). Drainage, water supply, fire fighting, sewerage.
System operation and maintenance (15%). Whole of life issues and economics, evaluation of present condition and maintenance requirements of engineering networks, systems to achieve required maintenance quality, operating manuals, maintenance schedules, reliability and risk.

Recommended reading
Tebbutt. Principles of Water Quality Control. Previous Student Investigations

ES4125 Structural Engineering Applications
12.5 Credit Points  One semester  Hawthorn  Prerequisite: ES3120 Structural Design  Corequisites: Nil  Teaching methods: Lectures: 36 hours. Tutorials: 18 hours. Laboratory Work: 6 hours. Assessment: Assignments; Examinations
Bachelor of Engineering (Civil).

Aims and objectives
- To develop further students understanding of the structural design process and practice.
- To develop a working knowledge of Australian standards.

Content
Reinforced concrete design (42%). Design and detailing of two way slabs; two way slab systems with and without drop panels; long columns under uniaxial and biaxial bending; design of stairs; cast in-situ walls; combined footings; introduction to prestress concrete.
Wind loading on structures (8%). Introduction to wind loading and the wind code using the simplified procedure.
Steel design (33%). Fabrication; erection; corrosion; resistance to lateral loads, bracing systems; design of plate girders; design of portal frames including analysis and design of connections.
Composite design (17%). Design of composite steel/concrete simply supported beams; design for strength, serviceability, fire resistance; construction considerations.

Maintenance and operations.

Recommended reading

ES4135 Transport Engineering
12.5 Credit Points  One semester  Hawthorn  Prerequisite: All second year subjects plus ES3150, Geotechnical Engineering and ES3110, Civil Design & Materials  Corequisites: Nil  Teaching methods: Lectures: 36 hours. Tutorials: 24 hours. Assessment: Assignments; Examinations
A subject in the Bachelor of Engineering (Civil).

Aims and objectives
- To introduce students to traffic engineering - traffic studies, planning and management.
- To develop analysis and design skills applicable to unsignalised and signalised intersections.
- To develop understanding of the behaviour and mechanistic design of road pavements.
- To introduce design of non-road modes of transport.
- To encourage reflective practice in design problem solving.

Content
Traffic engineering (25%). Traffic studies including traffic study planning, and field methods and analysis for speed and volume studies; introduction to traffic management including traffic flow, classification systems, management techniques for arterial and rural roads, and construction traffic management.
Intersections (30%). Objectives and principles of design; unsignalised intersections including gap analysis, roundabout analysis and layout principles; signalised intersections including principles of signalisation, analysis, layout principles and introduction to SIDRA; signing and linemarking; evaluation of intersection alternatives.
Pavements (30%). Traffic types and calculation, principles of pavement design, analysis and design of flexible and rigid pavements, introduction to CIRCLY, assessment of pavement alternatives.
Rail and air transport (15%). Introduction to planning and design related to rail and airports.

Recommended reading

ES4145 Structural Engineering 1
12.5 Credit Points  One semester  Hawthorn  Prerequisite: ES3120 Structural Design  Corequisites: Nil  Teaching methods: Lectures: 36 hours. Tutorials: 18 hours. Laboratory Work: 6 hours. Assessment: Assignments; Examinations
Bachelor of Engineering (Civil).
Aims and objectives

- To develop a sound knowledge of design and current practice of various commonly used materials.
- To develop a working knowledge of Australian standards.

Content

Design of pre-cast concrete (17%). Design and construction of tilt-up concrete walls. Planning, floor slab, foundations, panel layout, bracing, and connections.

Design of masonry (17%). Use of masonry; construction aspects; axial, in-plane and out-of-plane loading, reinforced masonry.

Cold-formed steel design (25%). Design of cold-formed steel structures including application to housing.

Wind loading on structures (25%) Static analysis, with particular reference to low rise industrial and commercial buildings.

Fire engineering (17%). Fire resistance levels; behaviour of materials and assemblies under fire; design of steel, concrete, masonry and timber.

Recommended reading

Concrete Institute of Australia, Design of Tilt-up Concrete Wall Panels, 1992
Walker, A.C. (Ed), Design and Analysis of Cold-Formed Sections, Intertext Books, London, 1999
IEA, Designing for Wind, Sydney, 1985

This is a subject in the Bachelor of Engineering (Civil).

Aims and objectives

- To understand the mechanism of fire and smoke spread.
- To understand the mechanism of smoke movement.
- To study the methods of smoke control and exhaust.
- To study the principle behind fire resistance levels.
- To investigate the role of structural elements and assemblies.
- To investigate the role of barriers, the reliability of barriers, openings and structures.
- To understand the behaviour of materials under fire.

Content


Recommended reading

Fire Code Reform Centre, Fire Engineering Guidelines, Canberra, 1996
Butcher & Purnell, Design for Fire Safety

This is a subject in the Bachelor of Engineering (Civil).

Aims and objectives

- To develop an awareness of efficient site management techniques.
- To develop an understanding of design, construction & behaviour of flexible and rigid industrial, heavy and airport pavements.
- To provide greater understanding of the area of materials technology (granular materials, asphalt, and recycled materials).

Content

Responsibilities of a project manager (15%). Responsibilities of a site engineer (15 %)
Construction site organisation (20%)
Materials Technology (15%)- asphalt & granular materials
Design & construction of heavy duty pavements (20%)- flexible and rigid pavements
Life-cycle costing & economics of pavements (10%)
Site visits (5%)

Recommended reading

Bennett, J., Construction Project Management, Butterworths, 1985
Smith, M., Contracts, Butterworths, 1988
Wan, P.B., Psychology at Work, Penguin, 1987
Hedley, G. & Garrett, C., Practical Site Management, George Godwin, Longman, 1983
Grant, J.V. & Smith, G., Personnel Administration and Industrial Relations, Longman, 1984
Hyman, R., Strikes, Fontana, 1984
Champagne, P.J., McAfee, R.B., Motivating Strategies for Performance and Productivity, Quorum Books, 1988

This is a subject in the Bachelor of Engineering (Civil).

Aims and objectives

- To develop an understanding of efficient site management techniques.
- To develop the techniques and principles for the environmental evaluation and assessment of development projects.
- To develop skills using the internet as a research tool.
Content
Environmental policy tools (10%) Environmental law, regulatory framework, statements on the environment, State environment protection policies, permits and enforcement
Formal tools of evaluation (10%) Environmental impact and effects statements, economic regulatory impact statement
Environmental management systems (10%) Environmental codes: ISO 14000 and BS 7750
Understanding of sustainable development (10%) Issues and implications.
Natural systems and effects of development on natural systems (10%)
Factors in evaluation of projects (10%) Ecological, social, economic, equity, resources and energy.
Strategies of environmental management (10%) Reduce, reuse, recycle, economic control, limits, financial incentives and education.
Processes in community consultation and collaborative decision making (10%)
Illustration with municipal solid waste management system, and effect of waste management decisions in system operation (10%)
Student case studies to demonstrate evaluation of projects (10%) On water resource management, energy conservation, coastal management, forest management and waste management.

Relevant reading
Planning and Environment Act, 1987
Environmental Effects Act 1979
The Environment Protection (Impact of Proposals) Act 1974
Environment Protection Act 1970 including all regulations and statutory policies ISO 14000

ES4210 Operations Analysis
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of the Intermediate Level of the course  Corequisites: Nil  Teaching methods: Lectures: 36 hours; Tutorials and Laboratory: 24 hours  Assessment: Assignments; Examinations; Labs
A subject in the Bachelor of Engineering (Manufacturing).

Aims and objectives
• To develop a thorough understanding of all functions and their relationship in a manufacturing system, how it is planned, operated and controlled.
• To develop foundation knowledge of decision making technology and techniques available.
• To introduce methods of analysis and planning of facilities layout: considering products, processes and effective materials handling facilities.

Content
Operation management and the transformation process (16%) Operations as a competitive weapon both in service and manufacturing, operation strategy, corporate strategy, strategic choices, global strategies and market analysis.
Decision Making (16%) Break even analysis, decision theory and decision making under certainty, decision theory and decision making under uncertainty, decision making under risk, value of perfect information, sensitivity analysis and decision trees.
Mathematical modelling for decision making (16%) Linear programming, queuing theory, probability theory, marginal analysis and simulation. Statistical process control, source of variation, inspection process, sample size considerations and process capabilities.
Concurrent Engineering (16%) Simultaneous engineering, interactive design, eg. waigaya methods used in Honda.
Operating Decisions (16%) Forecasting techniques such as time-series analysis, regression models, econometric models, economic indicators and substitution effect, non-parametric forecasting techniques such as jury of opinion, sales force composition and customer evaluation.
Scheduling in operations (16%) The Gantt chart networks and performance measures.

Required text

References
Chapman, C.B., Cooper, D.F, Page, M.J., Management For Engineer, John Wiley & Sons, 1987

ES4250 Design for Manufacture
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of Intermediate Studies plus ES2280 Manufacturing Technology 1  Corequisites: Nil  Teaching methods: Lectures: 48 hours; Laboratory: 24 hours  Assessment: Assignments; Examinations; Bachelor of Engineering (Manufacturing).

Aims and objectives
• To develop design tools, robot grippers and quality control systems.
• To provide skills to analyse existing and new design of tools, fixtures and products.
• To develop knowledge of advanced design and analysis techniques as well as practical methods used in the design of tooling.
• To develop the ability to design tooling and machinery which conforms to specifications of quality and function developed the ability to design tooling and machinery which conforms to specifications of quality and function.

Content
Design for assembly (8%) Design for assembly, methods of assembly, Feed mechanisms, manual and automated, part transfer, insertion and fastening.
Die design (24%) Design of dies for metal forming processes: forging dies, cold, warm and hot forging, forging sequence. Design of dies for die casting and plastic moulding, heat analysis.
Design for industrial robots (8%) Robot end effector design. Robot applications: materials handling, palletising, welding, glueing. Robot dynamics: cartesian and polar configurations, external load, acceleration and forces.
Design of fixtures and gauges (8%) Locating and clamping, jig types and construction, burthing types and application. Standard fixtures, special fixture designs. Design of gauges.
Quality control and reliability (16%) Control charts for variable and attribute data, process capability, Pareto diagrams, acceptance sampling, incoming and final inspection, quality rating. Reliability of systems, modes of failure, mean time to failure.
Computer laboratory (32%) Using parametric and CAD software for tooling design.

Recommended reading
Smith, D., Die Design/Metal Forming, 3rd Edn Society of Manufacturing Engineers, 1991
Corbet, J., Dover, M., Mleka, J., Pym, C., Design For Manufacture, Addison Wesley, 1993

ES4280 Manufacturing Technology 2
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of Intermediate Studies plus ES2280 Manufacturing Technology 1  Corequisites: Nil  Teaching methods: Lectures: 50 hours; Laboratory: 10 hours  Assessment: Assignments; Examinations; Labs
A subject in the Bachelor of Engineering (Manufacturing).

Aims and objectives
• To develop the knowledge of processes used in the manufacture of sheet and bulk formed metal, manufacture of plastic products and machined components.
• To develop awareness and skills in the analysis of process parameters in order to achieve quality and productivity in the application of metal forming and polymer processes.

Content
Aims and objectives

- To develop mechanical design skills applied to more complex and diverse engineering systems.
- To develop an appreciation of system design principles in both engineering and nature.
- To develop the ability to estimate the risk and reliability of mechanical systems.
- To gain an understanding of vehicle design through examples from industry.

Content


Risk Engineering (8%) Introduction to risk engineering. Risk and loss prevention measures. Effects on product design, use and occupational health and safety. Risk analysis.


Power Transmission & Storage Systems (8%) Mechanical, hydraulic and electrical transmissions: characteristics & losses, practical design. Energy storage and conservation.

Fluidic Systems (8%) Fluid power systems, design characteristics of hydraulic and pneumatic systems, linear actuators, pumps, valves and motors. Operational cycles.

Pressure Vessels (8%) Pressure vessel design, AS 1210 Unfired Pressure Vessel Code, design aspects. Computations and submission to authorities.

Industrial noise control (16%) Fundamental concepts. Propagation and dissipation of sound. Control of noise at the source, along the path and at the receiver. Industrial and commercial silencing.

Vehicle Design (16%) Drive train layouts, chassis, suspension, engine selection. Lectures by engineers from industry on selected system design topics.

Recommended reading

Buley, M., Industrial Noise Control, Class notes, Swinburne University of Technology

ES4700 Research Skills

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Introduction to Statistics

Corequisites: Nil • Teaching methods: Lectures/class discussion • Assessment: Assignments, Tests

Aims and objectives

- To develop the skills necessary to undertake a research project.
- To assist the student in identifying appropriate research topics and methodologies.

Content

Identification of proposed research topic, methodology and hypotheses.

Research preparation: Problem formulation, research design, objectives and scope, ethics.

Planning strategies, information sources, time management and team work.

Research methodologies appropriate to the health sciences.

Literature review: abstracting and paraphrasing, citations and bibliographies.

Research presentation and follow up: Layout, style, press release and follow-up strategies.

Recommended reading


ES4330 Thermodynamics 2

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of Intermediate Studies plus ES2330 Thermodynamics 1 • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials / Projects: 24 hours • Assessment: Assignments; Examinations; Projects

A subject in the Bachelor of Engineering (Chemical & Bioprocess, Manufacturing, Mechanical).

Aims and objectives

- To enhance understanding of nozzles, rotodynamic machinery, heat pumps, psychrometry, heat transfer and numerical heat transfer with computer applications.
- To develop an appreciation of the design principles in thermo-fluid systems.
- To develop the ability to analyse existing thermo-fluid systems and contribute to new designs.

Content

Nozzles and Jet Propulsion (16%) Nozzle shape, critical pressure ratio, maximum mass flow, off-design performance, nozzle efficiency, steam nozzle, stagnation, jet propulsion.

Rotodynamic Machinery (16%) Rotodynamic machines for steam and gas turbine plant, impulse steam turbines, pressure and velocity compounded turbines, axial-flow reaction turbines, losses in turbines, axial-flow compressors, overall efficiency, stage efficiency, reheat factor, polytropic efficiency, centrifugal compressors, radial-flow turbines.

Refrigeration and Heat Pumps (8%) Reversed heat engine cycles, vapour compression cycles, refrigerating load, pressure-enthalpy diagrams, compressor types, use of flash chamber, vapour absorption cycles, gas cycles, liquefaction of gasses, steam-jet refrigeration, refrigerants & control.

Psychrometry and Air-conditioning (16%) Psychrometric mixtures, conditioning systems, cooling towers.

Heat Transfer (24%) Fouier’s law of conduction, Newton’s law of cooling, composite systems, electrical analogy, general conduction equation, numerical methods for conduction, two-dimensional steady conduction, one-dimensional transient conduction, forced convection, free convection, lumped systems analysis, heat exchangers, heat exchanger effectiveness, extended surfaces, black-body radiation, grey body, Stefan-Boltzmann law, Lambert’s law, radiant interchange, heat transfer coefficient for radiation, gas radiation, numerical heat transfer.

Alternative Energy Sources (16%) Solar Energy, fuel cells, other alternative energy resources.

References

Rogers, G. and Mayhew, Y., Engineering Thermodynamics, 4th Edn Longman, 1992

ES4350 Mechanical Systems Design

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of Intermediate Studies plus ES3350 Machine Design • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Projects / Tutorials: 24 hours • Assessment: Assignments; Examinations; Oral Presentation; Poster

Bachelor of Engineering (Mechanical).

Aims and objectives

- To develop mechanical design skills applied to more complex and diverse engineering systems.
- To develop an appreciation of system design principles in both engineering and nature.
- To develop the ability to estimate the risk and reliability of mechanical systems.
- To gain an understanding of vehicle design through examples from industry.
ES4705 Research Project
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Completion of year 1-3  Corequisites: Nil  Teaching methods: Staff/student consultation  Assessment: Project Report.
This is a fourth year subject in the Bachelor of Applied Science (Environmental Health).
Aims and objectives
- To undertake a research project of relevance to environmental health.
- To provide for practical application of the research principles studied in earlier subjects.
- To develop teamwork and collaborative skills.
- To develop project management skills.
Content
Students undertake a program of research based on an environmental health topic of their choosing.
Recommended reading
As required by the specific research project.

ES4715 Health Planning and Promotion
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Nil  Elective subject - Student can propose alternative subject of appropriate academic standard from University-wide programs.  Corequisites: Nil  Teaching methods: Lectures/group work  Assessment: Assignments; Group Work; Tests
This is a fourth year subject in the Bachelor of Applied Science (Environmental Health).
Aims and objectives
- To introduce the concepts and strategies of health planning and promotion.
- To examine the social and cultural factors involved in health planning and promotion.
- To understand the education techniques available in health planning and promotion.
- To review current public health policies.
Content
- A review of the key concepts and strategies in community health, early identification, treatment, disease prevention and health promotion strategies.
- Social, cultural and psychological factors involved in health promotion and disease prevention behaviours.
- Health promotion programs. Opportunities, responsibilities for health educators.
- Multimedia health promotion strategies and techniques.
- Instructional techniques and communication skills for health educators. Needs Assessment Techniques (incorporates Category Two Workplace training and Assessor training).
- Program evaluation strategies, performance indicators.
- Public Health Plans.
- Examination and review of local, national and international health planning and promotion policies and programs.
Recommended reading
Dowrie, R. S., Health Promotion: Models and Values. Oxford University Press. 1990
Dignan, M., Cart, P., Program Planning for Health Education & Health Promotion. Lae and Feibiger. 1987

ES4720 Environmental Management
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Nil  Elective subject - Student can propose alternative subject of appropriate academic standard from University-wide programs.  Corequisites: Nil  Teaching methods: Lectures/ field visits  Assessment: Assignments; Examination; Tests
This is a fourth year subject in the Bachelor of Applied Science (Environmental Health).
Aims and objectives
- To study major causes and effects of environmental pollution.
- To examine the dangers inherent in the use hazardous substances, and control measures required to minimise or eliminate hazards.
- To study the effects of soil contamination and remedial measures available.
Content
- Basic ecology, “indicator” organisms and their role in ecosystems, nutrient cycles and the effects of imbalances, biological effects of heavy metals contamination, sewage treatment, biological aspects of soil remediation.
- Hazardous substances and hazardous waste overview, types of hazardous substances and associated environmental and health hazards inc: class labelling of dangerous goods, material safety data sheets, human and ecotoxicity, environmental chemical processes in the unpolluted environment (air, water and soil).
- Current environmental issues inc: greenhouse effect, ozone depletion, photo chemical pollution, acid rain.
- Contaminated sites inc: sources of contamination, organics, heavy metals, site remediation including vapour extraction, bioremediation, stabilisation, soil washing, cap and contain, removal and disposal.
- Environmental auditing.
- Use of process flow diagrams. Simple process calculations. Disposal and dispersal of pollutants (air, water, and land).
Recommended reading
Manahan, S. E., Hazardous Waste, Chemistry, Toxicology & Treatment. Chelsea Lewis. 1993

ES4725 Occupational Health and Safety
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Introductory Chemistry, Foundation Mathematics, Environmental Measurement. Elective subject - Student can propose alternative subject of appropriate academic standard from University-wide programs.  Corequisites: Nil  Teaching methods: Lectures/ demonstrations/ fieldwork  Assessment: Assignments; Examination
This is a fourth year subject in the Bachelor of Applied Science (Environmental Health).
Aims and objectives
- To create an awareness of the types and nature of occupational hazards prevailing in particular industries.
- To develop an understanding of the specific effects that these hazards have on human health.
- To study the legal requirements on employers to create a safe working environment.
- To understand the principles of safe work practices, and the rationale of safety codes.
Content
- Workplace hazards. Accident prevention and work related injuries.
- Employers responsibility, duty of care, responsibility for reasonable precautions.
- Occupational noise and vibration exposure.
- Radiation: ionising and non-ionising.
- Electrical power and electrical appliances.
- Toxic substances: mechanisms of action and pathogenic effects.
- Routes of absorption of toxic substances.
- Evaluation and control measures.
- Safety technology.
- Fire and explosion.
- Chemical safety in the workplace. Handling, hazard identification.
Recommended reading
Mathews, J. Health & Safety at Work. 2nd Edn Pluto. 1993

ES4730 Food Safety 2
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Food Microbiology, Food Safety 1, Food Science  Corequisites: Nil  Teaching methods: Lectures/ class and field exercises  Assessment: Assignments; Examination; Tests

Swinburne University of Technology | 1999 Higher Education Handbook
This is a final year subject in the Bachelor of Technology (Building Surveying).

Aims and objectives

- To introduce the principles, methodology and scope of performance based codes, including an understanding of the inputs, outcomes and the limitations of this method of design.
- To provide a solid grounding in the interpretation and use of the Building Act Regulations and Building Code of Australia including a conceptual framework and historical background.
- To develop the techniques of probabilistic and deterministic performance design.
- To develop a general and introductory model of the structure of performance design and approval.
- To provide background and complementary material essential to the understanding of further subjects in the course.
- To introduce the timeline approach to analysis of performance based design.

Content

- Conceptual framework (40%) Performance regulations. Life safety, illness and injury, health, safety and amenity asset protection. The philosophy of building control.
- Historical background - Australia, New Zealand and other overseas countries. International approaches New Zealand, Canada, US, UK.
- Assessment (20%) Risk assessment and approach - a managerial overview. Safety in buildings - risks and costs, lifecycle performance and maintenance of essential services. Quality assurance and inspections.

ES4815 Building Control 6

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES4810 • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials: 24 hours. Assessment: Assignments, Examinations

This is a final year subject in the Bachelor of Technology (Building Surveying).

Aims and objectives

- To introduce the basic fire engineering design concepts.
- To discuss the statistical background to fire safety; evaluation including timeline analysis.
- To analyse human behaviour, occupant communication and human responses during a fire.
- To assess the necessary input data for risk assessment.
- To provide a solid grounding in the interpretation and use of the Building Act, Regulations and Building Code of Australia applicable to large building projects.

Content

- Approval process (20%) Impact of performance based regulations on the approval process.
- Impact of fire on society (30%) Life and cost. Fire growth and spread - people behaviour and fire effects. Human behaviour in fire . Fire statistics and statistical analysis.
- Risk Management (30%) Introduction to risk management. NFPA evaluations - fire safety tree, fault trees and event trees.

Recommended reading

Australian Building Codes Board, Building Code of Australia, 1996
Fire Code Reform Centre, Fire Engineering Guidelines, 1996

ES4820 Construction 5

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES2825 • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials: 24 hours. Assessment: Assignments, Examinations

This is a final year subject in the Bachelor of Technology (Building Surveying).
Aims and objectives
- To give students an appreciation of the general principles and structural details for multi-storey buildings and of special structures.
- To extend students' knowledge in the area of connections.

Recommended reading
As per Construction 1 and 2
Economical Steelwork Australian Institute of Steel Construction Geological Survey of Victoria Bulletin 59: Geology of the Melbourne District, Victoria
Site Investigations Code
Residential Footing Code
Principles of Geotechnical Engineering Das, B.M.

ES4845 Management 2
12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES2845 • Corequisites: Nil • Teaching methods: Lectures: 48 hours. Tutorials: 12 hours. • Assessment: Assignments; Examinations
This is a final year subject in the Bachelor of Technology (Building Surveying).

Aims and objectives
- To deal with types of contracts and administration of contracts.
- To understand the processes applied to industrial relations in Australia.
- To provide advanced concepts of measuring and estimating of materials and costs.

Content
Contracts (30%) Types of contracts and contract documents. Relationship between conditions of contract, specifications, drawings and bill of quantities. Understanding and preparation of specifications. Administration and enforcement of contract.
Industrial relations (30%) The structure of collective bargaining conciliation and arbitration machinery, the structure and operations of trade unions and employer association, and the associated problems. Legislation dealing with equal opportunity and Occupational Health and Safety Workplace reform. Structure of awards.
Measurement and estimating (40%) Measuring the materials and elements of a project. Application of basic rules to estimate cost. Quality control. Estimating field work.

Recommended reading
Arbitration Act
Occupational Health and Safety Act
Equal Employment Opportunity Act
Practical Specification Writing for Architects, Bowyer, J., 1981
Various building and engineering contracts
Cordell
Rawlinson
Construction Economist

ES4850 Applied Structures 3
12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES2850 • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials: 24 hours. • Assessment: Assignments; Examinations
This is a final year subject in the Bachelor of Technology (Building Surveying).

Aims and objectives
- To familiarise students with the relevant codes of practice for concrete and masonry structures.
- To introduce students to the techniques and methods of structural plan checking.

Content
Concrete structures code (40%) General design requirements for beams, slab and columns. Shear for beams, slab and footings. Reinforcement layout and site control. Masonry code (30%) Materials. Design considerations and structural design. Site control.

ES4860 FireTechnology 1
12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES4860, ES2835 • Corequisites: Nil • Teaching methods: Lectures: 48 hours. Tutorials: 12 hours. • Assessment: Assignments; Examinations
This is a final year subject in the Bachelor of Technology (Building Surveying).

Aims and objectives
- To provide basic information of fire techniques.
- To explain the processes of pre and post fire development including ignition, material flash over, fire growth and smoke development.
- To discuss the system of fire, heat and smoke detection and extinguishment.
- To discuss the role played by the building surveyor and the Fire Brigade.

Content
Combustion process (20%) Fire triangle. Fire, heat, smoke development and spread.
Heat transfer mechanism including radiation, combustion of gases and vapours, fire plumes. Combustion of gases, liquids and solids, fire toxicity of products of combustion. Fire behaviour (20%) Fire behaviour of materials and products and fire retardants, fire test methods.
Fire initiation and development (20%) Pre and post flashover fires. Mathematical modelling of enclosed fires (zone and field models). Design principles for fires, heat and smoke development systems. Management of fire initiation and development and implications to performance design.
Design principles for detection (20%) Alarm and extinguishment. Designer principles for smoke management systems. Fire engineering design for extinguishment, system reliability, water supply and hydraulics. Fire detection and alarm systems, water based extinguishment.
Operation (20%) Fire brigade role, response and operations. Maintenance and operation.

ES4865 FireTechnology 2
12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES4865, ES2835 • Corequisites: Nil • Teaching methods: Lectures: 48 hours. Tutorials: 12 hours. • Assessment: Assignments; Examinations
This is a subject in the Bachelor of Technology (Building Surveying).

Aims and objectives
- To understand the mechanism of fire and smoke spread.
- To understand the mechanism of smoke movement.
- To study the methods of smoke control and exhaust.
- To study the principle behind fire resistance levels.
- To investigate the role of structural elements and assemblies.
- To investigate the role of barriers, the reliability of barriers, openings and structures.
- To understand the behaviour of materials under fire.

Content

Recommended reading
Fire Code Reform Centre, Fire Engineering Guidelines, Canberra, 1966
Butcher & Purnell, Design for Fire Safety

ES4875 Professional Project
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of fourth year • Corequisites: Nil • Teaching methods: Lectures: 12 hours. Workshops/consultation with supervisors: 48 hours. Students will work in small teams on selected projects under staff supervision, and will be required to meet regularly with their supervisors. • Assessment: Report presentation; Poster Paper; Thesis
This is a final year subject in the Bachelor of Technology (Building Surveying).
Aims and objectives
To develop students’ initiative and self-education skills through work on investigation projects in building surveying topics relevant to the course, and in particular to assist students to apply knowledge acquired in previous studies to a specific problem, explore published literature as an aid to understanding and investigating, develop a systematic approach to engineering investigation and practice presenting recommendations drawn from well-founded conclusions.

Content
At the start of the semester each student team will prepare and present a plan of investigation for their project to staff and other students. Each project will require a literature review, the formulation of a proposition, and an outline of the intended method of testing the proposition. A substantial literature review must be completed by the end of the fifth week of the semester. During the tenth week interim results and conclusions will be submitted in the form of a poster paper accompanied by an oral presentation to staff, students and visiting professionals. A final written report will be submitted to supervisors at the end of the semester.

Recommended reading

ES5001 Research Project
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of intermediate studies  Corequisites: Nil  Teaching methods: Lectures: 5 hours: Project meetings with supervisor as required. Laboratory: 45 hours. Seminars. Poster presentations. Assessment: Assignments; Class presentations; Research Paper
A subject in the Bachelor of Engineering (Chemical & Bioprocess).

Aims and objectives
• To develop collaborative and team work skills
• To develop project management skills
• To undertake a major project and complete the task satisfactorily within time and budget
• To develop an understanding of the processes of research
• To develop advanced skills in literature review and report writing

Content
Lectures: Topics covered will include: the philosophy of research; research planning; research budgets; research record keeping; research reporting.
Laboratory: major investigation by students working in pairs. Types of investigation may include: laboratory experiment to test an hypothesis, pilot plant modification and recommissioning; operational plant improvement. Projects will be undertaken under the supervision of an individual staff member. Students will have regular project review meetings with their supervisor: time and duration by negotiation.
Seminar: Students will give a short presentation in Week 3 of the semester on the aims and methods of their projects/Poster presentation. Students will present posters of their projects in the final week of the semester.
Project thesis: a major thesis (not exceeding 100 pages) is to be submitted by each pair of students. The contribution of each student is to be clearly indicated both in the authorship of chapters of the thesis and in a statement of work completed from each student.

References and Texts
As advised by project supervisor

ES5051 Process Equipment and Reactor Design
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion of third year  Corequisites: Nil  Teaching methods: Lectures, guest lectures, tutorials, projects Assessment: Assignments; Examinations
A subject in the Bachelor of Engineering (Chemical & Bioprocess), Graduate Diploma in Chemical Engineering.

Aims and objectives
• To understand the nature of physical processes interacting with the chemical reactions in reactive systems, in order to select the suitable reactor type, size, and operating conditions.
• To select and specify major equipment to carry out particular processes: chemical reactors, heat and mass transfer equipment, equipment for storage and transport of fluids - based on scientific principles as well as engineering considerations such as materials, costs, safety and environment.

Content
Reactor Design (50%) Review of basic chemistry. Stoichiometry; order of reaction; heats of reaction; van’t Hoff equation. Chemical kinetics; effect of temperature and other variables on reaction rate, homogeneous reactions. Types of reactors.
Batch reactor design. Constant-volume and variable-volume batch reactors; analysis of data.
Non-ideal flow in reactors. Residence time distribution; age distribution curves; use of tracer informatics; diagnostics for equipment performance. Heterogeneous reaction systems. Fluid/particle reactions; shrinking core model; fluid-bed reactors.
Non-destructive examination and testing. Pump selection. Pressure vessel design.

Recommended reading
Sinnott, R., Coulson & Richardson’s Chemical Engineering. vol. 6, 2nd Edn Butterworth 1997
Perry, R & Green, D., Chemical Engineers’ Handbook. 7th Edn McGraw Hill 1997
Levenspiel, O., Chemical Reaction Engineering. 2nd Edn John Wiley and Sons 1972
Dentigh, K & Turner, J., Chemical Reactor Theory – An Introduction. 3rd Edn Cambridge 1984
Coulson, J. & Richardson, J., Chemical Engineering. vol. 3, 3rd Edn: Pergamon 1996

ES5055 Process Control and Environmental Engineering
12.5 Credit Points  One semester  Hawthorn  Prerequisites: Substantial completion of fourth year  Corequisites: Nil  Teaching Method: Lectures: 48 hours. Tutorials: 24 hours Assessment: Assignments, Examinations
A subject in the Bachelor of Engineering (Chemical & Bioprocessing).

Aims and objectives
Part A: Environmental and Safety Assessment
To further develop students knowledge and understanding of the environmental implications if engineering activities and an understanding if the responsibilities if engineers under the occupational health and safety laws.
Part B: Process Control
To develop skills in control design and implementation of systems for chemical (including biochemical and food) plants. Provide the mathematical tools to analyse process dynamics, investigate system stability and understand the implications of these for chemical plant design.

Content
Part A: Environmental and Safety Assessment (50%)
Cleaner Production: philosophy of cleaner production, management approach to cleaner production and case studies of the implementation of cleaner production
Occupational Health and Safety: the health, moral, social, and legal responsibilities...
associated with the practice of chemical engineering, & the implications of the relevant legislation.

**Part B: Process Control (50%)**

Introduction: steady state process dynamics, process modelling, closed loop, process stability

Chemical Process Models 1: continuity, energy & transport equations, equations of state, kinetics

Chemical Process Models 2: CSTR series, isothermal, variable hold-up, batch reactor, distillation Process Dynamics: time, la-Place & frequency domains, Nyquist, Bode, & Nichol’s plots,

Feed Back Control: proportional, derivative, integral, Routh & Nyquist stability criterion.

Feed Forward Control: principles of invariance, linear/non linear systems, dynamic tuning. Fuzzy Logic Control Principles.

**Recommended reading**


**ES5065 Process Plant Design and Economics**

12.5 Credit Points • One semester • Hawthorn • Prerequisites: Substantial completion of intermediate studies • Corequisites: Nil • Teaching Method: A major plant design project, plus lectures, guest lectures, tutorials • Assessment: Class presentations, Research Paper

A subject in the Bachelor of Engineering (Chemical & Bioprocess), Graduate Diploma in Chemical Engineering

**Aims and Objectives**

- To apply knowledge acquired during the course to the development and design of a new processing plant, from concept evaluation to final production.
- To develop skills in planning, executing and reporting on a major project.

**Content**


In addition to lectures and tutorials, students will be given a plant design assignment and are expected to submit a design report containing, among other things: statement of problem, final design proposal, environmental impact statement, flowsheets and drawings, material & energy balances, major equipment list & specifications, plant layout, summary of cost and profit analyses, and design data and calculations.

**Recommended reading**


Sinnott, R, Coulson & Richardson's Chemical Engineering. vol. 6, 2nd ed., Butterworth 1997


**ES5095 Bioprocess Engineering**

12.5 Credit Points • One semester • Hawthorn • Prerequisites: Substantial completion of third year including ES3005; Microbial Biotechnology • Corequisites: Nil • Teaching Method: Lectures: 36 hours. Tutorials: 24 hours • Assessment: Assignments, Examinations

A subject in the Bachelor of Engineering (Chemical & Bioprocess), Graduate Diploma in Chemical Engineering

**Aims and objectives**

- This subject will fully develop the connection between the various engineering subjects in the course and the biological subjects.
- The subject will develop the integrative skills that will enable the graduate to modify practices of Chemical Engineering to accommodate the specific requirements of biological systems.

**Content**

A selection will be made from the following topics in order to identify problems that occur at the interface of biology and engineering, and to discuss ways in which these problems can be solved or contained. For each topic the biological aspects and limitations will be emphasised. Case studies will be used where appropriate.

Design of bioreactors: Selection of materials (bio sensitivity), preparation of materials, nutrient supply, flow properties, mixing, agitation, shear rates, gas inputs and outputs, foaming, temperature control, sterilisation, contamination, inert supports.

Mass Transfer: Boundary layers, nutrient diffusion and transfer, shear rates and mixing.


**Recommended reading**


**ES5100 Professional Practice and Investigations 1**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES3100 Civil Engineering Project Management • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Workshops: 24 hours • Assessment: Assignments; Class presentations

A subject in the Bachelor of Engineering (Civil).

**Aims and objectives**

- To apply project management concepts to specific areas of civil engineering;
- To introduce aspects of business management relevant to professional practice;
- To understand the engineer's role in society, & effects of civil engineering on the environment;
- To practise decision-making and communication skills;
- To develop a systematic approach to engineering investigation.

**Content**

Professional Engineering (75%) The engineer in practice: Phases of engineering: research & investigation, design, construction, operations & maintenance; the role of a professional engineer in society; professional ethics; professional institutions; self-employment, consulting practice; employment outside Australia.

Business strategies and practice: Current theories of business management; company structures; setting objectives & assessing performance; management reporting systems; introduction to the marketing function; innovation and entrepreneurship; selected business practices: project scheduling; just-in-time inventory control; total quality management.

Human resource management: Staff recruitment, appraisal & compensation; training & development; motivation, job enrichment, employee participation; project teams and task forces.

Decision-making and communication: Problem definition & analysis; developing alternatives; selecting evaluation criteria; corporate decisions, negotiation & teamwork; creative & lateral thinking, effective speaking, writing & graphical presentation.

Financial criteria: Budgets; profitability; project evaluation; life-cycle costing; discounted cash-flow; present worth criteria: rates of return, benefit-cost analysis, payback period. Environmental criteria: Ecological systems & habitat; values of natural systems, sustainable use of renewable resources; managing non-renewable resources;
Aims and objectives

- To develop students’ initiative and self-education skills through work on investigation projects in civil engineering topics relevant to the course, and in particular to assist students to:
  - apply knowledge acquired in previous studies to a specific problem
  - explore published literature as an aid to understanding and investigation
  - develop a systematic approach to engineering investigation
  - present and defend recommendations drawn from well-founded conclusions

Content

Investigation Project: Construction Management and its Application. A range of designs will be chosen which will require permission; contract documentation: conditions of contract, drawings, specifications & schedules of quantities; tendering procedures & evaluation of tenders.

ES5105 Professional Practice and Investigation 2

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES5100 Substantial completion of fourth year • Corequisites: Must be enrolled in same year as ES5100. • Teaching methods: Lectures: 24 hours. Workshops /consultation with supervisors: 36 hours. Students will work in small teams on selected projects under staff supervision, and will be required to meet regularly with their supervisors. • Assessment: Class Presentations; Research Paper

A subject in the Bachelor of Engineering (Civil).

Aims and objectives

To develop students’ initiative and self-education skills through work on investigation projects in civil engineering topics relevant to the course, and in particular to assist students to:

- apply knowledge acquired in previous studies to a specific problem
- explore published literature as an aid to understanding and investigation
- develop a systematic approach to engineering investigation
- present and defend recommendations drawn from well-founded conclusions

Content

Investigation Project (75%): Building on planning and research in Semester 1 (ES5100), a substantial literature review must be completed by the end of the fifth week of the semester. During the tenth week interim results and conclusions will be submitted in the form of a poster paper accompanied by an oral presentation to staff, students and visiting professionals. A final written report will be submitted to supervisors at the end of the semester.

Professional Engineering Practice (25%)

Project initiation: Feasibility studies; estimating & cash flow forecasting: planning permission; contract documentation: conditions of contract, drawings, specifications & schedule of quantities; tendering procedures & evaluation of tenders.

Project control: Critical path methods, cost control, quality assurance; construction documentation: contract variations, claims, partial and final certificates; contract disputes: the role of the arbitrator, legal procedures.

ES5110 Design and Construction 1

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantially completed Semester 6 • Corequisites: Currently enrolled in substantial semester 7 • Teaching methods: Students will work in teams on a number of designs supported by a series of weekly lectures to provide theory as required, concept and guidelines. Students will work in teams to address the case studies. Lectures, workshops and consultation equivalent to: Assessment: Case Studies; Oral Presentation; Report

This is a subject in the Bachelor of Engineering (Civil).

Aims and objectives

- To enable students to practise design of the elements of civil works and structures
- To develop students’ abilities to synthesise knowledge in a project design situation.
- To further develop students presentation skills.
- To further develop teamwork skills.
- To enable students to appreciate and evaluate the impact of construction and maintenance in designs

Content

Civil Engineering System Design: A range of designs will be chosen which will require creative solutions. Assignments will be in the form of written reports, oral presentations, design computation models and drawings as appropriate. Design work will be chosen from the context of design and construction of a small township, including statutory planning feasibility, water supply, transport networks, and minor structures. Students will be given additional lectures in theory and practice aimed at coordinating the activities involved. The subject will involve formal development of report writing and oral presentation skills.

Recommended reading


Institution of Engineers, Australia, 1997. Australian Rainfall and Runoff


ES51130 Water Engineering

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES2135 Hydraulics and Environment • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials/ Laboratories: 24 hours. • Assessment: Assignments; Examinations

A subject in the Bachelor of Engineering (Civil).

Aims and objectives

- Students should learn to apply the principles of hydraulics, hydrology and water quality to the design of stormwater systems and the management of urban catchments.
- Students should improve their ability to communicate technical information, and review technical issues.
- Students should develop an appreciation of social objectives and environmental issues in urban catchment management.

Content

Water treatment (15%): Wastewater, potable water, stormwater, water conservation. Groundwater hydraulics (10%): steady-state well hydraulics; modelling salt intrusion and landfill seepage.

Flood estimation (20%): Unit hydrograph method; statistical rational method; flood routing through storages and streams.

Urban drainage systems (10%): Major/minor systems; hydraulic design.

Flood attenuation (15%): Flood retarding basins, on-site detention, grass swales.

Open channels (10%): Structures; erosion and sedimentation; bank treatment.

Water quality in urban catchments (20%): Pollution sources; multiple uses and quality standards; source controls; gross pollutant traps; nutrient ponds.

Recommended reading

Institution of Engineers, Australia. Australian Rainfall & Runoff. 1987
ES5135 Local Planning and Engineering Systems

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: Completion of ES4115, ES4125, ES4135, ES5100, ES5110 and ES5130  •  Corequisites: Nil  •  Teaching methods: Lectures: 36 hours. Tutorials: Site Visits: 24 hours.  •  Assessment: Assignments
A subject in the Bachelor of Engineering (Civil).

Aims and objectives

• To provide a basic understanding of the systemic allocation and management of urban land in the context of sustainable development.
• To introduce techniques for the development and maintenance of engineering systems needed to support local scale urban communities.

Content

Information (15%): Physical and social surveys; geographical information systems; census data; system auditing, capacity and condition of hydraulic and local networks, standards of service, system reliability.

Local area planning and engineering (40%): Local and regional planning structure; strategic planning; planning implementation (planning schemes; permits and conditions; developer-community agreements; resolution of disputes; appeals); integration of land and transport systems for local areas; AMCCORD concepts, residential subdivisions, commercial centres, pedestrian & cycle networks, local area traffic management; open space & recreation facilities, streetscapes, public buildings, rehabilitation and reuse of landfill and quarry sites, waterway management and integration in open space networks.

Environmental and social assessment (15%): Environmentally sensitive design and decision making; ecological systems; environmental assessment; environmental legislation and policies.

Asset planning and maintenance (30%): Assessment of demand, budgeting, sources of funds, setting priorities in works programs, characteristics of building, pavement, drainage and sewerage maintenance systems, system redevelopment.

ES5140 Structural Engineering 2

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: ES4145 Structural Engineering 1  •  Corequisites: Nil  •  Teaching methods: Lectures: 36 hours. Tutorials: 14 hours. Laboratory Work 10 hours.  •  Assessment: Examinations; Pracs; Research Paper
A subject in the Bachelor of Engineering (Civil).

Aims and objectives

• To give students an appreciation of materials technology as applied to structural engineering.
• To develop an understanding of the behaviour of structures subject to dynamic loads.
• To broaden students understanding of structural behaviour through project work.

Content

Materials technology (17%): Fibre composite materials, polymer materials; steel technology; deformation and fracture, heat treatment in relationship to welding practice, welding processes; fracture mechanics: fatigue, corrosion and stress corrosion; concrete technology: additives.

Structural dynamics (17%): Free and forced vibration of one degree-of-freedom systems; response spectra, analysis of multi degree-of freedom systems; foundations of vibrating machinery.

Earthquake engineering (17%): General principals, static analysis; design of earthquake resistant structures; effect of earthquakes on foundations.

Design project (50%): From a selection of topics including, European and American codes, residential slab design, tension structures, composite steel/concrete design, open space & recreation facilities, streetscapes, public buildings, rehabilitation and reuse of landfill and quarry sites, waterway management and integration in open space networks.

Recommended reading


ES5155 Problematic Soils and Structures

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: ES2155 Geomechanics, ES3150 Geotechnical Engineering, ES3110 Civil Design & Materials  •  Corequisites: None  •  Teaching method: Lectures: 36 hours. Tutorials/Projects: 24 hours.  •  Assessment: Assignments; Examinations
A subject in the Bachelor of Engineering (Civil)

Aims and objectives

To enable students to understand the behaviour of expansive soils and their effect on lightly loaded structures as well as remedial treatments and design elements.

Content

• Expansive soils and their problems
• Behaviour of light structures on expansive soils
• Soil suction principles
• Gilgal formation
• Factors in expansive soil movements
• Remedial treatment
• Soft soils and their problems
• Soil improvement techniques
• Factors to consider in the design of light structure on expansive soils (100%)

Recommended reading


ES5160 Building Control A

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: ES4165 Fire Technology  •  Corequisites: Nil  •  Teaching methods: Lectures: 45 hours. Tutorials: 15 hours.  •  Assessment: Assignments; Examinations
A subject in the Bachelor of Engineering (Civil).

Aims and objectives

• To impart to students an understanding of the major requirements and underlying principles in the Regulations, Acts and Standards pertaining to larger low rise buildings.
• To introduce the requirements of other related authorities dealing with such buildings.
• To introduce students to planned development in urban and regional environments.

Content

Administration and law (10%): A more detailed study of the building surveyor’s role and legislative requirements including decision making processes within his area of responsibility, and the building surveyor as manager.

Functions (20%): Responsibilities, procedures and effective organisation of duties related to statutory requirements and management principles. Understanding of other department requirements for Building Approval and liaison to speed up processes.

Acts and regulations (20%): Expansion of understanding of Regulations including detailed principles and application of major regulation parts. Basic understanding of Building Act, its functions and major areas of control. Application of individual Regulation Parts to various building examples. General reference to codes, standards, Acts. Protection work.

Plan checking (30%): Plan checking will cover Building Approval processes, and responsibility during construction and will include the use of visual aids and case studies related to industrial and commercial buildings.

Town planning (20%): The planning process: the purpose of planning, historical development of urban settlements, sociological effects of the built environment.

Administration of planning schemes. Residential planning standards. Basic surveys of planning, the use of remote sensing in urban planning. Introduction to data bases for planning purposes.

Recommended reading

Building Act 1993 Annu 1993
Building Regulations 1994 Annu 1994
Building Code of Australia 1996 Volume 1 Class 1610
Building - Housing Provisions CCH Australia 1996
Colman, J., Streets for Living, Vermont, AAPBB, 1978
Morris, G., The Planning Max Melbourne, Hornet, 1979

Swinburne University of Technology | 1999 Higher Education Handbook
ES5165 Building Control B
12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES4165 & ES5160 • Corequisites: Nil • Teaching methods: Lectures: 45 hours. Tutorials: 15 hours. • Assessment: Assignments; Examinations
This is a subject in the Bachelor of Engineering (Civil).

Aims and objectives
• To impart to students an understanding of the major requirements and underlying principles in the Regulations, Act and Standards pertaining to commercial building.
• To introduce students to the processes of statutory control and plan checking of low rise industrial and commercial buildings.

Content
Act and Regulations (50%): Explanation of the major provisions of the Building Act and Regulations to various building examples. General reference to codes, standards, Acts. Protection work.

Plan Checking (50%): Plan checking will cover Building Approval processes, and responsibility during construction and will include the use of visual aids and case studies related to industrial and commercial buildings.

Recommended reading
Building Act 1993/Asuit 1993
Building Regulations 1984/Asuit 1994
Building Code of Australia 1996 Volume 1 Class 1810
Building - Housing Provisions CCH Australia 1996

ES5170 Construction Systems
12.5 Credit Points • 60 hours • One semester • Hawthorn • Prerequisites: ES4175 • Corequisites: None • Teaching method: Lectures: 36 hours. Tutorials/Projects: 24 hours. • Assessment: Assignments; Examinations; Research Paper

Bachelor of Engineering (Civil)

Aims and objectives
To develop an understanding of construction and building systems and their most efficient use.

Content
Construction and building systems (20%) Prediction of performance (20%) Cost of production (15%) System optimisation (15%) Computer based system modelling (15%) Maintenance and safety (15%)

Recommended reading
Harris, F. and McCaffey, R., Modern Construction Management
Cooke, B. and Balakrishnan, S.V., Computer Spreadsheet Applications in Building and Surveying, Macmillan, 1995
Clark, F.D., Lorenzoni, A.B., Applied Cost Engineering, Dek 1985
Tomkins, B.G., Project Cost Control for Managers, Gulf Pub, Co, 1985

ES5175 Construction Management
12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES4175 & ES5170 • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials/Projects: 24 hours

A subject in the Bachelor of Engineering (Civil).

Aims and objectives
• To enable the student to prepare bills of quantities.
• To appreciate the various types of bills.
• To appreciate feasibility studies and costs.
• To measure Building and Civil Engineering quantities.
• To use the appropriate electronic hardware and software for support.

Content
Standard method of measurement (100%) Measuring and billing of quantities, trade orientated bill of quantities including elemental specified and operational, principles of elemental cost analysis, reliability of data, measurement of Civil Engineering quantities, computer assisted bills of quantities.

Recommended reading
Australian Standard Method of Measurement of Building Work AUS5/MBA

ES5180 Environmental Procedures
12.5 Credit Points • One Semester • Hawthorn • Prerequisite: ES4185 Environmental Evaluation and Management • Corequisites: None • Teaching methods: Lectures: 36 hours. Tutorials/Projects: 24 hours. Assessment: Assignments; Examinations

Bachelor of Engineering (Civil)

Aims and objectives
• To develop strategies in pollution control
• To develop the techniques and principles for the environmental auditing
• To introduce contaminated land evaluation

Content
Environmental audit issues and processes (20%)
Strategies in pollution control (20%) Avoidance, substitution, minimisation and efficiency improvement, reuse, recycling and storage, treatment, disposal. Limits, permits, pricing control, introduction to cleaner production
Pollution control techniques and technology, mass and energy balances (20%). Application to evaluation and treatment of contaminated sites (20%).

Student case studies (20%)

Recommended reading
Environmental Audit Guidebook, Centre for Professional Development
Waste Audit Guidelines, Publication No, 277 October 1990, Environment Protection Authority
Environment Audit, Industrial Facility Auditing Guidelines, Dec. 1991 Environment Protection Authority
Journal of Cleaner Production

ES5185 Environmental Elective
12.5 Credit Points • 60 hours • One semester • Prerequisites: ES4185 Environmental Evaluation & Management, ES5180 Environmental Procedures • Corequisites: None • Teaching method: Lectures: 36 hours. Tutorials/Projects: 24 hours. • Assessment: Assignments; Examinations; Research Paper

Bachelor of Engineering (Civil)

Aims and objectives
• To expand on the environmental knowledge already covered
• To allow students to further their interests in the environment
• To develop multi-disciplinary skills by undertaking an elective outside civil engineering

Content
Students are allowed to select an elective in an environmental area from the following courses (100%) Environmental Health, Graduate Certificate of Cleaner Production, Applied Science

Recommended reading
To be advised

ES5210 Industrial Systems
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of Intermediate Studies plus ES3310 Control Engineering • Corequisites: Nil • Teaching methods: Lectures: 54 hours, Laboratory: 6 hours • Assessment: Assignments; Examinations
A subject in the Bachelor of Engineering (Manufacturing).

Aims and objectives
• To understand manufacturing systems in a market-driven context
• To understand the approaches, tools and techniques necessary for successful operation of manufacturing systems
• To decide on and select suitable sensors for collection of data from a manufacturing process
• To be able to devise suitable control strategies for controlling manufacturing processes
Content
Manufacturing systems (40%). Structured analysis and design techniques.
Fundamental issues in manufacturing systems. Competitiveness and manufacturing.
Manufacturing decisions. Decisions and uncertainty. Planning and design issues.
Introduction to types of facility layout. Material resources planning. Material
requirement planning. managing job and batch operations. Scheduling techniques, just-
in-time, support functions. Total quality management, quality management.
Sensor Technology (24%). Data acquisition. Sensor types, limitations, technology, Vision
and imaging systems, image analysis. Application of sensor technology in control of
manufacturing processes with robotics.
Advanced control theory (24%). Tuning PID controllers. Nonlinear systems (advantages
and disadvantages, phase plane analysis, Lyapunov theory, describing functions),
robustness (uncertainty and robustness, stabilisation, loop shaping, design methods),
knowledge-based systems (expert systems, crisp versus fuzzy, adaptive fuzzy), optimal
and sub-optimal control (time-optimal and energy-optimal), adaptive control
(identification, observability and controllability/discrete time/signals, sampling, stability, digital PID controller).

References
Dorf, C.R., Modern Control Systems, 4th. Edn, Addison-Wesley, 1986
Deobrin, J., Production Management System, Addison-Wesley, 1991

ES5280 Advanced Manufacturing Processes
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion
of intermediate studies plus ES5270 Advanced Manufacturing Technology 1  Corequisites: Nil
Teaching methods: Lectures: 48 hours. Industrial visits: 12 hours  Assessment: Assignments; Examinations; Reports

A subject in the Bachelor of Engineering (Manufacturing).
Aims and objectives
- To develop the knowledge of advanced manufacturing processes in industry.
- To develop awareness and skills in the analysis of process parameters in order to
achieve quality and productivity in the application of these technologies.

Content
- Laser based technology (16%) Laser cutting, hardening, glazing and cladding, micro
and nano machining: applications, process parameters.
- Plasma based technologies (16%) Plasma cutting: process and parameters, industrial
applications, incinerator and waste control. Thermal spray technology: powder
preparation, ceramic coating for wear resistance. Applications: aerospace, biomedical.
- Water jet technology (8%) Water jet machining: principles, parameters, applications.
- Surface engineering technology (16%) Vapour deposition technologies. Diffusion
processes: plasma nitriding, nitrocarburising, boronising, duplex coating processing.
- Advanced heat treatment, vacuum heat treatment and simulation of heat treatment
dies, high speed quenching, effect of microstructure and properties of dies.
- Casting technologies (16%) Squeeze casting, semi solid casting, thixoforming, high
pressure die casting, fluid flow, heat flow, solidification, mechanical properties, die
casting of metal-matrix composite. Electroslag refining: tool steel quality and
performance. Amorphous metal production.
- Advanced manufacturing support (16%) Advanced metallographic methods, x-ray
diffraction, transmission electron microscopy, scanning electron microscopy, Raman
spectroscopy, Mössbauer analysis. Non-contact inspection, automation and robotics:
Industrial applications and techniques.
- Industrial visits (8%) Industries operating plasma spraying, physical vapour deposition,
diecasting and research laboratories.

Recommended reading
Holmberg, K. and Matthews, A., Coatings Tribology - Properties, Techniques and
Applications in Surface Engineering, Tribology Series 28, Elsevier, 1994

ES5290 Advanced Technologies
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Substantial completion
of intermediate studies plus ET3229 Digital Signal & Image Processing  Corequisites: Nil
Teaching methods: Lectures and laboratory demonstrations  Assessment: Assignments; Examinations
Bachelor of Engineering (Robotics & Mechatronics) and an elective in Manufacturing Engineering.
Aims and objectives

- To develop an understanding of the science and technologies in non-contact measurement and inspection, bionics and micromachines and nano-technology.
- To develop skills and competency in using machine vision and laser technology for measurement and inspection.
- To develop an understanding of human physiology and biomechanics and the design of electromechanical systems for a variety of industrial and health care applications.
- To develop an understanding of the science, engineering and technology involved in micromachines and Microsystems.

Content


Biofeedback: mechanical, tactile, visual and manual control systems.

Micromachines and Nanotechnology: Micromechanical systems.


Recommended reading


Gavig, K. J., Optical Metrology, Wiley, 1985

Cieolo, P., Optical Techniques for Industrial Inspection, Academic Press, 1988


Tomovic, R., Nonanalytical Methods for Motor Control, World Scientific, 1995

Silver, R.H., Biomaterials, Medical Devices and Tissue Engineering, Chapman Hall, 1994


Kelly, K., Out of Control: The New Biology of Machines, Fourth Estate, 1995

ES5300 Major Project

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of the first three academic years of the course. • Corequisites: Nil • Teaching methods: Lectures: 12 hours. Supervisor contact: 12 hours. Oral presentation: 4 hours. Poster presentation: 2 hours. • Assessment: Assignments; Poster; Project Report; Seminar Presentation

A subject in the Bachelor of Engineering (Mechanical) and Bachelor of Engineering (Manufacturing).

Aims and objectives

- To develop skills in planning and executing an innovative project
- To develop skills in the research of the literature and prior art.
- To develop skills in writing and presenting a major project report.
- To demonstrate the ability to integrate knowledge and skills acquired during the course.
- To demonstrate the ability to complete a full project from inception to achieving stated deliverables.
- To demonstrate the ability to communicate by presenting a professional seminar.

Content

Students may select a project from a list prepared by academic staff, or may suggest their own topic based on individual interest, or arising from their period of Industry Based Learning.

The project may be university based or industry based. It may take various forms in which technology research and development, experimental work, computer analysis, industrial liaison and business skills vary in relative significance. Students are expected to conduct literature and state-of-the-art surveys, formulate and define problems, generate and select solutions, and analyze and prepare designs. Where appropriate, students will build and test their design. Projects are undertaken under the close supervision of a staff member who meets regularly with the students to discuss and assure progress. Total student time spent on the project is expected to be a minimum of 160 hours.

Recommended reading


Communication sections from:


Further references as recommended by the supervisor to support the student's project.

ES5310 Machine Dynamics 2

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of Intermediate Studies plus ES2120 Structural Mechanics 1 • Corequisites: Nil • Teaching methods: Lectures: 38 hours. Tutorials / Computer / Laboratory: 24 hours. • Assessment: Assignments; Examinations; Labs

A subject in the Bachelor of Engineering (Mechanical).

Aims and objectives

- To develop the ability to solve problems involving the analysis and synthesis of mechanisms and machines.
- To develop the ability to design viable mechanism solutions to real, unstructured engineering problems.

Content

Kinematics of mechanisms (24%) Analysis of linkages and four-bar slider crank. Linkages of more than four bars. Transmission angles, toggle positions. Types of kinematic synthesis, precision points, two position motion generation by analytical synthesis. Matrix solution, three position motion generation, examples of analytical linkage synthesis. Velocity analysis, instant centres, velocity analysis with instant centres. Centroids, slip velocity, examples of analytical solutions for velocity analysis.


Jerk


Engine Dynamics (8%) Engine kinematics, flywheels, balancing. Design trade offs and ratios.


Required texts

Norton, R.L., Kinematics and Dynamics of Planar Machinery, Prentice-Hall, 1979


References

Wilson, C.E., Sadler, J.P., Michels, W.J., Kinematics and Dynamics of Machinery, Harper Row, 1983


ES5320 Solid Mechanics

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of Intermediate Studies plus ES2120 Structural Mechanics 1 • Corequisites: Nil • Teaching methods: Lectures: 38 hours. Tutorials / Laboratory • Assessment: Assignments; Examinations; Pracs

Bachelor of Engineering (Mechanical).

Aims and objectives

To enhance the ability to synthesise and solve problems involving force equilibrium, deformation and stressing of machine components and structures.

Content

Variation of stress and strain (8%). Plane stress equilibrium equations in terms of Cartesian and cylindrical co-ordinates; strain-displacement relation, compatibility equations.

Applications of the equilibrium and strain-displacement equations (16%). Stresses in a
beam; stresses in a thick-walled cylinder; shrink-fit assembly, compound cylinder, rotating discs.
Elementary plasticity (16%) Plastic bending and torsion of beams; thick-walled cylinder; rotating disc; residual stress.
Thin plates and shells (16%) Basic equations of elastic plate and shell theory, plate subjected to uniform pressure; plate with central circular hole, solid plate central concentrated force, other forms of loading and boundary conditions, axi-symmetrical thin shells, local bending stresses in thin shells, bending in cylindrical storage tank.
Buckling Instability (8%) Buckling characteristics for real struts, eccentric loading of slender columns, empirical formulae for design. Compression and shear buckling of thin plates. Local buckling.
Finite element analysis (24%) Principle of the finite element method, analysis of uniaxial bars and frameworks, beam elements, analysis of continua, practical considerations in finite element analysis.
Experimental stress analysis (8%) Strain gauge applications, dimensional analysis, scale models, transmission and reflection photoelasticity, brittle lacquer.

Required Text

References

ES5340 Fluid Mechanics 2
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of Intermediate Studies plus ES2340 Fluid Mechanics 1 • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials / Projects: 24 hours. • Assessment: Assignments; Examinations; Project(s)
This is a subject in the Bachelor of Engineering (Bioprocess & Chemical), Manufacturing, Mechanical.

Aims and objectives
• To enhance understanding of fluid behaviour through application of dimensional reasoning, drag and lift considerations, boundary layer theory, compressible flow theory, measurement techniques and pump and turbine theory, computational fluid dynamics and computer applications and simulations.
• To develop an appreciation of the design principles in thermo-fluid systems
• To develop the ability to analyse existing thermo-fluid systems and contribute to new designs.

Content
Drag and Lift (16%) Basic considerations, drag of two-dimensional bodies, coefficients of drag, vortex shedding from cylindrical bodies, streamline, drag of axi-symmetric and three-dimensional bodies, terminal velocity, effects of compressibility on drag, lift; circulation, airfoils, airfoils of finite length, drag and lift on road vehicles.
Surface Resistance (16%) Surface resistance with uniform laminar flow, qualitative description of the laminar and turbulent boundary layers, quantitative relations for the laminar and turbulent boundary layer, boundary layer control.
Compressible Flow (24%) Wave propagation in compressible fluids, Mach number relationships, normal shock waves, isentropic compressible flow through a duct with varying area, compressible flow in a pipe with friction.
Flow Measurements (8%) Instruments for the measurement of velocity, pressure and flow rate, measurement in compressible flow.
Advanced Turbomachinery (8%) Propeller theory, axial flow pumps, radial flow machines, specific speed, suction limitations, turbines, viscous effects.
Computational Fluid Dynamics (24%) Finite difference equations, discretisation techniques, viscosity variations, incompressible and compressible flows, unsteady flow modelling, introduction to CFD computer packages, CFD modelling project, computer based pipe network analysis and design.

Required Text

References

ES5350 Product Design
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of Intermediate Studies plus ES4350 Mechanical Systems Design • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials / Projects: 24 hours. • Assessment: Assignments; Examinations
This is a subject in the Bachelor of Engineering (Mechanical).

Aims and objectives
• To develop an understanding of the product design cycle.
• To develop an appreciation of design principles in both engineering and nature.
• To develop the ability to creatively design quality products for a sustainable environment.

Content
Design process (9%) Market needs. Concept generation, evaluation and selection.
Design constraints (8%) Customer requirements, cost, degradation, standards, manufacture, assembly, aesthetics, safety, reliability, maintainability. Human factors, performance, legality.
Design for sustainability (8%) Product design and the environment. Design with renewable resources, design for recyclability or disposal.
Design from nature (8%) Energy use, natural materials, structures, joints, form, aesthetics. Design for speed, lightness, strength.
Design principles (8%) Simplicity, clarity of function, safety, force transmission, division of tasks, self-help. Stability and planned instability, kinematic and elastic design, matching, nesting, mating, separation and combination of function.
Estimation in design (8%) Estimation, dimensional analysis, similarity, worst case analysis, upper and lower bounds. Extrapolation of models, sensitivity analysis.
Building mathematical models for design (8%) Identification of failure modes and failure variables. Top-down modelling. Examples.
Probabilistic design (8%) Prediction of product failure rate. Prediction of performance degradation.
Simulation in design (8%)
Experimental design (8%) 2-level orthogonal designs. Scaling. Determination of significant effects.

Recommended reading
French, M., Form, Structure and Mechanism, Macmillan, 1992
French, M., Conceptual Design for Engineers, Springer-Verlag, 1985
French, M., Invention and Evolution, Cambridge, 1988

ES5380 Engineering Management 2
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Substantial completion of the Intermediate Level of the course. ES3380 Engineering Management 1 • Corequisites: None • Teaching methods: Lectures: 36 hours. Tutorials: 24 hours. • Assessment: Assignments; Examinations
Bachelor of Engineering (Chemical and Bioprocess, Manufacturing, Mechanical).

Aims and objectives
• To provide an extending engineering management skill set to prepare candidates for the management requirements of engineering projects and practices.
• To emphasise that competence in engineering management, business and social responsibility are essential components of the profession of engineering.
• To engender the knowledge, skills and attitudes required for successful engineering practice.

Content
Engineering project management (40%) Project initiation-acceptance-definition-Project analysis-planning-scheduling-control. WBS-work packages-budgeting-costing-contracts. Contract planning-control-documentation-specifications-cost accounting systems-subcontracts. Engineering project manager roles-characteristics-traits-ethics. Accounting for engineers (24%) Principles of accounting, financial statements-analysis,
Aims and objectives

On completion of this unit, students will have an understanding of the environment in which logistics and distribution are planned and executed. Students will also be familiar with physical supply and distribution systems and the optimum location of storage and transfer sites.

Content

- Concept and components of logistics at the strategic planning level and the relation to superior service, cost reduction and quality supply chain management,
- Importance of logistics planning to the provision of service and quality through such means as lean supply and quick response systems;
- Development of the business plan leading towards logistics planning;
- Understanding the company structure and how logistics settles into that framework;
- Planning to develop and manage a modern supply chain;
- Planning the introduction and maintenance of information technology for use in electronic commerce;
- Planning and using modern warehousing methods, physical distribution and transport.

Recommended reading

Lambert, D., Stock, J., Strategic Logistics Management, Homewood, IL, Irwin, 1993

ES6131 Procurement and Inventory Management

12.5 Credit Points • 4 hours per week for one semester or offered in equivalent short course mode • Hawthorn • Prerequisite: Nil • Teaching methods: Lecture / tutorial / case studies • Assessment: Assignments; Examinations

This is a subject in the Graduate Certificate of Technology in Logistics, Graduate Diploma in Technology in Logistics, and the Masters of Technology in Logistics.

Aims and objectives

On completion of this unit, students will have an understanding of the skills required to procure and manage inventory. They will also develop the required purchasing and materials management skills for cost analysis, decision making, quality management and value analysis.

Recommended reading

Nil

ES6132 Managing Modern Distribution

12.5 Credit Points • 4 hours per week for one semester or offered in equivalent short course mode • Hawthorn • Prerequisite: Nil • Teaching methods: Lecture / tutorial / case studies • Assessment: Assignments; Examinations

This is a subject in the Graduate Certificate of Technology in Logistics, Graduate Diploma in Technology in Logistics, and the Masters of Technology in Logistics.

Aims and objectives

On completion of this unit, students should have an understanding of the skills required for supply chain management and modern distribution process management.

Content

- Concept and components of modern distribution management, role played in the supply chain;
- Use of decision support models to minimise costs of distribution and for supply chain optimisation;
- Outsourcing distribution processes (3rd part logistics);
- Importance of distribution at strategic marketing level;
- Planning and managing modern distribution methods;
- Management Information Systems (MIS);
- Importance of distribution management to the provision of service and quality;
- Optimising distribution to provide appropriate service and maximise ROI;
- Role and impact of information technology and electronic commerce on current distribution practices;
- International distribution.
Recommended reading

ES6133 Industry Overview and the Customer
12.5 Credit Points • 4 hours per week for one semester or offered in equivalent short course mode • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures / tutorials • Assessment: Assignments; Examinations
This is a subject in the Graduate Certificate of Technology in Logistics, Graduate Diploma in Technology in Logistics, and the Masters of Technology in Logistics.

Aims and objectives
On completion of this unit, students will have an understanding of the role of logistics and freight operations in the commercial environment. They will appreciate the importance of the customer and how to manage and assess their needs.

Content
• Customer service issues, customer expectations;
• System design to meet defined customer needs;
• Managing the relationship;
• Strategic alliance development;
• Performance based relationship, performance measures;
• Keeping the customer informed;
• Customer surveys, service integrity;
• Short term and long term supplier issues;
• Commissions;
• Selection criteria, industry type, liability issues, etc.

Recommended reading

ES6810 Statutory Control A
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: lectures 2 hours per week and Tutorials/workshops 2 hours per week • Assessment: Assignments; Examinations
This is a subject in the Graduate Certificate of Engineering in Performance Building Surveying.

Aims and objectives
• To introduce the principles, methodology and scope of performance based codes, including an understanding of the inputs, outcomes and the limitations of this method of design;
• To provide a solid grounding in the interpretation and use of the Building Act, Regulations and Building Code of Australia including a conceptual framework and historical background;
• To develop the techniques of probabilistic and deterministic performance design;
• To develop a general and introductory model of the structure of performance design and approval;
• To provide background and complimentary material essential to the understanding of further subjects in the course;
• To introduce the timeline approach to analysis of performance based design.

Content
• Conceptual framework of performance regulations, life safety, illness and injury, health, safety and amenity asset protection;
• The Philosophy of Building Control;
• Historical background - Australia, New Zealand and other overseas countries;
• International approaches - New Zealand, Canada, US, UK;
• Equivalency Consents - examples of performance based codes legislation;
• Administrative approach in the Model Building Act and States’ Regulations. Process and procedural matters, legal issues;
• Integrated and comprehensive approvals;
• Technical framework in the P.B.C.A. and Australian Standards, Fire Engineering Guidelines - an overview;
• Risk Assessment and Approach - a managerial overview;
• Safety in Buildings - risks and costs, lifecycle performance and maintenance of essential services;
• Quality assurance and inspections.

Recommended reading
Australian Building Codes Board, Building Code of Australia, 1996, Canberra

ES6815 Statutory Control B
12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES6810 - Statutory Control A • Corequisites: Nil • Teaching methods: Lectures 2 hrs per week, Tutorials/ workshops 2 hrs per week • Assessment: Assignments; Examinations
This is a subject in the Graduate Certificate of Engineering in Performance Building Surveying.

Aims and objectives
• To introduce the basic fire engineering design concepts;
• To discuss the statistical background to fire safety, evaluation including timeline analysis;
• To analyse human behaviour, occupant communication and human responses during a fire;
• To assess the necessary input data for risk assessment;
• To provide a solid grounding in the interpretation and use of the Building Act, Regulations and Building Code of Australia applicable to large building projects.

Content
• Impact of performance based regulations on the approval process;
• Impact of fire on society - life and cost;
• Fire growth and spread - people behaviour and fire effects;
• Human behaviour in fire;
• Fire statistics and statistical analysis.
• Probability, reliability and quality assurance. Concepts of value.
• Introduction to risk management.
• NFPA evaluations - Fire safety tree, fault trees and event trees.
• Psychology - occupant characteristics, human behaviour during emergencies, human movement studies.
• Occupants responses, avoidance and information processing.
• By products of smoke, toxic gases, toxicity levels.
• Egress, evacuation, calculations and models.

Recommended reading
Australian Building Codes Board, Building Code of Australia, 1996
Fire Code Reform Centre, Fire Engineering Guidelines, 1996
DiNenno P.J., Ed., National Fire Protection Association, USA
The SFPE Handbook of Fire Protection Engineering, 2nd Edn

ES6840 FireTechnology A
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures 2 hours per week, Tutorials/ Workshops 2 hours per week • Assessment: Assignments; Examinations
This is a subject in the Graduate Certificate of Performance Building Surveying.

Aims and objectives
• To provide basic information on fire techniques;
• To explain the processes of pre and post fire development including ignition, material flash over, fire growth and smoke development;
• To discuss the system of fire, heat and smoke detection and extinguishment;
• To discuss the role played by the Building Surveyor and the Fire Brigade.

Textbooks

References
Fire Code Reform Centre, Fire Engineering Guidelines, Canberra, 1966
Centre for Advanced Engineering, University of Canterbury University, Fire Engineering Design Guide, Christchurch, NZ, 1984
Waren Centre, University of Sydney, Fire Safety and Engineering Project Report, Sydney, 1989
Standards Australia, AS2118, Automatic Fire Sprinkler Systems, Parts 1-12, 1995
ES6845 Fire Technology B

Aims and objectives
- to understand the mechanism of fire and smoke spread;
- to understand the mechanism of smoke movement;
- to study the methods of smoke control and exhaust;
- to understand the principle behind fire resistance levels;
- to investigate the role of structural elements and assemblies;
- to understand the behaviour of materials under fire.

Content
- Fire and smoke development, smoke movement, buoyancy.
- Principles of smoke control in buildings.
- Smoke hazard management subsystems.
- Flame spread, modelling of flame spread and fire growth.
- Barrier system performance.
- Behaviour of materials and assemblies under fire.
- Australian Fire Codes, Fire Tests and their applications.
- Structural fire performance, introduction to the design of steel, concrete masonry and timber under fire.
- External fire spread and radiation.
- Risk assessment, risk to life, fire costs.

Recommended reading
- Fire Code Reform Centre "Fire Engineering Guidelines", Canberra, 1966

ES7130 Human Resources and Industrial Relations

Aims and objectives
This subject aims to equip students with an understanding of the Australian industrial relations systems, with particular emphasis on the Federal and Victorian jurisdictions.

Content
Provides a theoretical framework within which the industrial relations systems operate, the subject will address a range of contemporary issues including current federal and state legislative provisions, labour market reforms, trade union issues and the role of management in industrial relations. Also included is the understanding of the human resources skills necessary in the business logistics and freight operations environment.

Recommended reading

ES7133 Transport and Freight Operations

Aims and objectives
On completion of this unit, students will have an understanding of the various methods of transport and their operations. They will also be familiar with the transport environment and how it can be efficiently managed.

Content
- Air, sea, road and rail transportation;
- Freight forwarding line;
- Equipment selection process;
- Freight tracking, EDI;
- Computerised routing and scheduling;
- Selection criteria for different systems;
- Internet, emerging technologies and leading edge technologies;
- Selection, assessing and evaluating of relevant software and hardware packages; according to a determined set of criteria;
- Geographical Information Systems (GIS);
- Real Time Vehicle Performance Evaluation.
ES8130 Research Project / Case Studies
50 Credit Points • One semester • Hawthorn • Prerequisite: Practical completion of Stage 1 & 2 coursework subjects, in the Master's degree, in the relevant areas of the research topic • Teaching methods: Practical work and data gathering requiring regular meetings with the supervisor, class presentations and seminars • Assessment: Case Studies, Defence of Thesis, Poster Paper, Thesis
This is a subject in the Graduate Certificate of Technology in Logistics, Graduate Diploma in Technology in Logistics, and the Masters of Technology in Logistics.
Aims and objectives
To develop knowledge, and self-educative skills through research on a topic in an area relevant to the course, or by case studies of relevant materials.
Content
Literature survey, investigation design, data gathering and analysis, assessment of case studies, presentation of results in an oral and written form.
Recommended reading

ESL200 Environmental Health Management 2
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Environmental Health Management 1, and Introductory Law • Corequisites: Nil • Teaching methods: Lectures/ tutorials/class exercises/mock trials • Assessment: Assignments, Class presentations, Examinations, Tests
This is a subject in the Bachelor of Applied Science (Environmental Health).
Aims and objectives
• To further enhance communication skills with the emphasis on vocational settings.
• To develop an understanding of the processes of administration of legislation relating to public health and environment protection.
• To develop an understanding of civil and criminal proceedings, laws of evidence, appropriate procedures of courts, powers of courts.

Recommended reading
Health Act.
Environment Protection Act.
Class manual

HET101 Research and Development Project 1
12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: Nil • Assessment: Assignments, Class presentations
A subject in the BAppSc (Research & Development) / BEng (Electrical & Electronic Engineering).
Aims and objectives
To develop within the student:
• an understanding of the scientific research method;
• practical research skills; and
• practical design and development skills in a research environment.
Content
Students will undertake a substantial project, usually as part of a team of students or based within a research group in the university or external industrial research establishment. A variety of projects will be made available to the student. In exceptional cases, students may negotiate to pursue a project of their own with the agreement of the subject convenor. While projects will be of a substantial scientific research nature, they are generally expected to include the need to develop hardware or software systems. A regular seminar series, featuring key internal and external researchers, may be offered. These seminars could cover specific research topics or aspects of research project management and generic research skill development.

HET102 Introductory Physiology
12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures & Laboratory Work • Assessment: Assignments, Examinations
A subject in the BAppSc (Medical Biophysics & Instrumentation), BAppSc (Psychology & Psychophysiology), BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering) and BAppSc (Research & Development) / BEng (Electrical & Electronic Engineering).
Aims and objectives
To provide a basis for understanding of human physiology.
Content
This subject provides preliminary material for the medically oriented courses. Through lectures and practical exercises, theoretical and practical material forming the introductory concepts for the course are presented. These concepts are basic and cover topics which will provide the student with various skills in writing, scientific method, laboratory techniques, analysis and safety.
Introductory biological, biochemical, biophysical and physiological material (cellular physiology, immunology, tissues, organs and human anatomy) are included and form the basis for more advanced studies. Physiological chemistry and computational concepts will also be applied. Students will be provided with practical skills on laboratory report writing and specific exercises illustrating the theoretical material.

Recommended reading

HET113 The Internet and WWW 1
12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: Nil • Teaching methods: Lecture, tutorials and laboratory based exercises and practical work • Assessment: Assignments, Examinations, Prac
A subject in the BEng (Telecomms & Internet Technologies), B Multimedia (Networks & Computing), BM Multimedia (Business Marketing), BM Multimedia (Networks & Computing) / BEng (Telecomms & Internet Technologies), BM Multimedia (Media Studies), BM Multimedia (Software Development), BAppSc (MultiMedia Technology) and BAppSc (Computer Science & Software Engineering) / BEng (Telecomms & Internet Technologies).
Aims and objectives
To introduce the Internet and associated local and wide-area network issues.
Content

Recommended reading

HET118 Physics 1
12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures, Tutorials; Laboratory Work • Assessment: Assignments, Examinations
A subject in the BAppSc (Computing & Advanced Technologies), BAppSc (Medical Biophysics & Instrumentation), BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering) and BAppSc (Research & Development) / BEng (Electrical & Electronic Engineering).
Aims and objectives
To provide a basis for specialist scientific disciplines through rigorous development of essential Physics principles; and to provide a coherent and balanced account of the fundamentals of physics.
Content
Mechanics
Rotational motion, gravitation, vibrations and waves.
Electricity and Magnetism
Electric fields, Gauss's law, magnetic fields, Ampere's law, electromagnetism, Faraday's law.
**Subjects Details**

**Optics**
Geometric optics, interference and diffraction.

**Modern Physics**
Special relativity, atomic physics, photoelectric effect, Bohr model of atom, nuclear physics, properties of nuclei, binding energy, radioactivity and decay processes.

**HET121 Introduction to Telecommunications**
12.5 Credit Points • 1 semester • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures, project work and tutorials • Assessment: Assignments; Examinations & Pracs
A subject in the BEng (Telecomms & Internet Technologies) and BAppSc (Computer Science & Software Engineering)/BEng (Telecomms & Internet Technologies).

**Aims and objectives**
To develop the personal communications skills necessary of a professional engineer. To develop an appreciation for the terminology associated with telecommunications and Internet technologies. To understand how data communications is incorporated in the Internet.

To develop some systems problem-solving skills. To understand the differences between the main data file types used over the Internet such as text files and sound files. To undertake a feasibility study of how to interface a data network with mobile communications/wired telephony.

To develop professional skills in communicating with professionals and making public presentations, as well as learning to function efficiently in teams.

**Content**
Students will be expected to make presentations of engineering material using appropriate methods and technological aids.

Understanding the processes of problem definition, analysis and solution, including written communications skills, report writing, verbal communications skills and report presentation. This includes aspects of negotiation skills, dealing with difference, conflict resolution and consideration of environment impact. Students will be exposed to some preliminary teamwork and project management skills by conducting a series of small project feasibility, analysis and design tasks.

Typical projects to be carried out throughout the semester:
- Investigating current sound file formats existing and differences between them.
- Transmission of sound files over the Internet via Internet phone.
- Maintaining a WEB page as the formal part of report presentation.
- Undertaking a feasibility study of converting text to speech and transmitting to a telephone.

Students will also attend formal lectures on:
- Telephony and telephone circuit switched analogue networks.
- Digital telephony and digital circuit switched networks, including the hierarchies.
- Text compression.
- Introduction to telephone network technologies - wired, cable, wireless, free space, fibre.
- Packet switching concepts for public digital networks.
- Overview of Internet as a packet switched network.

**Recommended reading**

**HET123 The Internet and WWW 2**
12.5 Credit Points • 1 semester • Hawthorn • Prerequisite: Nil • Teaching methods: Lecture, seminar and team-based project • Assessment: Assignments & Group work
A subject in the BMultimedia (Software Development), BMultimedia (Networks & Computing), BMultimedia (Business Marketing), BMultimedia (Networks & Computing) / BEng (Telecomms & Internet Technologies), BMultimedia (Media Studies), BAppSc (Computer Science & Software Engineering) / BEng (Telecomms & Internet Technologies), BAppSc (Multimedia Technology) / BEng (Telecomms & Networks) and BAppSc (Multimedia Technology) / BEng (Telecomms & Internet Technologies).

**Aims and objectives**
To develop advanced understanding of the Internet and develop skills in web page design and production.

**Content**


**Recommended reading**

**HET124 Energy and Motion**
12.5 Credit Points • 1 semester • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures, tutorials and practical work • Assessment: Examinations; Pracs; Tutorials
A subject in the BEng (Electrical & Electronic Engineering), BEng (Electrical & Electronic Engineering)/ BArts and BEng (Electrical & Electronic Engineering)/ BBus.

**Aims and objectives**
To provide a coherent and balanced account of energy and motion, emphasising their applications and importance in an engineering context.

**Content**
Linear Mechanics
- Kinematics; Newton’s laws; momentum; energy and work.
- Rotational Mechanics
- Circular motion.
- Fluid Mechanics
- Buoyancy; Pascal’s law; Bernouilli’s principle.
- Thermodynamics
- Zeroth and first law of thermodynamics; heat transfer and expansion; kinetic theory.
- Vibrations & Waves
- Simple harmonic motion; resonance and damping.
- Modern Physics
- Relativity; quantum mechanics; atomic physics.

**Recommended reading**
Serway, R.A. Principles of Physics, Saunders, 2nd Edn, 1998

**HET128 Physics 2**
12.5 Credit Points • 1 semester • Hawthorn • Prerequisite: SE118/HET118 • Teaching methods: lectures and tutorials • Assessment: Examinations
A subject in the BAppSc (Computing & Advanced Technologies), BAppSc (Medical Biophysics & Instrumentation), BAppSc (Medical Biophysics & Instrumentation) / BEng
Aims and objectives
To develop in students a familiarity with selected areas of classical and modern physics, particularly those areas relevant to modern applied science.

Content
Quantum Mechanics and Solid State Physics

Electromagnetism and Optics
Electric and magnetic fields and Maxwell’s equations, Scalar and vector potentials, Fields in dielectric, magnetic and conducting materials, polarization and magnetization, constitutive relations, Maxwell’s equations in “macroscopic form”, Energy in electromagnetic fields, Electrostatic problems, solutions of Poisson’s equation. Magneto-static problems, Electromagnetic waves in vacuum and in simple non-conducting and conducting media, Reflection and transmission at boundaries. Lasers and other light sources, Total internal reflection and optical wave guides, Optical fibre fundamentals, types of fibres and their transmission properties. Sources, modulators and detectors, communications via optical fibres. Holography and holographic optical devices.

Recommended reading

HET133 Introductory Psychophysiology
12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: Nil  •  Teaching methods: Lectures & Laboratories  •  Assessment: Examinations & Pracs
A subject in the BAppSc (Psychology & Psychophysiology).

Aims and objectives
An understanding of basic anatomy, and physiology. A thorough understanding of physical quantities as related to physiological and psychophysiological measurement.

Content
- Introductory anatomy and physiology;
- Neuroanatomy: functional and comparative including; muscle, nerve, senses;
- Numbers accuracy and precision;
- Basic physical quantities;
- Physical quantities related to psychophysiology;
- Electrical concepts;
- Electrical measurements related to psychophysiology; and
- Analysis of measurements related to psychophysiology.

Recommended reading

HET138 Physics 3
12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: SE128/HET128  •  Teaching methods: Lectures and tutorials  •  Assessment: Assignments; Examinations
A subject in the BAppSc (Computing & Advanced Technologies), BAppSc (Medical Biophysics & Instrumentation) and BAppSc (Research & Development) / BEng (Electronic & Electrical Engineering).

Aims and objectives
To introduce students to areas of Physics relevant to their major studies and of increasing importance in multi-disciplinary studies in general.

Content
Dynamical Systems

Nuclear Physics
Nuclear models: liquid drop model, Fermi gas model and the shell model. Nuclear energy levels.

Statistical Physics

Recommended reading

HET148 Technology and Data Acquisition
12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: Nil  •  Teaching methods: Lectures, tutorials, laboratories, on-line delivery  •  Assessment: Examinations
A subject in the BAppSc (Psychology & Psychophysiology) and BAppSc (Medical Biophysics & Instrumentation).

Aims and objectives
Understanding of information technology, data acquisition and analysis applied to psychophysiology.

Content
- Computer based clinical instruments;
- Analog to digital converters;
- Sampling theorem;
- Dynamic range and saturation;
- Biomedical signal acquisition;
- Computer applications for biomedical data;
- Various computing environments and operating systems;
- Signal display and presentation;
- Introduction to on-line resources;
- Biomedical computer applications; and
- Statistical analysis of measurements related to psychophysiology.

Recommended reading
Redlick, R. & King, E. The Online Student, Harcourt Brace, Texas, 1997

HET182 Electronic Systems
12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: Nil  •  Teaching methods: Lectures, laboratory work & tutorials  •  Assessment: Examinations & Tutorials
A subject in the BEng (Electrical & Electronic Engineering), BAppSc (Research & Development) / BEng (Electronic & Electrical Engineering), BAppSc (Medical Biophysics & Instrumentation), BAppSc (Computing & Advanced Technologies), BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering), BMultimedia (Networks & Computing) / BEng (Electrical & Electronic Engineering) / BBus, BEng (Electrical & Electronic Engineering) / BArts, BAppSc (Computer Science & Software Engineering) / BEng (Telecomms & Internet Technologies), BEng (Electrical & Electronic Engineering) / BMultimedia (Networks & Computing).
Aims and objectives
This subject provides a basic introduction to analog & digital electronics (including analog DC circuit theory, digital logic & digital electronics, analog AC circuit theory, amplification, modern applications of electronics). The course is structured around 'real life' examples.

Content
Content includes: analog DC electronics; charge, current, voltage, ohm's law; Kirchhoff's laws; series & parallel ccts.; voltage divider; current divider; simplifying resistor networks; power & power transfer; I&V measurement; analog AC electronics; alternating current & voltage, frequency, period, phase; amplitude: P-FF/SMS; capacitor circuit & reactance, vector representation & complex numbers; inductor circuit & reactance, vector representation & complex numbers; RC, RL circuits (series & parallel); phasor notation; impedance, admittance frequency response of L&C, resonance; ideal transformers; amplification; ideal opamp, model, Open loop-gain; inverting & non-inverting configuration; summing & comparators; [worked examples]; integrators (with examples); dB scale; digital electronics; introduction, digital logic, number systems; boolean operators & truthtables; design & simplification of circuits; boolean laws & identities, S of P representation; K maps; combinatorial logic; sequential logic, latches and flipflops; applications; telecommunications; robotics; and renewable energy.

Recommended reading

HET201 Research and Development Project 2
(Not running in 1999)
12.5 Credit Points  1 Semester  Hawthorn  Prerequisite: Nil  Assessment: Assignments; Class presentations
A subject in the BAppSc (Research & Development) / BEng (Electrical & Electronic Engineering).

Aims and objectives
To develop within the student:
- an understanding of the scientific research method;
- practical research skills; and
- practical design and development skills in a research environment.

Content
Students will undertake a substantial project, usually as part of a team of students or based within a research group in the university or external industrial research establishment. A variety of projects will be made available to the student. In exceptional cases, students may negotiate to pursue a project of their own with the agreement of the subject convenor.

While projects will be of a substantial scientific research nature, they are generally expected to include the need to develop hardware or software systems. A regular seminar series, featuring key internal and external researchers, may be offered. These seminars could cover specific research topics or aspects of research project management and generic research skill development.

HET208 3D Animation and Special Effects
12.5 Credit Points  1 Semester  Hawthorn  Prerequisite: Nil  Teaching methods: Studio (computer laboratory) tuition with continual practical experience through exercises and set tasks  Assessment: Assignments
A subject in the BMultimedia (Business Marketing), BMultimedia (Networks & Computing), BMultimedia (Networks & Computing) / BEng (Telecommunications & Internet Technologies), BMultimedia (Software Development), BMultimedia (Media Studies), BAppSc (Multimedia Technology), BAppSc (Multimedia Technology) / BEng (Telecommunications & Networks) and BAppSc (Multimedia Technology) / BEng (Telecommunications & Internet Technologies).

Aims and objectives
To provide an introduction to the creation and animation of objects using a 3D graphics package.

Content
This subject provides an introduction to 3D modelling and animation using a commercial 3D graphics application. It will take the student through the steps required to create and animate objects, apply materials, lighting and other effects.

Topics covered include:
- Fundamentals of 3-dimensional graphics;
- Polygonal modelling;
- Rendering, lighting, atmospheric effects (smoke, fog, distance shading effects);
- Particle systems;
- Animation, inverse kinematics, physics modifiers;
- Object and scene motion blur;
- Object modifiers (bend, taper, twist, skew, noise, ripple, wave, etc.);
- Adding and integrating audio; and
- VRML (Virtual Reality Modelling Language) scene structure and user interaction; object optimisation/low polygon modelling; exporting VRML worlds and compression.

Recommended reading
Elliot, Inside 3D Studio Max, (Vol. 1), Prentice Hall, 1996

HET210 Electronics
12.5 Credit Points  1 Semester  Hawthorn  Prerequisite: EE182/HET182, SE120, SE129, SM112, SM119 & HMS112  Teaching methods: Lectures, tutorials and laboratory work  Assessment: Assignments; Examinations; Pracs
A subject in the BAppScs (Multimedia Technology), BAppSc (Multimedia Technology) / BEng (Telecommunications & Internet Technologies), BAppSc (Computer Science & Software Engineering) / BEng (Telecommunications & Internet Technologies), BAppSc (Research & Development) / BEng (Electrical & Electronic Engineering), BEng (Electrical & Electronic Engineering), BAppSc (Computing & Advanced Technologies), BMultimedia (Networks & Computing), BMultimedia (Networks & Computing) / BEng (Telecommunications & Internet Technologies), BMultimedia (Medical Biophysics & Instrumentation), BEng (Telecommunications & Internet Technologies), BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering), BArts and BEng (Electrical & Electronic Engineering) / BArts and BEng (Electrical & Electronic Engineering) / BBus.

Aims and objectives
The aims of the subject are: to be familiar with the basic digital building blocks (such as gates, flipflops, & counters); the ability to analyse & synthesise digital circuits of moderate complexity; to be familiar with the basic analog building blocks (such as amplifiers, filters, and non-linear circuits); the ability to analyse & synthesise analog circuits using operational amplifiers; & to develop a basic understanding of discrete electronic components (such as diodes & transistors).

Recommended reading

HET211 Telecommunications Project
12.5 Credit Points  1 Semester  Hawthorn  Prerequisite: Nil  Teaching methods: Lectures; Project Work  Assessment: Assignments; Class presentations; Examinations; Pracs; Project; Report
A subject in the BEng (Telecommunications & Internet Technologies) and BAppSc (Computer Science & Software Engineering) / BEng (Telecommunications & Internet Technologies).

Recommended reading

HET212 Circuits
12.5 Credit Points  1 Semester  Hawthorn  Prerequisite: SM112, EE182, HMS112 & HET182  Teaching methods: Lectures; Tutorials; Laboratory Work  Assessment: Assignments; Examinations; Labs
A subject in the BEng (Electrical & Electronic Engineering) / BArts, BEng (Electrical & Electronic Engineering) / BBus, BEng (Electrical & Electronic Engineering), BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering) and BAppSc (Research & Development) / BEng (Electrical & Electronic Engineering).

Aims and objectives
To develop circuit analysis skills which form the foundation of later electrical engineering subjects including electronics, controls, fields and power systems.

Content
- Review of circuit analysis techniques;
- Network theorems;
- Response of first order RC and RL circuits;
HET218 Learning and Instructional Design

12.5 Credit Points  • 1 Semester  •  Hawthorn  •  Prerequisite: Nil  •  Teaching methods: Lectures and laboratory work  •  Assessment: Assignments; Project(s)
A subject in the BAppSc (Multimedia Technology)/ BEng (Telecomms & Networks), BAppSc (Multimedia Technology)/ BEng (Telecomms & Internet Technologies), BAppSc (Multimedia Technology)/ BEng (Telecomms & Internet Technologies), BAppSc (Networks & Computing)/ BEng (Telecomms & Internet Technologies), BAppSc (Networks & Computing)/ BEng (Business Marketing), BAppSc (Media Studies)/ BAppSc (Software Development) and BAppSc (Multimedia Technology).

Aims and objectives

This subject provides an understanding of the psychological processes underlying our ability to process and learn information, along with an overview of the systematic approach to the design, implementation, & evaluation of instructional programs. The understanding & skills gained in this subject will help students to design effective user environments for multimedia applications.

Content

Processes underlying information processing: perception, memory, attention, & thinking; theories of learning: cognitive, behavioural & social perspectives; motivation for learning; educational principles: assessment methods & learning styles, modes & strategies; instructional strategies & models; problem analysis & project options; instructional analysis & design; measurement of performance; program evaluation.

Recommended reading

Mitterer, J.O. Psychology: The Core on CD-ROM, 1995

HET219 Neurological Monitoring

12.5 Credit Points  • 1 Semester  •  Hawthorn  •  Prerequisite: SE102/HET102 and SE124/HET148  •  Teaching methods: Lectures and laboratory work  •  Assessment: Computer Based Tests; Examinations; Labs
A subject in the BAppSc (Psychology & Psychophysiology).

Aims and objectives

To provide an understanding of the techniques available for recording brain, and other electrical activity measures from the body.
To interpret the recorded information obtained from electrical activity measures.

Content

• Recording techniques in physiology, including EEG, EMG, EOG, ECG;
• Evoked potentials;
• Measures of cognitive function;
• Advanced instrumentation;
• Computer-based recording techniques; and
• Advanced statistical analysis.

Recommended reading


HET220 Sensors, Interfacing and Control

12.5 Credit Points  • 1 Semester  •  Hawthorn  •  Prerequisite: SE210/HET210  •  Teaching methods: Lectures, tutorials, and practical work  •  Assessment: Examinations; Tutorials
A subject in the BAppSc (Medical Biophysics & Instrumentation), BAppSc (Computing & Advanced Technologies) and BEng (Robotics & Mechatronics).

Aims and objectives

To further develop the students’ understanding of sensors & microcontrollers & how they can be used in various applications.

Content

Sensors
Survey position & temperature measurement techniques; the detection of nuclear & optical radiations; industrial & sensor applications; medical sensor applications; chemical & biosensor actuators & smart structures; noise reduction, analog signal processing, digital signal processing.

Interfacing & Microcontrollers
Digital-to analog converters; analog to digital converters; serial & parallel communication; basic computer architecture & instruction execution; address decoding; software for interfacing; microcomputer timing; port addressing, interrupts; sampling theory; microcontroller applications.

Control Theory
System introduction, basic structure, open loop, closed loop, feedback; System modelling, basic electrical, mechanical & thermal elements; transfer function, system poles and zeros, s-plane, system stability; system analysis, transient and steady state analysis, steady state error, root locus analysis; frequency response; introduction to non-linear systems; introduction to state space analysis; concept of state feedback controller; introduction to discrete time systems; concept of adaptive control & optimal control.

Recommended reading

Canters, J.H. Electrical Sensors & Transducers, Regents/Prentice Hall, 1993

HET223 Linear Systems

12.5 Credit Points  • 1 Semester  •  Hawthorn  •  Prerequisite: SE212/HET212  •  Teaching methods: Lecture, tutorial, and laboratory work  •  Assessment: Assignments; Examinations
A subject in the BAppSc (Medical Biophysics & Instrumentation), BEng (Electrical & Electronic Engineering), BEng (Electrical & Electronic Engineering), BEng (Electrical & Electronic Engineering), BEng (Electrical & Electronic Engineering), BEng (Electrical & Electronic Engineering), BEng (Electrical & Electronic Engineering).

Aims and objectives

• To develop the analytical tools to study the dynamic response of a network or electromechanical system;
• To introduce the concept of the complex frequency and transfer functions, enabling the time and frequency response of a system to be calculated; and
• The analysis shall be restricted to single input-single output linear systems up to second order.

Content

• Transients in single time constant circuits, using DE’s and Laplace Transforms;
• Extension of jw to s, s-plane;
• Block diagram representation of systems;
• Transfer functions and frequency response concepts;
• Bode Plots;
• Fourier series and Fourier transforms;
• Analysis of second order systems;
• Introduction to passive filter design;
• Feedback systems: positive and negative feedback; and
• Measurements.

Recommended reading


HET224 Computer Communications and LAN’s

12.5 Credit Points  • 1 Semester  •  Hawthorn  •  Prerequisite: SM111/HMS111 and SE314/HET314  •  Teaching methods: Lectures, practicals and tutorials  •  Assessment: Assignments; Examinations; Pracs
Aims and objectives
The student should become familiar with common terminology, concepts and techniques of data transmission and open systems. The student should be able to explain, justify, analyse and critically evaluate common data transmission methods, including error protection techniques. The student should be able to analyse the performance of various protocols when subject to stochastic computer generated traffic. The student should be able to explain, justify, analyse and critically evaluate the operating principles and performance of common computer networking systems.

Content

Recommended reading
Halsall, F. Data & Computer Communications, Computer Networks & Open Systems; Addison-Wesley, 3rd Edition 1992

HET225 Electrical Machines
12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: EE182, SM233, HET182 and HET213 • Teaching methods: Lectures, tutorials and laboratory work • Assessment: Assignments; Examinations; Pracs
A subject in the BEng(Electrical & Electronic Engineering), BEng(Electrical & Electronic Engineering)/(BEng & BEng)(Electrical & Electronic Engineering) /BBus.

Aims and objectives
To introduce the principles of electromechanical energy conversion & to study in an introductory sense the construction, operation & applications of the transformer, the AC & DC machines. The study will also include a quantitative treatment of the magnetic circuits & the terms associated with them. The subject will conclude with an application where all machines are interconnected & interact in the one power system.

Content
Magnetic Quantities
Definition of the terms magnetic flux, flux density, magnetic field intensity, reluctance, permeability & permeance, study of series magnetic circuits; permanent magnets, magnetic materials and B-H loops; self & mutual inductance; energy stored in a magnetic field; energy density & the force between the faces of a magnet; force on a conductor carrying a current in a magnetic field.

The Transformer
Construction of a single phase power transformer; calculation of the size & number of turns for a given kVA rating, EMF equation & phasor diagram for the transformer; definition & calculation of efficiency & voltage regulation; introduction to the high frequency transformer & the pulse transformer.

The DC Machine
Construction of a DC machine & a description of the armature, commutator & field; EMF equation & torque equation; permanent magnet & separately excited machines, series & shunt connections; volt-amp characteristics for the DC generator & torque-speed characteristics for the DC motor; calculations of the steady state performance of DC machines, starting methods.

Power Electronics
Study of the characteristics of the power diode & the thyristor family of devices to the conversion of an AC supply to a controlled DC supply; prediction of current & voltage waveforms associated with resistive & inductive loads connected to a controlled DC supply with & without a freewheeling diode; application to the control of DC motors & other DC supplies for industrial equipment.

AC Machines
Introduction to the operation of the induction motor & the synchronous machine.
HET229 Computer Authoring

12.5 Credit Points  • 1 Semester  • Hawthorn  • Prerequisite: HET218  • Teaching methods: Lectures, Seminars & Laboratories  • Assessment: Assignments; Class presentations; Porting authored systems to the World Wide Web.

Aims and objectives
To introduce students to computer authoring techniques, with particular relevance to Computer-Based Training.

Content
- Computer Based Instruction (CBI);
- Hypermedia;
- Authoring software such as Authorware, Author and Toolbook;
- Computer Managed Learning (CML) and assessment;
- Computer simulations and gaming systems/concepts/models;
- Design for interactivity;
- Tailoring the learning environments to the audience, eg. the young;
- Usability testing and quality assurance;
- Evaluation of learning; and
- Porting authored systems to the World Wide Web.

Recommended reading
Shneiderman, B. Designing the User Interface. Addison-Wesley, Reading, Mass, 1992

HET230 Cardiovascular Biophysics

12.5 Credit Points  • 1 Semester  • Hawthorn  • Prerequisite: HET240/SE240  • Teaching methods: Practical and Tutorials  • Assessment: Assignments; Exams; Pracs

Aims and objectives
To establish an understanding of the physiology associated with human cardiovascular processes and the application of monitoring techniques.

Content
- The heart: cardiac cycle, mechanical and electrical events, Starling’s law, mechanical properties of cardiac muscle.
- Fluid dynamics/flow instrumentation.
- Pulsatile pressure and flow in arteries, wave propagation in arteries, blood rheology, atherosclerosis, Starling’s hypothesis of the capillary system, mass transport, flow in collapsible tubes, blood flow in particular organs, Guyton’s model.
- Cardiac monitoring and pathologies.
- The ECG: genesis of myocardial field; changes in disease; arrhythmias and conduction defects.
- Pressure and flow monitoring: invasive and non-invasive methods, Swan Ganz catheters, cardiac output methods, oximetry, nuclear methods. Diagnosis by sonic and ultrasonic methods.

Recommended reading

HET235 Biomedical Electronics

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: SE210/HET210 • Teaching methods: Lectures and Laboratory Work • Assessment: Assignments; Examinations

A subject in the BEng (Electrical & Electronic Engineering), BAppSc (Computing & Advanced Technologies), BAppSc (Medical Biophysics & Instrumentation) and BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering).

Aims and objectives

This subject is primarily aimed at gaining proficiency in the detailed analysis of analogue & digital electronic circuits of the type used in straightforward biomedical signal processing applications. Emphasis is placed on the questions the engineer needs to ask themselves when performing a circuit analysis or design, and on the analytical tools used for performing these tasks.

Content

The circuits analysed are chosen so as to expose the student to the real application of various electronic components, including: linear components (instrumentation amplifiers, operational amplifiers, buffers, comparators, operational transconductance amplifiers); digital components (monostable/astable, SSI logic such as AND, OR, NOT); & transducers (ultrasonic, temperature). The circuits analysed include the following signal processing functional blocks: bridge circuits (voltage excitation, current excitation); instrumentation amplifier (3 op amp configuration, 2 op amp configuration); common mode feedback (single op amp, instrumentation amp plus op amp); current locked loop (CCL) (current source, voltage detector); shielding (voltage source: undriven shield, driven shield; current source: undriven shield, driven by op amp, shield driven by CCL); phase comparator (combinational logic); level mode (sequential logic); gain control (integral feedback); filtering (lowpass, bandpass, highpass), voltage comparator (self levelling with integral feedback). Some of these functional blocks are studied in isolation. Others are studied as the component parts of a complete top-down analysis and design of two specific applications.

The student is also exposed to different sources by which they may usefully find relevant information; especially the data sheets of component manufacturers and articles in professional publications.

Recommended reading


HET240 Cellular Biophysics

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: SE112, SE122, HET102 and HET122 • Teaching methods: Lectures, tutorials and practical work • Assessment: Assignments; Examinations; Pracs

A subject in the BAppSc (Medical Biophysics & Instrumentation) and BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering).

Aims and objectives

To establish an understanding of the physiology of cellular processes by the application of physics principles.

Content

- Membrane phenomena: Structure and function of membranes and membrane channels, modes of transport of ions and non-electrolytes; Diffusive processes; Fick’s laws, Nemst and Donnan equilibrium, osmosis, Goldman equation, Luing flux ratio equation ‘pore’ hypothesis;
- Properties of electrodes;
- Measurement of intracellular potentials: Electrode processes: half cell potentials - overpotentials, high impedance, microelectrodes, recording arrangements;
- Electrical and volume conduction properties of nerves;
- Experimental techniques: voltage clamping and patch clamping, Hodgkin-Huxley model. The action potential: strength-duration curves, neuropathies;
- Pre-and post-synaptic processes: inhibitors and agonists; statistical analysis of mepps; receptors and neurotransmitters: types and mode of operation; inhibitory and excitatory neurons, integrative functions of soma;
- Muscle: length tension relationships, Hill equation, ultrastructure, excitation-contraction coupling, sliding filament theory, metabolic aspects, E-C coupling in smooth muscle, pathophysiology of muscle, electromyography; Cellular basis of muscle fatigue; and
- Performance Consideration; metabolism and energetics.

Recommended reading


Guyton, A.C., Hall, Textbook of Medical Physiology. 9th Edn, Saunders, 1996

HET260 Renal and Respiratory Biophysics

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: HET240 • Corequisites: HET230 • Teaching methods: Lectures and practical work • Assessment: Assignments; Examinations; Pracs

A subject in the BAppSc (Medical Biophysics & Instrumentation) and BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering).

Aims and objectives

To establish an understanding of the respiratory & renal physiological processes and the application of monitoring techniques and instrumentation.

Content

- Respiratory System: structure and function, lung volumes and dead space, diffusion, blood flow, ventilation perfusion inequality, gas transport, Bohr and Haldane Effects, acid/base balance, respiratory mechanics, control of respiration;
- Lung function testing and lung diseases, obstruction, restriction, flow/volume curves, diffusion capacity, compliance, body plethysmography;
- Respiratory Instrumentation;
- Exercise Biophysics: respiratory changes associated with exercise, Anaesthesia: agents and their administration, monitoring, physiological effects of anaesthesia;
- Sleep monitoring; monitoring the respiratory processes associated with sleep, and disorders of sleep;
- Neonatal monitoring. Basic EEG; and
- Renal Biophysics: vasculature, the juxtaglomerular apparatus, kidney function tests, counter-current multiplication, control of kidney function, renal pathophysiology, the artificial kidney.

Recommended reading


Guyton, A.C. & Hall, Textbook of Medical Physiology. 9th Edn, Saunders, 1996

HET310 Analog Electronics Design

12.5 Credit Points • 5.5 hours per week, 1 Semester • Hawthorn • Prerequisite: HET210/SE210 • Teaching methods: Lectures; Tutorials; Laboratories • Assessment: Assignments; Examinations

A subject in the BAppSc (Computing & Advanced Technologies), BAppSc (Medical Biophysics & Instrumentation), BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering), BEng (Electrical & Electronic Engineering) and BEng (Telecoms & Internet Technologies).

Aims and objectives

To provide the student with a variety of application-oriented analog electronics design skills, including: insights into design issues related to component variability, and into the behaviour of semi-conductor functional blocks commonly used in discrete and integrated analog circuits, and solid state device characteristics with particular emphasis on analog integrated circuit characteristics, and uses of analysis and simulation.

Content

- BJF - Models, Biasing, DC and AC Analysis and Applications;
- Multi-Transistor Amplifiers - Cascade, Differential Pair etc.;
- Current Sources;
- Frequency Response of Amplifier Circuits;
- Signal Generators - Oscillators, Schmitt Triggers and Multi-Vibrator Circuits;
- A/D and D/A Internal Operation;
- Computer-Aided Analysis of Analog Circuits using PSPICE;
- Power Electronics - Diodes, BJTs, SCR's, Tracs, GTOs and MOSFET's; and
- Applications - Controlled Rectification, Inversion and PWM; Switch Mode Power Supplies, & Heatpipes; Introduction to Microcontrollers.

**Recommended reading**

**HET310 Analog Electronics Design**
12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: HET210 • Teaching methods: Lectures, tutorials, practicals, laboratory and project work • Assessment: Assignments; Examinations; Pracs

A subject in the BEng (Electrical & Electronic Engineering), BAppSc (Computing & Advanced Technologies), BAppSc (Medical Biophysics & Instrumentation), BAppSc (Medical Biophysics & Instrumentation)/BEng (Electrical & Electronic Engineering), BEng (Electrical & Electronic Engineering)/BArts and BEng (Electrical & Electronic Engineering)/BBus.

**Aims and objectives**
To provide the student with a variety of applications-oriented analog electronic design skills Provide insights into design issues related to component variability, and into the behaviour of semiconductor functional blocks commonly used in integrated and discrete analog circuits. Introduce solid state device characteristics with particular emphasis on analog integrated circuit characteristics and the uses of analysis and simulation.

**Content**
- Diode and bipolar transistor large signal models;
- FET large signal model;
- Integrated circuit current mirror circuits and large signal analysis;
- Emitter coupled differential amplifier behaviour as a DC amplifier;
- Variable transconductance operational amplifier and balanced modulator with some basic applications including multiplication;
- Bias circuits to establish desired operating voltages and currents;
- AC coupling and bypass for AC amplifiers;
- Small signal models and their use for finding gain and frequency response;
- Mid-band and high-frequency small signal analysis of CE and cascode amplifier stages and tuned circuits;
- Feedback in discrete device amplifiers;
- Phase-locked loops;
- ADC, DAC sample/hold, analog multiplexer principles of operation; and
- CAE design of circuits and integrated devices.

**Recommended reading**

**HET312 Control and Automation**
12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: SM223, HMS213 • Teaching methods: Lectures, tutorials and laboratory work • Assessment: Assignments; Examinations; Pracs

A subject in the BEng (Electrical & Electronic Engineering), BAppSc (Medical Biophysics & Instrumentation)/BEng (Electrical & Electronic Engineering), BAppSc (Medical Biophysics & Instrumentation)/BEng (Electrical & Electronic Engineering), BMultimedia (Networks & Computing)/BEng (Electronics & Internet Technologies), BAppSc (Research & Development)/BEng (Electrical & Electronic Engineering) and BAppSc (Computer Science & Software Engineering)/BEng (Telecommunications & Internet Technologies).

**Aims and objectives**
To develop techniques to formulate models to represent a linear dynamic system. To predict the dynamic response of a linear system to a variety of inputs using analytical tools. To introduce the concept of feedback in a linear system and to emphasize its advantages using specialized analytical techniques. The aims shall be further enhanced in a practical sense by laboratory assignments.

**Content**
**System Concepts**
Introduction to the concept of a system as a connection of elements. Electrical, mechanical & thermal elements & their basic physical relationship. Formulation of system equations to form a system model. Definition of a linear system applied to practical examples of open & closed loop systems.

**Analysis of Linear Systems**
The following analytical techniques are developed so that the dynamic response of a single input single output system may be predicted for a variety of input signals:
(i) Classical solution of differential equations;
(ii) Solutions of differential equations using Laplace transform techniques;
(iii) Formulation of a system transfer function;
(iv) Electronic analogues and their application to modelling dynamic systems;
(v) Frequency response techniques-analysis from the S-plans and Bode Diagrams;
(vi) An introduction to state variable analysis; and
(vii) Application of specialist computer packages such as Matlab.

**Feedback Control Systems**
Basic concepts of negative and its advantages. Analysis of feedback control systems using specialised techniques, root locus diagrams and frequency response analysis. Steady state performance using the final value theorem. Basic compensation techniques using tacho-feedback and PID controllers to improve the dynamic and steady state performance. Criteria for stability. Determination of stability from the S-plane and from Bode plots; gain margin and phase margin. Introduction to control system design to meet a set of specifications.

**Recommended reading**
Hanselman, D. & Littlefield, B. Mastering MATLAB 5, Prentice Hall, 1998

**HET313 Telecommunication Technologies**
12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: NIL • Teaching methods: Lectures, tutorials and laboratory work • Assessment: Assignments; Examinations; Pracs

A subject in the BEng (Electrical & Electronic Engineering), BEng (Telecomms & Networks), BAppSc (Medical Biophysics & Instrumentation)/BEng (Electrical & Electronic Engineering), BAppSc (Medical Biophysics & Instrumentation)/BEng (Telecomms & Internet Technologies), BMultimedia (Networks & Computing)/BEng (Telecomms & Internet Technologies), BMultimedia (Networks & Computing), BAppSc (Research & Development)/BEng (Electrical & Electronic Engineering) and BAppSc (Computer Science & Software Engineering)/BEng (Telecommunications & Internet Technologies).

**Aims and objectives**
The student should become familiar with the technologies, concepts and techniques used in telecommunications systems. The student should be able to explain, justify, analyse and critically evaluate the performance of systems using those technologies.

**Content**
- Point to point links.
- Cables: Two-wire & Coaxial - uses, properties, propagation velocity, characteristic impedance, line termination, input impedance, losses, capacity;
- Microwave waveguides - uses, construction and characteristics of waveguides, microstrip and stripline, capacity;
- Microwave Radio: Uses, construction, propagation characteristics, effects of weather, repeaters, digital carrier systems, capacity;
- Satellites: Uses, architectures, orbits, link characteristics, capacity, limitations;
- Optical: Basic concepts, capacity;
- Telephony:
- Analogue telephone circuits, 2 wire and 4 wire, echoes, signal level, quality;
- Public switched telephone network, transmission technologies, FDM hierarchies, circuit switching technologies, setting up and clearing calls, signaling systems;
- Digital telephony basics: PDM, bandlimiting, sampling, compensated A/D conversion, framing, multiplexing, digital hierarchies;
HET314 Communications Principles

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: SM112 & HMS112 • Teaching methods: Lectures, tutorials and laboratory work • Assessment: Assignments, Examinations, Pracs

A subject in the BEng (Electrical & Electronic Engineering) / BArts, BEng (Electrical & Electronic Engineering) / BBus, BEng (Electrical & Electronic Engineering), BEng (Telecommunications & Internet Technologies), BMultimedia (Networks & Computing) / BEng (Telecommunications & Internet Technologies), BAppSc (Research & Development) / BEng (Electrical & Electronic Engineering) and BAppSc (Computer Science & Software Engineering) / BEng (Telecommunications & Internet Technologies).

Aims and objectives

The student should become familiar with common terminology, concepts, equipment and techniques of signal processing for communications. The student should be able to explain, justify, analyse and critically evaluate common signal processing concepts and methods. The student should be able to assess the performance of various modulation methods for analogue and digital transmission, evaluate the effect of noise on signal reception and assemble signal processing modules to implement communications systems.

Content

Analog signals, spectral (fourier) analysis, bandwidth, ideal and real filters, transfer functions, amplitude and phase response, energy and power spectra, analogue modulation and demodulation: amplitude, frequency, phase; frequency division multiplexing; noise and its effects in analogue communication systems; commercial broadcasting: radio and television; sampling theorem, pulse amplitude modulation, A/D conversion (PCM), digital codes, serial data streams; digital methods: modulation and reception of ASK, PSK, FSK, DSFSK, DAM, DFM, time division, multi-plexing, statistical multiplexing, noise and its effects in digital communication systems, BER analysis of digital modulation schemes, IQ diagrams.

HET315 Communications Information Theory

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: SE314, SM244, HET314 and HMS214 • Teaching methods: Lectures, tutorials and laboratory work • Assessment: Assignments, Examinations, Pracs

A subject in the BEng (Telecommunications & Networks), BEng (Telecommunications & Internet Technologies), BAppSc (Computer Science & Software Engineering) / BEng (Telecommunications & Internet Technologies) and BMultimedia (Networks & Computing) / BEng (Telecommunications & Internet Technologies).

Aims and objectives

The student should become familiar with the theory, concepts and techniques used in digital communications systems. The student should be able to explain, justify, analyse and critically evaluate common signal processing concepts and methods, and be able to assess the performance of various modulation methods for analogue and digital transmission, evaluate the effect of noise on signal reception and assemble signal processing modules to implement communications systems.

Content

Analog signals, spectral (fourier) analysis, bandwidth, ideal and real filters, transfer functions, amplitude and phase response, energy and power spectra, analogue modulation and demodulation: amplitude, frequency, phase; frequency division multiplexing; noise and its effects in analogue communication systems; commercial broadcasting: radio and television; sampling theorem, pulse amplitude modulation, A/D conversion (PCM), digital codes, serial data streams; digital methods: modulation and reception of ASK, PSK, FSK, DSFSK, DAM, DFM, time division, multi-plexing, statistical multi-plexing, noise and its effects in digital communication systems, BER analysis of digital modulation schemes, IQ diagrams.
schemes is presented together with discussions of a range of common algorithms and their implementations and uses.

**Content**

**Digital Signal Processing**
- Sampling and the sampling theorem. Practical aspects of sampling and reconstruction. Discrete time signals. Basic operations on signals. Discrete Time Fourier Transform, the DFT and FFT.
- Discrete LTI systems and discrete linear convolution. RR and IIR systems. Difference equations and their solutions.

**The z transform and its application to discrete time system analysis.**

**Rational z transforms and the role of pole-zero systems.**
- Spectral Analysis of Continuous Signals. Power and energy spectral densities, the spectra of random processes and the measurement of spectra.
- Discrete time spectral analysis. Calculation of spectra using the DFT. Introduction to parametric spectral estimation.
- Correlation techniques, matched filters, signal compression, non-linear processing, DSP hardware.

**Image Processing**
- Grey level resolution, spatial resolution, contrast and brightness. The video signal. Digital images, frame grabbers, colour images. Grey level mapping, histograms, point processes and convolution. 2D spatial frequency the Fourier transform and filtering. Image segmentation.

**Recommended reading**

**HET336 Network Engineering**

12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: MS214/SMD244  •  Teaching methods: Lectures/tutorials, Laboratory work  •  Assessment: Assignments; Examinations; Prac

A subject in the BEng (Telecoms & Networks), BEng (Telecoms & Internet Technologies), BAppsC (Computer Science & Software Engineering) / BEng (Telecoms & Internet Technologies) and BMultimedia (Networks & Computing) / BEng (Telecoms & Internet Technologies).

**Aims and objectives**
- The student should be able to analyze the performance of various telecommunication networks subject to stochastic traffic, by applying relevant queuing theory, and design networks using graph and queuing theory.

**Content**
- Introduction to Networks and their Design Types of networks, design issues, design support data, design tools;
- Review of Random Processes - The Poisson Process Proof of Poisson distribution; Properties of Poisson distribution: normalisation, mean, variance, time to first event, Sums of Poisson processes; Memoryless processes;
- Link Models for Circuit Switching: Telephone traffic: call initiation, length of calls, traffic and the Erlang; Erlang Loss function: blocking probability, carried traffic, lost traffic; grade of service, time congestion vs call congestion, PASTA, trunking efficiency, validity of the Erlang loss function;
- The Engset model; state distribution, time congestion, call congestion, properties of the Engset model. Circuit switching link dimensioning;
- Link Models for Packet Switching: The M/M/1 queue: queue length distribution, mean queue length, mean delay; Little’s formula; M/M/1 queue with finite buffer; State-dependent queues: M/M/1, M/M/1/K; Packet switched link dimensioning;
- Modeling networks as graphs Terminology, representation of networks, computational complexity;
- Graph algorithms. Trees, shortest paths, single commodity network flows;
- Centralised Network Design Problem definition, terminal assignment, concentrator location;
- Routing and Flow control Routing procedures, flow deviation algorithm;
- Network layer protocols, analysis of sliding window flow control, and Network Reliability Tree networks, mesh networks.

**Recommended reading**
- Telecom Australia, A Course in Teletraffic Engineering Telecom Australia, Traffic Engineering Section, 1978

**HET343 Mechatronics**

12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: SE232/HET232  •  Teaching methods: Lectures and project work  •  Assessment: Class presentations; Examinations

A subject in the BEng (Robotics and Mechatronics).

**Aims and objectives**
- To bring together aspects of design in mechanical and electrical/electronic systems so that the student may have a good idea of the range of techniques available in designing a mechatronic system.
- To apply the knowledge and skills obtained in the previous two years of the course to the solution of real-world problems. By doing this the student will be involved in considering the practical partitioning of a system between software, mechanical and electrical/electronic components.
- To further develop team skills in co-operation, co-ordination and scheduling of time and resources.

**Content**
- Design of ratings (dimensioning) of electrical and mechanical components for a variety of applications.
  - Mechanical transmission (Gears, belts & pulley drives);
  - Electrical machines & industrial applications;
  - Power electronics (Pulse width modulation, regenerative braking, electrical switching devices);
  - Methods of speed control (electrical & mechanical methods);
  - Transducers for position, velocity, temperature, etc. (Analogue & Digital);
  - Real time constraints in programming embedded systems;
  - The use of multitasking & event driven programming; and
  - The use of CAE Tools in Electronics Design.

**HET378 Integrated Circuit Design**

12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: SE431/HET431  •  Teaching methods: Lectures and practical work  •  Assessment: Class presentations; Examinations; Prac

A subject in the BEng (Electrical & Electronic Engineering) and BAppsC (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering).

**Aims and objectives**
- The aims of this subject are to introduce the students to the process of the design, synthesis and testing of complex digital using a hardware description language such as VHDL and the appropriate CAE tools. The design of complex systems, practical applications and project work will be emphasised.

**Content**
- Issues involved in High Level Synthesis;
- Hardware Description Language (VHDL) Features: objects & data types; concurrent statements, sequential statements; structural design; packages & libraries, functions & procedures, attributes, operators overloading, generics & test benches;
- VHDL models for memories and busses;
- Design examples: UART & Microcontroller CPU;
HET401 Multimedia Project 1

12.5 Credit Points  1 Semester  Hawthorn  Prerequisite: Nil  Assessment: Project(s)
A subject in the BMultimedia (Networks & Computing) / BEng (Telecomms & Internet Technologies), BMultimedia (Business Marketing), BMultimedia (Business Studies), BMultimedia (Media Studies), BMultimedia (Software Development), BAppSc (Multimedia Technology) / BEng (Telecomms & Networks), BAppSc (Multimedia Technology), BAppSc (Multimedia Technology) / BEng (Telecomms & Internet Technologies) and BAppSc (Multimedia Technology).

Aims and objectives
To enable the student to acquire practical experience in multimedia technology, operating in a team environment.

Content
Projects may be undertaken with relevant industry partners or internally within Swinburne. Internal projects, under the supervision of an academic, will normally comprise 3 students where feasible. Each team will be given a different project concept and be expected to develop that concept through to a prototype or feasibility stage. Projects may optionally continue over both semesters.

One hour per week will be allocated to a series of lectures on project management issues, including project management techniques, professional development issues (such as team skills, negotiation, presentations, occupational health and safety, ethics, deadlines and deliverables). Prototype production and testing techniques will be covered, with consideration for target machine capabilities. Tracking of media assets, standards in filenames and directory names, and version control of code will also be covered.

Recommended reading

HET402 Multimedia Project 2

12.5 Credit Points  1 Semester  Hawthorn  Assessment: Project
A subject in the BMultimedia (Networks & Computing) / BEng (Telecomms & Internet Technologies), BMultimedia (Business Marketing), BMultimedia (Media Studies), BMultimedia (Software Development) and BAppSc (Multimedia Technology).

Aims and objectives
To enable the student to acquire practical experience in multimedia technology, operating in a team environment.

Content
Projects may be undertaken with relevant industry partners or internally within Swinburne. Internal projects, under the supervision of an academic, will normally comprise 3 students where feasible. Each team will be given a different project concept and be expected to develop that concept through to a prototype or feasibility stage. Projects may optionally continue over both semesters.

One hour per week will be allocated to a series of lectures on project management issues, including project management techniques, professional development issues (such as team skills, negotiation, presentations, occupational health and safety, ethics) and prototype production and testing techniques.

Recommended reading

HET403 Astronomy and Instrumentation

12.5 Credit Points  1 Semester  Hawthorn  Prerequisite: Nil  Teaching methods: Lectures, laboratory sessions, tutorials, newsgroup discussion, projects, simulations, internet resources  Assessment: Assignments; Examinations; Group Work
A subject in the BEng (Electrical & Electronic Engineering), BAppSc (Medical Biophysics & Instrumentation), BAppSc (Computing & Advanced Technologies), BAppSc (Research & Development) / BEng (Electrical & Electronic Engineering) and BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering).

Aims and objectives
To provide:
• an introduction to the design, choice and use of instrumentation in modern astronomy;
• a basic familiarity with the fundamental concepts and terminology used in contemporary astronomy; and
• a broader appreciation both of the processes of scientific research and of our current understanding of the universe around us.

Content
• Exploring the sky, basics of optical astronomy; the inner and outer solar system - description, unifying concepts and evolution;
• Remote sensing and space missions;
• New technology in optical astronomy;
• Telescope control systems;
• Observing and classifying stars;
• Modelling stellar processes;
• The Sun as a model star;
• High-energy and infrared astronomy;
• Stellar evolution;
• Star deaths, neutron stars and black holes;
• Single and multicharm radio astronomy;
• Detectors and data analysis;
• Galaxies;
• The zoo of active galaxies; and
• Searching for extra-solar planets and extraterrestrial life.

Recommended reading

HET404 Multimedia Systems

12.5 Credit Points  1 Semester  Hawthorn  Prerequisite: Nil  Assessment: Examinations; Labs; Tests
A subject in the BMultimedia (Networks & Computing) / BEng (Telecomms & Internet Technologies), BMultimedia (Business Marketing), BMultimedia (Media Studies), BMultimedia (Software Development), BAppSc (Multimedia Technology) / BEng (Telecomms & Networks) and BAppSc (Multimedia Technology).

Aims and objectives
To introduce students to a range of technologies used in multimedia systems. To make the students aware of existing standards and basic techniques related to the recording and reproduction of both sound and vision.

Content
• Information Representation: Analog and digital information, Types of information, data images and sounds;
• Information compression;
• Information Transmission: Analog and digital signals, Radio, TV, satellite, Cable, telephone, fibre optics, Computer buses and ports. Compressed signals;
• Information Storage: Analog recording, digital recording, magnetic disks, CD and DVD systems;
• Image processing and compression, JPEG and MPEG Sounds: The human ear and frequency response. Analog sound systems, amplifiers and filters. Digital audio systems. Sampled audio and WAV files, Sound compression technology, MIDI systems. Speech synthesis and recognition techniques; and
• Virtual Reality: Input and output devices. Applications.

Recommended reading
HET408 Biomedical Imaging and Emerging Technologies

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures, tutorials and laboratory work • Assessment: Assignments; Examinations; Pracs

A subject in the BAppSc (Medical Biophysics & Instrumentation) and BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering).

Aims and objectives
To gain a solid theoretical understanding of the physics and mathematics associated with major imaging modalities currently used in clinical and biomedical research settings. Together with a review of new technology and possible applications to medicine.

Content
• Biomedical Imaging: Image reconstructions from projections, diagnostic ultrasound, Doppler ultrasound, Projection Radiography, Magnetic Resonance imaging (MRI), Spatially localised Spectroscopy, radioisotope imaging, gamma scintigraphy, emission computed tomography, miscellaneous imaging modalities;
• General aspects of image display;
• Physical properties of biological materials: Non-hookean behaviour, strain tensor, visco-elastic properties. Methods of static and dynamic testing of bone, skin, muscle, arteries etc. Cell-cell adhesion, CAMs, adhesion to non living materials - zeta potential, DLVO theory. Power sources for implantable medical devices: packaging, battery life and power density. Examples of biocompatible materials: woven fabrics, PMMA, ceramics, fibres, metals;
• Electrode materials. Examples of devices: cochlear implant; glucose sensors, optical and membrane-based biosensors, implantable pumps operated by feedback; and
• Functional electrical stimulation. Rehabilitation Technology: gait analysis.

Recommended reading

HET409 Advanced Multimedia

(Not running in 1999)

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: HET208 and DMO201 • Teaching methods: Lectures, tutorials and laboratory work • Assessment: Assignments; Examinations

A subject in the BMultimedia (Networks & Computing), BMultimedia (Business Marketing), BMultimedia (Media Studies) and BMultimedia (Software Development).

Aims and objectives
This subject explores emerging issues in multimedia, including advanced display technology, more powerful and efficient multimedia hardware and software, virtual reality technology and advanced 3D animation and modelling techniques.

Content
• Advanced 3D animation and modelling: hierarchies; inverse kinematics; function curve and trajectory editing; NURB modelling, particle systems; space warps; physique modifiers;
• Exploring VRML worlds and compression;
• Advanced display technology: holography; 3D displays; virtual reality displays;
• Multimedia-enhanced collaborative and gaming tools;
• Virtual environments;
• Exploiting higher bandwidth networks; and
• Interactive TV.

Recommended reading
Tannenbaum, Theoretical Foundations of Multimedia, Computer Science Press, 1998

HET410 Network Administration

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures, tutorials, and practical sessions • Assessment: Examinations & Tests

A subject in the BAppSc (Multimedia Technology) / BEng (Telecomms & Networks), BAppSc (Multimedia Technology) / BEng (Telecomms & Internet Technologies), BAppSc (Multimedia Technology), BMultimedia (Networks & Computing) / BEng (Telecomms & Internet Technologies) and BMultimedia (Networks & Computing).

Aims and objectives
To introduce administration issues in Information System Environment, network planning, installation, user and domain management, system performance tuning, security, intranet/internet (web server), secure connection over internet - Virtual Private Network, hardware considerations.

Content
• Popular Network Operating Systems (NT, Unix, Netware);
• General and advanced network configuration, including DNS, DHCP; routing;
• User management and access control;
• File systems, including striped and fault-tolerant file systems;
• Sharing file systems via the network;
• Disk configuration and administration;
• Effective backup and restore system;
• Managing printers, including local printers, network printers, and printer pools;
• Managing processes, performance optimization and capacity planning;
• Securing systems, including implementing security policies and system auditing;
• Automating system administration tasks with scripts;
• Secure connection technologies over regular Internet - Virtual Private Network (VPN);
• Remote network access;
• Web server installation and configuration;
• System management tools; and
• Trouble-shooting and maintenance.

Recommended reading
Cowart, R. & Gregg, K. Windows NT Server 4.0 Administrators Bible, IDG Books Worldwide, 1996
HET419 Physiological Modelling

12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: Nil  •  Teaching methods: Lectures, Practicals, Tutorials, Assessment: Assignments, Examinations, Pracs
A subject in the BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering).

Aims and objectives
To gain a solid theoretical understanding of the physics, mathematics and computational techniques associated with modelling human physiological processes.

Content
• Physiological control systems control theory, signal flow diagrams, fundamental block representations, open-loop gain;
• Computer packages for solutions of ordinary differential equations. The MATLAB package and SIMULINK software;
• Dynamic responses Bode and Nyquist analysis, transfer function discovery-examples of physiological investigations;
• Cardiovascular system, mathematical models of the arterial system;
• Respiratory and thermal control;
• Multicompartment systems and methods analysis, models of membrane systems, channel statistics;
• Modelling of endocrine systems;
• Volume conductor theory: application to the EEG;
• Neurovolume conductors, models of brain electrical and magnetic activity: modelling techniques;
• Application of control system techniques to human physiology. Compartmental analysis, statistical channels; and
• Neural modelling, neural networks.

Recommended reading

HET423 Neural Networks and Intelligent Instrumentation

12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: Nil  •  Teaching methods: Lectures, tutorials, and ‘take-home’ laboratory work  •  Assessment: Assignments, Examinations
A subject in the BAppSc (Computing & Advanced Technologies), BAppSc (Medical Biophysics & Instrumentation) and BEng (Electrical & Electronic Engineering).

Aims and objectives
To introduce students to artificial neural networks and their application to a range of problems. The range of networks includes back propagation, specialist classification networks, self-organizing networks together with a range of more advanced networks involving more biologically plausible networks. Sample applications are drawn from medicine, science and engineering.

To introduce students to techniques involving the application of the principles of Darwinian evolution to design and optimization problems.

To give an introduction into fuzzy logic, virtual instruments and specialist instrumentation interfaces.

Content
Neural networks; artificial neural networks and the brain; artificial neurons; learning rates; the importance of non-linear output transformations; three basic node types; the back propagation learning algorithm and practical implementation considerations; enhancements to back-prop - cumulative update and momentum, and applications; using fuzzy inputs and outputs to a neural net; classification networks: PNN, Counterprop, LVQ, cluster networks and applications; divide and conquer networks: cascade networks, ensembles of networks and applications; data compression networks and applications; self-organising maps and applications; more biologically plausible neurons; evolutionary systems; an introduction to Darwinian evolution; the basic evolutionary algorithm - example, crossover rates and type; mutation types; population control strategies; examples in modelling function optimization look up table generation, robot algorithm development; the problem of premature convergence; evolutionary systems and neural nets - developing net structure, auto designing; fuzzy membership functions using nets inside an evolutionary system; speeding evolutionary algorithms - parallelising, population seeding, the importance of a local heuristic; optimum partitioning of problems - hierarchical evolutionary algorithms; information dense chromosomes and their advantages and disadvantages and examples; evolution of neural network revisited, simultaneous evolutionary and algorithmic development of solutions; intelligent instrumentation; an introduction to fuzzy logic (history, theory and applications); the IEEE488 bus, the 12C bus; the design and development of virtual instruments.

HET425 Nucleonics and Spectroscopy

12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: SE120/HET128 and EE102/ HET182  •  Teaching methods: lectures & pracs  •  Assessment: Assignments, Examinations, Pracs
A subject in the BAppSc (Computing & Advanced Technologies) and BAppSc (Medical Biophysics & Instrumentation).

Aims and objectives
Students will be introduced to a number of spectroscopic techniques with an emphasis on Laser and Nuclear spectroscopy. The subject has a large practical component where students will gain knowledge and experience in techniques used daily in industry, medicine, laser optics and materials analysis.

Content
Laser Spectroscopy
Electromagnetic radiation; atomic structure & energy levels; the interaction between atoms & electromagnetic radiation; the simplified two level atom model; spontaneous & induced transitions; laser cavities & resonators; laser mode structure; gaussian beams; practical laser materials & design; and non-linear interactions of intense fields.

Mossbauer Spectroscopy & X-ray Diffraction
Introduction to the techniques (x-ray diffraction is the most important analysis technique of the century, giving mankind an understanding of the structure of nature at the atomic level); historical perspectives (discovery of DNA structure); applications in medicine (drug design); and applications in material science.

Nucleonics
Theory; historical perspectives; safety; background to practicals; detector technology; applications - accelerators, reactors, smoke detectors, silicon manufacture, medicine (PET, radiotherapy, x-rays); material science; practicals - choose 7 of the following:
• Introduction to femtosecond laser spectroscopy;
• Mossbauer material analysis;
• X-ray diffraction;
• Particle absorption;
• Factors affecting the measurement of radiation;
• G ray spectroscopy (with single channel analysis);
• Time coincidence techniques (introduction to PET);
• G spectroscopy, and
• Spectroscopy.

Recommended reading
AN34 ORTEC Practical Manual

HET426 Instrumentation Project

12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: Nil  •  Teaching methods: Staff supervision  •  Assessment: Staff appraisal, Written report and Seminar presentation
A subject in the BAppSc (Computing & Advanced Technologies) and BAppSc (Medical Biophysics & Instrumentation).

Aims and objectives
• To develop skills in planning and executing a major project in instrumentation related disciplines.
• To apply knowledge acquired during the course.
• To develop team work and communications skills.

The object of the subject is to give the student experience in:
• Planning a complete project where time, availability of hardware, and money are realistic restraints. This includes planning a project with other students and working as a team with a team leader.
• Constructing and testing hardware and/or writing and commissioning hardware.
• Planning and delivering a short technical seminar.
• Writing a comprehensive report to detail all initial research, literature survey and the work performed.
Content
Students are expected to select a project from a list prepared by academic staff, or students may suggest their own topic based on an individual interest or arising from their period of Industry Based Learning (IBL).

The project may take various forms in which technology, research and development, experimental work and computer analysis vary in relative significance.

Students are expected to conduct literature surveys, to investigate probable solutions, prepare designs, analyse, and where appropriate, implement and test designed products and processes.

Recommended reading
As recommended by the supervisor to support the student’s project.

**HET431 Digital Electronics Design**
12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: HET210  •  Teaching methods: Lectures, tutorials and laboratory work  •  Assessment: Assignments; Examinations; Pracs
A subject in the BEng (Electrical & Electronic Engineering), BAppSc (Computing & Advanced Technologies), BAppSc (Medical Biophysics & Instrumentation), BEng (Telecomms & Internet Technologies), BAppSc (Medical Biophysics & Instrumentation)/BEng (Electrical & Electronic Engineering), BEng (Electrical & Electronic Engineering) / BAppSc, BEng (Electrical & Electronic Engineering) / BBus, BAppSc (Research & Development) / BEng (Electrical & Electronic Engineering), BAppSc (Computer Science & Software Engineering) / BEng (Telecomms & Internet Technologies) and BMultimedia (Networks & Computing) / BEng (Telecomms & Internet Technologies).

Aims and objectives
To provide the student with a variety of application-oriented digital electronics design skills, including: the design of complex synchronous and asynchronous systems, timing and hazard analysis for reliable design, and the use of CAD tools for design, analysis and simulation.

Content
- Family logic characteristics & interoperability;
- State machine analysis and synthesis;
- ASM models - Mealy and Moore models, register transfer notation;
- Asynchronous circuits;
- Minimisation of functions, hazards;
- Programmable Logic Devices - gate arrays, PLAs, PALs, PROMs, FPGAs;
- CAE tools for simulation and design;
- Hierarchical design approach;
- CAE design overview;
- Device databases;
- Schematic capture;
- Modelling & simulation;
- Synthesis tools for FPGAs; and
- Logic circuit testing and testable design.

Recommended reading

**HET432 Internetworking and Real-Time Distributed Systems**
12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: HET224, HET315 and HET336  •  Teaching methods: Lecture, tutorial and laboratory work  •  Assessment: Assignments; Examinations; Pracs
A subject in the BEng (Telecomms & Networks), BEng (Telecomms & Internet Technologies), BAppSc (Computer Science & Software Engineering) / BEng (Telecomms & Internet Technologies) and BMultimedia (Networks & Computing) / BEng (Telecomms & Internet Technologies).

Aims and objectives
Students should be able to explain and use the layered approach to open systems analysis, specification, design and implementation, for protocol engineering of distributed internet and intranet real time applications. Students should be able to explain concepts and performance issues in large scale, real time, distributed computer systems.

Content
Internetworking: Protocols - characteristics and functions.
The layered approach - OSI model: motivations, concepts, service primitives and parameters, layers.
TCP/IP protocol suite - characteristics, architecture, operation, protocol interfaces, applications.
Internetworking - principles, architectural approaches, addressing, Bridges.
Routing with bridges. Connectionless internetworking, protocol standards.
Router level protocols. Connection oriented networking.

Real Time Distributed Systems:
- Operating systems concepts, distributed operating systems, fault tolerant systems;
- Characteristics of real-time systems, safety, reliability and fault tolerance; and
- Resource management, deadlocks, clocks and deadlines, interrupt handling, preemptive scheduling in real-time systems.

Real-time kernels and autonomous distributed systems, reliability.

Introduction to real-time methodologies in telecommunications networks.

Recommended reading
Partridge, C. Gigabit Networking, Addison-Wesley Professional Computing Series, 1993

**HET436 Broadband Multimedia Networks**
(Not running in 1999)
12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: HET336, HET315 & HET432  •  Teaching methods: Lectures, practicals and tutorials  •  Assessment: Assignments; Examinations; Pracs
A subject in the BEng (Telecomms & Networks), BEng (Telecomms & Internet Technologies), BAppSc (Computer Science & Software Engineering) / BEng (Telecomms & Internet Technologies) and BMultimedia (Networks & Computing) / BEng (Telecomms & Internet Technologies).

Aims and objectives
To develop an understanding of the concepts of broadband and high-speed area networks for conveying multimedia communications. Students should be able to:
- Understand and use common broadband network terminology;
- Explain the behaviour of broadband networks and techniques used within them; and
- Analyse and critically evaluate performance of broadband networks for multimedia data.

Content
- ISDN: concepts, principles, evolution, user interface, objectives, benefits & services; architecture & standards; transmission: channels, subscriber loop, user access; protocols: architecture, connections, packet switched calls, common channel signaling, link access protocols, physical layer, frame relay: applications, architecture, user data, network function; congestion control; BISDN: architecture, asynchronous transfer mode protocols; virtual channels, virtual paths, control signaling; ATM standards, cells, header formats, error control; ATM traffic characteristics, multimedia sources, bandwidth-on-demand, aggregation, congestion control, connection admission control, bandwidth assignment strategies; and SONET/SDH optical operation & standards.

Recommended reading
Partridge, C. Gigabit Networking, Addison Wesley Professional Computing Series, 1993
Hinols, S. Teletraffic Technologies in ATM Networks, Boston, Artech House, 1994

**HET452 Mobile and Personal Communications**
12.5 Credit Points  •  1 Semester  •  Hawthorn  •  Prerequisite: HET314, HET313, HET315 and HET316  •  Teaching methods: Lecture, laboratory and assignment  •  Assessment: Assignments; Examinations; Pracs
A subject in the BEng (Telecomms & Networks), BEng (Telecomms & Internet Technologies), BAppSc (Computer Science & Software Engineering) / BEng (Telecomms & Internet Technologies).

Content
- Protocol suite - characteristics, architecture, operation, protocol interfaces, applications.
- Internetworking - principles, architectural approaches, addressing, Bridges.
- Routing with bridges. Connectionless internetworking, protocol standards.
- Router level protocols. Connection oriented networking.
Aims and objectives

Students should be able to:

- Understand and use common mobile and personal communications terminology;
- Explain the behaviour of mobile communications systems and techniques;
- Analyse and critically evaluate performance of systems and sub-systems; and
- Design systems to specified parameters, using analytical and empirical rules.

Content

- Introduction to mobile radio communications, paging cordless, cellular and personal;
- Cellular concepts for analogue cellular (AMPS), system operation, frequency reuse, interference and capacity, channel assignment, handover, trunking and GoS;
- Mobile radio signal propagation: large scale path loss, propagation mechanisms, link budgets, shadowing, propagation models;
- Small scale fading and multipath propagation: factors causing small scale fading, Doppler shifts, parameters of mobile channels, types of small scale fading, models;
- Digital modulation for cellular mobile systems: Overview of factors influencing choice, line coding, pulse shaping, linear modulation (BPSK, DQPSK, QPSK, QOQPSK/F4/4QPSK), constant envelope modulation (FSK, MSK, GMSK), QAM, CDMA (DS-SS);
- Multiple Access systems and cellular standards: AMPS, USDC, GSM and CDMA, and capacity comparisons; and
- Introduction to wireless networking and PCS.

Recommended reading


HET489 Robotic Control

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: SE312/HET312 • Teaching methods: Lectures, tutorials and laboratory work • Assessment: Assignments; Examinations & Pracs

A subject in the BEng (Electrical & Electronic Engineering), BEng (Electrical & Electronic Engineering) / BAEng, BEng (Electrical & Electronic Engineering) / BBusiness and BAppSc (Medical Biophysics & Instrumentation) / BEng (Electrical & Electronic Engineering).

Aims and objectives

To study the dynamic behaviour of electrical machines from the point of view of position and velocity control. To study the analog and digital control strategies and compensation techniques as applied to machine control. To study the power electronics associated with modern converters for DC and AC drives including the employment of pulse width modulation.

Content

- Dynamic models of AC and DC machines. Development of models based on state variable analysis using two axes theorem. The application of computer packages such as Matlab and Simulink to the solution of dynamic problems;
- Position and velocity control with compensation to meet a specification in a variety of applications. The design of forward path compensators including PID controllers and state variable feedback in both an analog and digital form;
- The modern controlled AC to DC converter and variable frequency inverter and their employment in a total system of drives. A study of the problem of generated harmonics on the local environment and on the power system;
- Protection and safety precautions. Circuit breakers and fuses including high speed semiconductor fuses. Measurement of parameters such as current, speed, position and torque for control signals and for detection of overloads; and
- Generation of harmonics and effect on the power system, passive and active filters.

Recommended reading


HET527 Sleep and Attention

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: SE219/HET219 and SE222/HET226 • Teaching methods: Lectures, tutorials and seminars • Assessment: Assignments; Class presentations; Examinations

A subject in the BAppSc (Psychology & Psychophysiology).

Aims and objectives

An understanding of the physiological and behavioural process underlying normal sleep, and attention and disorders of these states.

Content

Sleep, Consciousness & Coma

- Stages of sleep;
- Desynchronisation of EEG activity;
- Functional models of sleep;
- Sleep monitoring; and
- Sleep disorders.

Attention

- Mechanisms;
- Neurophysiology;
- Models;
- Assessment of attention; and
- Disorders of attention.

Recommended reading


HET528 Higher Cortical Functions

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: SE219/HET219 and SE219/HET226 • Teaching methods: Lectures, tutorials and seminars • Assessment: Assignments; Class presentations; Examinations

A subject in the BAppSc (Psychology & Psychophysiology).

Aims and objectives

Review basic techniques in neuroscience research of brain and behaviour.

Provide a knowledge of the neurophysiological and behavioural processes of motivation, memory, and speech and language.

Content

Techniques in Neuroscience

Anatomical, histological, biochemical techniques, lesion and stimulation studies, MRI, radiological techniques including SPECT and PET, MRS

Motivation

Mechanisms of eating and drinking behaviours, intracranial self-stimulation studies, nonhomeostatic behaviours.

Memory

Neuronal plasticity, psychophysiological studies and models, memory pathology and neuropsychology, connectionist models.

Speech & Language

Psychophysiological models, brain laterality and language processes, disorders of speech and language.

Recommended reading

APPLIED SCIENCE

ASTRONOMY

Z048 Graduate Certificate of Applied Science (Astronomy)

This course is a general qualification suitable as professional development for secondary science teachers or individuals working in astronomy-related fields. It is also intended particularly for amateur astronomers interested in broadening their knowledge of contemporary astronomy. It is not designed to be a career path into professional astronomy.

Location

Online only.

Course prerequisites

Entry to the Graduate Certificate is open to applicants with a tertiary qualification. Individual entry to units HET602 and HET603 is unrestricted.

Course duration

Two years part-time.

Structure

The units in this course will be presented in online delivery mode, with course material available via CDROM and Internet links, and contact via newsgroup and email.

Course subjects

**Semester 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
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<tbody>
<tr>
<td>HET602**</td>
<td>Exploring the Solar System</td>
<td>12.5</td>
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<tr>
<td>HET603**</td>
<td>Exploring Stars and the Milky Way</td>
<td>12.5</td>
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<tr>
<td>HET605**</td>
<td>Theories of Space and Time</td>
<td>12.5</td>
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**Semester 2**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
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<tbody>
<tr>
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<tr>
<td>HET604</td>
<td>Exploring Galaxies and the Cosmos</td>
<td>12.5</td>
</tr>
<tr>
<td>HET606**</td>
<td>Tools of Modern Astronomy</td>
<td>12.5</td>
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</table>

* Available in either semester.

** Not available in 1999.

Entry requirements

Entry to the Graduate Certificate is open to applicants with a tertiary qualification. Individual entry to subjects HET602 and HET603 is unrestricted.

Fees

AUD $1,000 per unit*, reduced to AUD $500 per unit* for Australian and New Zealand residents who are financial members of Aust. & NZ amateur astronomical societies or teachers’ associations.

The full Graduate Certificate requires satisfactory completion of four units, therefore the total course fee is: AUD $4,000*, reduced to AUD $2,000 for Australian and New Zealand residents who are financial members of Aust. & NZ amateur astronomical societies or teachers’ associations. The total fee is not required up-front, payment is per subject.

* The fees quoted here are only guaranteed for enrolments for the first semester 1999. They will be subject to review from mid-1999. However, the above fees will apply for the duration of the course for students who enrol for the first semester 1999.

The annual General Service Fee has been absorbed in the above fees, therefore a separate General Service Fee will not be charged for this course.

Further information

Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859.

CLEANER PRODUCTION

CHC51 Graduate Diploma of Applied Science (Cleaner Production)

CHC53 Master of Applied Science (Cleaner Production)

See also Graduate Diploma / Master of Engineering in Cleaner Production

The main aim of the course is to produce graduates equipped with the knowledge, skills and attitudes to enable them to audit, operate and design industrial systems according to the principles of cleaner production. The aim is achieved by providing a course which covers technical foundations in a general introduction to cleaner production (ie. the current Graduate Certificate in Cleaner Production), then follows with more detailed courses in Environmental Systems, Environmental Economics and Eco-Design and Auditing. These three subject areas form the base for the Graduate Diploma and Masters degree. The knowledge gained will then be applied in three case-study-based subjects in cleaner production, covering manufacturing, chemical processes and primary industries. For candidates in the Masters degree, the synthesis of all of these subject areas will occur through the completion of a research project. The research project will normally be industry based and will focus on an audit and redesign of a particular activity of that industry to bring about a “cleaner” method of production.

Objectives:

- To develop an understanding of the philosophy and principles of sustainable development and cleaner production
- To shift the engineer’s and scientist’s approach to the design and operation of engineering and production systems to encompass these principles
- To develop the ability to audit and redesign engineering systems to minimise waste
- To provide a research focus in an industrial setting in order to develop the skills required to undertake applied and basic research.

Location

Hawthorn campus.

Course duration

The Diploma is one year full-time or equivalent part-time.

The Masters program is 3 semesters full-time or equivalent part-time.

Course subjects

Diploma students must complete the subjects specified for the graduate certificate and an additional 4 subjects, for a total of 100 credit points.

Masters students must complete the subjects specified for the graduate certificate, graduate diploma and an additional 3 subjects, for a total of 150 credit points. The research project of 25 credit points must be included.

**Semester 1**

<table>
<thead>
<tr>
<th>Core subjects</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>CP001</td>
<td>Principles of Cleaner Production</td>
</tr>
<tr>
<td>CP002</td>
<td>Resource Technology</td>
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<tr>
<td>CP003</td>
<td>Environmental Regulation</td>
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<tr>
<td>CP004</td>
<td>Environmental Management</td>
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Elective Subjects (Minimum 2 required)

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<tr>
<th>Elective Subjects</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>CPE01</td>
<td>Biological Waste Management</td>
</tr>
<tr>
<td>CPE02</td>
<td>Environmental Audition</td>
</tr>
<tr>
<td>CPE03</td>
<td>Design and Manufacture for Cleaner Production</td>
</tr>
<tr>
<td>CPE04</td>
<td>Minor Research Project</td>
</tr>
<tr>
<td>CPE05</td>
<td>Environmental Monitoring</td>
</tr>
</tbody>
</table>

**Semester 2**

<table>
<thead>
<tr>
<th>Core subjects</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP700</td>
<td>Environmental Systems</td>
</tr>
<tr>
<td>CP701</td>
<td>Environmental Economics</td>
</tr>
<tr>
<td>CP702</td>
<td>Eco-Design and Auditing</td>
</tr>
<tr>
<td>CP703</td>
<td>Cleaner Production in Industry PART 1</td>
</tr>
<tr>
<td>CP704</td>
<td>Cleaner Production in Industry PART 2</td>
</tr>
<tr>
<td>CP705</td>
<td>Cleaner Production in Industry PART 3</td>
</tr>
</tbody>
</table>
COMPUTATIONAL CHEMISTRY / BIOMOLECULAR DESIGN

Z087  Master of Applied Science (Computational Chemistry/Biomolecular Design)

The aim of the course is to develop in students a mastery of the basic scientific principles underlying computational chemistry, thus providing a sound theoretical base.

The course aims:
- To achieve mastery of software applications used in computational chemistry.
- To develop in students a thorough understanding of the methods of computational chemistry and competence in their application, so that students are able to comprehend and analyze problems and obtain satisfactory solutions which show both originality and resourcefulness.
- To prepare students for possible careers in industry by using applications and problems that are relevant to industry and PhD studies by providing a general base from which specialised PhD research may proceed.
- To develop in students mastery of the most modern technology in the delivery of education, knowledge networks and informational retrieval by the use of interactive World Wide Web (WWW) pages. (This technology will include quality calculations performed over the internet by students, interactive self-assessment pages, use of molecular images, and many other materials. This innovative approach encourages self-paced learning with the students taking responsibility for their own learning. At the same time it allows rapid and effective access to tutors and to other students).
- To produce graduates who can fully take advantage of the revolution in information technology, and play a constructive role in the changes that this technology brings to society.

Career opportunities
Computational chemistry is a new science with considerable potential to assist industries such as the pharmaceutical industry and industries involved in designing new materials. Few students are currently trained in this area. Industry demand for high level skills in this new science can currently only be met by hiring persons who have undertaken research degrees in one of the specialised areas within computational chemistry.

Location
Hawthorn campus.

Further information
Contact the School of Engineering and Science on (03) 9214 8372.

Further information
Contact the School of Engineering and Science on (03) 9214 8372.

INDUSTRIAL CHEMISTRY / BIOCHEMISTRY

Z085  Graduate Diploma of Applied Science (Industrial Chemistry/Biochemistry)

This course is designed for graduates with a general background in chemistry or biochemistry who wish to become experienced in its application to industrial problems. Graduates of the course will not only have gained a thorough understanding of the specialist principles of industrial chemistry, but also exposure to such related issues as process economics, industrial issues and governmental regulations.

Location
Hawthorn campus.

Career opportunities
Graduates will have good career prospects in any of the chemical (or biochemical) industries in Australia. Examples of areas of employment for graduates specialising in applied chemistry include:
- explosives, soap, cosmetics and detergents;
- oil, coal, minerals and natural gas;
- industrial chemicals, agriculture and dyeing industries;
- research and development, quality control and production.

Graduates specialising in industrial biochemistry also have opportunities in areas such as:
- food and beverages, hospitals, clinics, pharmaceutical and veterinary laboratories;
- research, production and technical areas.

Course duration
This course will be offered on the basis of one year of full-time study, covering a full twelve months. The program may be taken over two years on a part-time basis.

Courses commence in February/March.

The program will include a small research project.

Structure
The program is structured in three parts - A, B and C - as set out below.

Part A is fifteen weeks of theory and laboratory work on the Hawthorn campus.

In conjunction with the program advisor, students select subjects from the list below. For Part A, students are required to amass 50 credit points, of which 25 are normally derived from laboratory work.

Students choose four of the following subjects:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC720</td>
<td>12.5</td>
</tr>
<tr>
<td>SC721</td>
<td>12.5</td>
</tr>
<tr>
<td>SC723</td>
<td>12.5</td>
</tr>
<tr>
<td>SC725</td>
<td>12.5</td>
</tr>
<tr>
<td>SC732</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Further information
Contact the School of Engineering and Science on (03) 9214 8372.
Biochemistry stream

Students choose four of the following subjects:

- SC720 Applied Chemistry Techniques 12.5
- SC725 Practical Chemistry 12.5
- SC729 Industrial Microbiology 12.5
- SC731 Practical Biochemistry 12.5
- SC760 Biochemistry 12.5

Part B is twenty-two weeks of industry based assignment work (SC709). Students are assigned a project based in industry. These assignments will be jointly supervised by academic staff and industrial supervisors. Students are paid appropriate award rates while working in industry.

Part C is twelve weeks of study on campus during the work experience. For both streams it consists of studies in business and management, and covers the following topic:

- BS721 Business and Management 12.5

Note: It should be noted that in parts A and C classes are combined where appropriate with undergraduate or other postgraduate classes.

Entry requirements

Applicants should have completed a degree or diploma with major studies in a branch of chemistry or biochemistry.

Further information

Contact the School of Engineering and Science on (03) 9214 8372.

INTEGRATIVE MEDICINE

GSIM1 Graduate Certificate in Integrative Medicine

GSIM2 Graduate Diploma in Integrative Medicine

This course is designed to provide a general introduction to a number of different complementary therapies. On completion of the Graduate Diploma medical practitioners will have an introductory knowledge of each therapy. They will also be in a position to select a therapy for more intensive study at a later stage.

Opportunities will be available for students to conduct research projects within a masters course or at PhD level. The selection of nutritional and environmental medicine research will be based on intensive examination of the scientific evidence in each area in order to identify promising lines of inquiry. The guarantee of scientific validity of the Graduate School’s research comes from a commitment to follow rigorous scientific methods at all times.

Location

Hawthorn campus.

Professional recognition

The Royal Australian College of General Practitioners (RACGP) has allocated CME points in the QA&CE Program for each subject in this course.

Course duration

While it is anticipated that the programs will in most cases be self-paced, it is expected that the Graduate Certificate could be completed in one year part-time (50 credit points), and the Graduate Diploma in a further year (100 credit points).

Structure

All the component subjects in the Graduate Diploma and Graduate Certificate can be taken as single subjects, or as a combination of single subjects. Subjects run for 4 weeks (10 credit points) with 5 contact hours per week. The completion of each subject accumulates credit towards a qualification.

Subjects

<table>
<thead>
<tr>
<th>No. Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM101 Introduction to Complementary Medicine 4</td>
</tr>
<tr>
<td>IM102 Introduction to Nutritional and Environmental Medicine 8</td>
</tr>
<tr>
<td>IM202 Introduction to Musculoskeletal/Physical Medicine and Sports Medicine 8</td>
</tr>
<tr>
<td>IM203 Introduction to Acupuncture 4</td>
</tr>
<tr>
<td>IM204 Introduction to Herbal Medicine 8</td>
</tr>
<tr>
<td>IM205 Introduction to Mind/Body Medicine 8</td>
</tr>
</tbody>
</table>

Entry requirements

Applicants will normally have completed an undergraduate degree in medicine or an approved equivalent. Consideration may be given to applicants with other degrees in the health sciences if places are available.

Application procedure

Direct application to the School should be made on the relevant form available from the School Administrator.

FEES

The Graduate Certificate and Graduate Diploma programs in Integrative Medicine are full-fee paying courses.

Further information

Contact the Graduate School of Integrative Medicine on (03) 9214 5463 or (03) 9214 5296. Email: gsim@swin.edu.au

GSIM3 Graduate Certificate in Nutritional and Environmental Medicine

GSIM4 Graduate Diploma in Nutritional and Environmental Medicine

The emphasis of the course is on the principles and practical application of nutritional and environmental medicine to common clinical problems. Currently, very little clinical nutrition is taught within Australian medical schools.

Opportunities will be available for students to conduct research projects within a masters course or at PhD level. The selection of nutritional and environmental medicine research will be based on intensive examination of the scientific evidence in each area in order to identify promising lines of inquiry. The guarantee of scientific validity of the Graduate School’s research comes from a commitment to follow rigorous scientific methods at all times.

Location

Hawthorn campus.

Professional recognition

The Royal Australian College of General Practitioners (RACGP) has allocated CME points in the QA&CE Program for each subject in this course.

Course duration

While it is anticipated that the programs will in most cases be self-paced, it is expected that the Graduate Certificate could be completed in one year part-time (50 credit points), and the Graduate Diploma in a further year (100 credit points).

Structure

All the component subjects in the Graduate Diploma and Graduate Certificate can be taken as single subjects, or as a combination of single subjects. Subjects run for 4 weeks (10 credit points) with 5 contact hours per week. The completion of each subject accumulates credit towards a qualification.

Course subjects

<table>
<thead>
<tr>
<th>No. Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE101 Introduction to Nutritional and Environmental Medicine 4</td>
</tr>
<tr>
<td>NE102 Biology of Nutrients 4</td>
</tr>
<tr>
<td>NE203 Nutrient Therapy in Toxicology and Skin Problems 4</td>
</tr>
<tr>
<td>NE204 Environmental Medicine 4</td>
</tr>
<tr>
<td>NE205 Nutritional Approaches to Neurological and Degenerative Disorders and Ageing Problems 4</td>
</tr>
<tr>
<td>NE206 Nutritional Approaches to Cardiovascular and Respiratory Problems 4</td>
</tr>
<tr>
<td>NE207 Nutritional Approaches to Gastrointestinal Problems and Behavioural Problems 4</td>
</tr>
<tr>
<td>NE208 Nutritional Approaches to Women’s Health and Paediatric Problems 4</td>
</tr>
<tr>
<td>NE209 Nutritional Approaches to Men’s Health and Endocrine Problems 4</td>
</tr>
<tr>
<td>NE210 Nutritional Approaches to Musculoskeletal Problems and Sports Nutrition 4</td>
</tr>
</tbody>
</table>

Entry requirements

Applicants will normally have completed an undergraduate degree in medicine or an approved equivalent. Consideration may be given to applicants with other degrees in the health sciences if places are available.

Application procedure

Direct application to the School should be made on the relevant form available from the School Administrator.

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Fees
The Graduate Certificate and Graduate Diploma programs in Nutritional and Environmental Medicine are full-fee paying courses.

Further information
Contact the School of Mathematical Sciences on (03) 9214 8484.

Z076 Graduate Certificate of Applied Science (Social Statistics)
Z086 Graduate Diploma of Applied Science (Social Statistics)
Z096 Master of Applied Science (Social Statistics)

These courses are designed for graduates in the humanities and social sciences who have a professional interest in the use of statistics. It is also applicable to other graduates who have a need to use statistics in their work but have not had sufficient or recent training in the area. It concentrates on practical skills and enables participants to broaden their theoretical and practical knowledge of the basic areas of social statistics.

Location
Hawthorn campus.

Career opportunities
Graduates are qualified to take up research officer/assistant positions involving both the management and application of research in the social sciences that require statistical methods for their design and analysis.

Course duration
Certificate: one year part-time.
Diploma: two years part-time.
Masters: three and a half years part-time.

Also available in Flexible Learning mode.

Course subjects
Graduate Certificate
Graduate Diploma

Entry requirements
A relevant first degree or diploma qualification, although it is expected that they will have worked in a health related area. Other applicants whose occupation and experience indicate that they have the capacity to succeed may be accepted into the course.

Further information
Contact the School of Mathematical Sciences on (03) 9214 8484.

Note:
No exemptions are available to candidates for the Certificate.

Graduate Diploma
The four subjects from the graduate certificate plus four subjects from:

MS733 Demographic Techniques
MS736 The Practice of Statistics 2
MS757 Epidemiological Methods
MS758 Analysis of Risks and Rates

(iii) A Graduate Diploma in Health Statistics will only be awarded to students who complete eight subjects approved for the course at Swinburne University of Technology.

(iv) Applicants for the Graduate Diploma may receive credit transfers/exemptions for a maximum of two non-compulsory subjects studied in other approved postgraduate courses.

Environmental Medicine are full-fee paying courses.

Note:
(i) A Graduate Certificate will only be awarded to students who complete the four subjects approved for the course at Swinburne University of Technology.

(ii) No exemptions are allowed, though in certain circumstances students may be allowed to substitute another subject for one of those listed. This would normally come from the subjects listed in the Graduate courses in Social Statistics at Swinburne University of Technology.

Note:
1. A maximum of two other approved subjects may be substituted for two of the subjects listed.
2. A maximum of two exemptions are permitted.
3. All the subjects will not necessarily be offered each year.

Masters
Ten subjects from those offered in the Graduate Certificate/Diploma, plus research work. This consists of three research subjects (listed below), in which students have the opportunity to apply the knowledge and skills developed earlier in the course to a research project. It is preferred, but not essential, that the problem be employer based and have direct relevance to the student’s employment.

MS767 Reviewing the Literature
MS768 Developing Your Research
MS749 Minor Thesis

Also available in Flexible Learning mode.

Course subjects
Graduate Certificate
Credit points
MS750 Basic Statistical Computing 12.5
MS760 The Practice of Statistics 1 12.5
MS762 Multivariate Statistics 12.5
MS763 Further Statistical Computing 12.5
MS764 Introduction to Health Statistics 12.5
MS765 The Practice of Statistics 2 12.5
Note: No exemptions are available to candidates for the Certificate.

Graduate Diploma
The four subjects from the graduate certificate plus four subjects from:

MS733 Demographic Techniques
MS736 The Practice of Statistics 2
MS757 Epidemiological Methods
MS758 Analysis of Risks and Rates

Note:
1. A maximum of two other approved subjects may be substituted for two of the subjects listed.
2. A maximum of two exemptions are permitted.
3. All the subjects will not necessarily be offered each year.

Masters
Ten subjects from those offered in the Graduate Certificate/Diploma, plus research work. This consists of three research subjects (listed below), in which students have the opportunity to apply the knowledge and skills developed earlier in the course to a research project. It is preferred, but not essential, that the problem be employer based and have direct relevance to the student’s employment.

MS767 Reviewing the Literature
MS768 Developing Your Research
MS749 Minor Thesis

25.0
Entry requirements

The course is open to graduates in any discipline. Non-graduates with a suitable background may be admitted to the program. The Masters program requires completion of the Graduate Diploma in Social or Health Statistics with at least two distinctions in the second year.

Further information

Contact the School of Mathematical Sciences on (03) 9214 8484.

HIGHER DEGREES BY RESEARCH

Z090 Master of Applied Science
Further information
Contact the School of Engineering and Science on (03) 9214 8372.

Z001 Doctor of Philosophy in Applied Science
Further information
Contact the School of Engineering and Science on (03) 9214 8372.

ARTS & SOCIAL SCIENCE

APPLIED MEDIA

N070 Graduate Certificate of Arts (Applied Media)

N0804 Graduate Diploma of Arts (Applied Media)

The Graduate Certificate and Graduate Diploma in Applied Media are designed to provide both a theoretical base and a portfolio of skills applicable to a wide range of media activities. They are aimed at both developing the skills of people interested in working in media related industries, and enhancing the expertise of people already working in the media.

The aims and objectives are:

- to provide knowledge of and experience in the production of a range of traditional and new media.
- to provide experience in the presentation and marketing of media production
- to introduce students to the changing face of media culture and the new technologies of electronic media to equip students with the skills to develop a substantial media production.

Location
Hawthorn campus.

Career opportunities

The courses provide a broad range of writing and production skills valued in many sectors of the print, broadcasting and electronic media, such as radio production, journalism and information technology. Graduates will be equipped with the kind of digital technology skills likely to be sought after by software developers working in the multi-media industry.

Course duration

The Graduate Certificate is taken over one year (two semesters) of part-time study. The Graduate Diploma is taken over one year of full-time study, or on a part-time basis over two years.

Structure

Graduate Certificate students must satisfactorily complete three subjects: one of two core subjects and two elective subjects from the subject list below.

Graduate Diploma students must satisfactorily complete six subjects: both core subjects and four elective subjects.

The two core subjects involve two hours per fortnight over two semesters. Each elective subject involves three hours of course-work per week per semester.

Apart from formal class time, candidates are expected to spend a minimum of the equivalent class contact hours per week in private study and/or team project work. Both core units and most elective units are offered in the evening from 6.00pm-9.00 p.m.

Course subjects

Core Subjects

- AM400 Media Work Experience/Placement
- AM412 Media Project

Elective Subjects

- AL408 Textuality and Discourse
- AM402 Radio Production and Criticism
- AM404 Writing for the Media
- AM410 Electronic Writing
- AM411 Globalisation: Media and Telecommunications
- AM413 Multimedia Authoring 1
- AM414 Multimedia Authoring 2

Entry requirements

Applicants should comply with one of the following:

a. have completed a bachelor’s degree from a recognised tertiary institution; or
b. have such other qualifications or experience which, in the opinion of the Selection Committee, are of a satisfactory standard and are suitable preparation for entry to the program.
COMMUNICATIONS

N095 Master of Arts (Communications)

The course will offer graduates, senior industry personnel, and international students an advanced course in the field of media and telecommunications. It will provide them with specialised knowledge at the cutting edge of communications culture, improve their research capabilities, and develop their range of applied communications skills.

The course aims to provide:
- both theoretical and conceptual approaches to fields of debate in communication studies and the enhancement of practical skills;
- exploration of subjects, research and production approaches highly relevant to contemporary society;
- flexibility in terms of choice across streams of media and telecommunications policy analysis, cultural theory and textual analysis, production, writing and journalism, new communications technology, and marketing;
- a breadth of expertise which students can utilise in applied field work, for themselves, or with an employer;
- good opportunities for close liaison with industry personnel, including course presentations by industry specialists, and industry based research.

Location
Hawthorn campus.

Course duration
The program is a one and a half year full-time course, or a three years part-time course.

Structure
The Masters degree consists of four subjects, including two compulsory core subjects, plus a minor thesis. Each subject involves three hours of coursework per semester. A minor thesis, of 20,000 words or equivalent, is to be undertaken concurrently. It is possible to select electives from the Graduate Diploma of Arts in Applied Media.

Course subjects
Core subject
AM500 Globalisation: Media and Telecommunications
And one of
AM501 Communication Environments
or
AM502 Asian Communications

Core subject
AM513 Textuality and Discourse
And one of
AM512 Interrogating Texts: Cultural Dreaming
AM504 Professional Production
AM505 Workplace Practice
AM512 Writing for the Media
AM514 Multimedia Authoring 1
AM515 Multimedia Authoring 2
AM516 Electronic Writing
Also
AM506 Thesis (Part-time students)
AM507 Thesis (Full-time students)

Further information
Contact the School of Social and Behavioural Sciences on (03) 9214 5209.
Email: sbsadmin@swin.edu.au.
Website: http://www.swin.edu.au/ssb/media/graddip/index.htm

COMMERCIAL RADIO

N061 Graduate Diploma of Arts (Commercial Radio)

This course is designed for people who wish to pursue a career in commercial radio broadcasting.

Students receive two semesters of intensive tuition in all aspects of commercial radio operations, with practical training in announcing and news presentation. Other areas covered include voice training, production, copywriting, news writing and presentation, sales and marketing, promotions, music and programming, radio station management and computing skills.

Broader issues are introduced including broadcasting ethics and codes of practice, media law and ownership, the impact of information technologies and audience research. There is a strong focus on digital audio processing and control systems, using extensive computing facilities in studios and production areas.

An industry placement program places students into regional commercial radio stations for several weeks during the course. This placement is designed to allow participants to experience first-hand the environment and operating style of commercial radio, gain feedback on their skills and to make personal contacts within the industry.

Training is conducted in Swinburne's modern, fully-equipped radio centre and computer laboratories, with personal access time available to all students.

Location
Hawthorn campus.

Career opportunities
The Graduate Diploma of Arts in Commercial Radio has the full support of the Federation of Australian Radio Broadcasters (FARB) and the industry is actively involved in lectures, seminars and workshops.

Every assistance is provided to place graduates in the workforce.

Course subjects
Core subject
AM441 Radio in Australia
AM442 Radio Presentation
AM443 Radio Journalism
AM444 Radio Radio Marketing and Promotions
AM445 Radio Advertising Copywriting
AM446 Radio Production
AM447 Radio Broadcasting Practice
AM448 Radio Industry Placement

Entry requirements
Applicants are expected to have satisfactorily completed their VCE and graduates of universities and colleges are also encouraged to apply. The minimum age for applicants is 18 years, although applicants younger than this with special abilities may be considered. The personal qualities sought in applicants are a clear intention and desire to make Commercial Radio a career, an ability to communicate effectively and an ability to work cooperatively in a group. A clear
Students studying the Masters must complete eight subjects plus a minor thesis.

Further information
Contact the School of Social and Behavioural Sciences on (03) 9214 5209.
Email: sbsadmin@swin.edu.au.
Website: http://www.swin.edu.au/sbs/

HOUSING MANAGEMENT AND POLICY

N079  Graduate Certificate of Social Science (Housing Management and Policy)

N0807 Graduate Diploma of Social Science (Housing Management and Policy)

N0903 Master of Social Science (Housing Management and Policy)

The Graduate Certificate is designed for people working in the public and community housing sector and related industries such as real estate and property development. It is a distance education course and therefore available to students Australia wide.

The objective of the Graduate Certificate is to provide people working in the housing industry with the practical and conceptual skills necessary for management, administration and policy development in housing provision. The content of the Graduate Certificate is thus split between knowledge of housing issues and skills in administration, management, research and policy.

The formal objectives of the Graduate Certificate are:

- to provide knowledge of, and experience in the analysis of, Australia’s housing system and the social and economic problems that characterise the system;
- to provide broad problem solving, organisational and management skills in a range of housing areas;
- to develop a client based management culture in public and community housing delivery.

The Graduate Diploma and Masters in Housing Management and Policy is designed for administrators, housing managers (public, not-for-profit and private real estate), research and policy workers in the public and community sectors who wish to advance their formal studies. The program provides knowledge and skills in research, policy development and the Australian context and system of housing management.

Location
Distance education.

Course duration
Graduate Certificate: two years part-time.
Graduate Diploma: three years part-time.
The Masters program may be completed over four years part-time or if accelerated, eighteen months full-time.

Structure
This program has been developed as a distance education program offering a self-paced learning program, and is tutored by a team of some of the most experienced applied urban and housing academics and practitioners in Australia.

On average, one week’s work will involve up to 10 hours consisting of approximately 3 hours reading of notes, a further two to three hours for readings, and about the same for exercises. Additional time will be necessary for assessments.

The Graduate Certificate consists of four subjects taken part-time over two years (one subject per semester).

Students studying the Graduate Diploma in Housing Management and Policy must complete the Graduate Certificate plus a further two subjects and a research report.

Students studying the Masters must complete eight subjects plus a minor thesis.

Course subjects

**Graduate Certificate**

Five subjects are offered, three of which are compulsory (AS485, AS486, AS487) and two of which are electives (AS488, AS489).

**Year 1**

- AS485 The Australian Housing System (Semester 1)
- AS487 Housing Management and Administration (Semester 2)

**Year 2**

- AS486 Housing Policy and Research (Semester 1)
- AS488 Housing Economics and Finance (Semester 2)

**OR**

- AS489 Issues in Housing Provision (Semester 2)

**Graduate Diploma**

**Year 1**

- AS485 The Australian Housing System (Semester 1)
- AS487 Housing Management and Administration (Semester 2)

**Year 2**

- AS486 Housing Policy and Research (Semester 1)
- AS488 Housing Economics and Finance (Semester 2)

**Year 3**

Two of:

- AS489 Issues in Housing Provision
- AS490 Commercialisation of Public Enterprise
- AS492 Urban Social Theory

Plus:

Research Report

**Masters**

- AS485 The Australian Housing System
- AS486 Housing Policy and Research
- AS487 Housing Management and Administration
- AS491 Comparative Social Policy
- AS488 Housing Economics and Finance
- AS489 Issues in Housing Provision
- AS492 Urban Social Theory
- AS490 Commercialisation of Public Enterprise

Plus: 

Minor Thesis

Entry requirements

Applicants for the Graduate Certificate should have at least five years appropriate work experience in housing management, and administration, or in a related area such as social and community sector employment. Applicants without work experience are also eligible if they have an appropriate degree such as Arts, Social Science, Business or Planning.

Applicants are eligible for the Graduate Diploma program if they have a three year undergraduate qualification and/or have completed the Graduate Certificate in Housing Management and Policy at a satisfactory level of achievement.

Applicants are eligible for the Masters program if they are over eighteen years of age and have either an undergraduate degree and a fourth year in the case and/or have completed the Graduate Certificate in Housing Management and Policy at a satisfactory level of achievement.

In special circumstances applicants with up to five years experience in social housing, real estate or human services will be considered. Potential participants can apply in two ways: they can be sponsored by their employees such as a State Housing Authority or they can pay themselves. Participants who are sponsored by State Housing Authorities will be chosen in cooperation with these authorities in order to ensure students meet the professional needs of the organisation.

The same application form is used for sponsored and self-funded applications.

Single subjects

Students may also choose to do only one subject. The choice will be limited to one subject per course and an $850 fee applies per subject. Should a student then
Course subjects
The typical sequence of subjects undertaken would be as follows:

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td></td>
</tr>
<tr>
<td>AY444</td>
<td>Foundations of Counselling</td>
</tr>
<tr>
<td>AY445</td>
<td>Ethical and Social Issues for Counsellors</td>
</tr>
<tr>
<td>Semester 2</td>
<td></td>
</tr>
<tr>
<td>AY448</td>
<td>Special application subject: Trauma, Loss and Grief</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td></td>
</tr>
<tr>
<td>AY447</td>
<td>Issues for Special Population Groups</td>
</tr>
<tr>
<td>AY446</td>
<td>Advanced Counselling, Assessment and Behaviour Change</td>
</tr>
<tr>
<td>Semester 2</td>
<td></td>
</tr>
<tr>
<td>AY449</td>
<td>Special application subject: Addiction Counselling</td>
</tr>
<tr>
<td>(or Supervised Practice A)</td>
<td></td>
</tr>
<tr>
<td>AY448</td>
<td>Special application subject: Trauma, Loss and Grief</td>
</tr>
<tr>
<td>(or Supervised Practice B)</td>
<td></td>
</tr>
</tbody>
</table>

Entry requirements
Applicants for the Graduate Diploma should have completed at least a three year degree from an Australian university or equivalent. Preference may be given to those currently working in the human services industry.

Further information
Contact the School of Social and Behavioural Sciences on (03) 9214 5209.
Email: sbsadmin@swin.edu.au.
Website: http://www.swin.edu.au/sbs/
Assignments, one research essay and one major test per subject. All classes are conducted in Japanese.

Subjects on society and culture, and on business and politics are offered in alternate years.

Course subjects
AJ400 Japanese Society A
AJ401 Japanese Society B
AJ402 Japanese Culture A
AJ403 Japanese Culture B
AJ404 Japanese Business and Industry A
AJ405 Japanese Business and Industry B
AJ406 Japanese Politics A
AJ407 Japanese Politics B

Entry requirements
Applications must have a degree with a major in Japanese language, or equivalent, from a recognised university, college or institute. All applications are assessed by a selection committee and in certain cases applicants may be required to complete appropriate subjects of the Bachelor of Arts degree course, or undertake a preliminary reading course before being accepted for enrolment.

Further information
Contact the course convenor, Tsunahiko Nawano on (03) 9214 8057.

N087 Graduate Diploma in Japanese for Professionals

The Graduate Diploma in Japanese for Professionals is an intensive language course designed for graduates with no previous studies in Japanese. It provides vocational language skills and basic knowledge of the cultural, social, political and economic aspects of contemporary Japan.

The course is planned so that graduates in business, law, medicine, engineering, etc., who are working or planning to undertake employment in an area requiring Japanese language skills and knowledge of Japan can acquire the main principles of the written and spoken language as well as vocabulary and expressions pertinent to their professional needs.

Location
Hawthorn campus.

Course duration
The Graduate Diploma in Japanese for Professionals is offered as a part-time evening course.

The language component consists of six hours per week over four semesters.

Structure
Stage 1
The language component in first year includes basic grammar, situational dialogues, aural comprehension and reading/writing sections which provide students with the basic knowledge of the mechanics of the language.

Semester 1
AJ420 Japanese for Professionals 1A
AJ421 Japanese for Professionals 1B

Stage 2
The language component at the second year level is divided into a core segment of advanced grammar and a segment in which language pertinent to the students' professional needs is studied through reading and conversation.

Semester 1
AJ422 Japanese for Professionals 2A
AJ423 Japanese for Professionals 2B

Semester 2
AJ424 Japanese for Professionals 3A
AJ425 Japanese for Professionals 3B

Semester 3
AJ426 Japanese for Professionals 4A
AJ427 Japanese for Professionals 4B

Entry requirements
Applicants must have a degree or equivalent, from a recognised university, college or institute.

Further information
Contact the course convenor, Dr Aliina Skoutarides on (03) 9214 8051.

N092 Master of Arts (Japanese)

The course incorporates advanced language coursework and research components. The research topic can pertain to any Japan related area provided that a suitably qualified supervisor is available. It is offered as a full-time or a part-time program.

Location
Hawthorn campus.

Duration
Bachelor of Arts entry - two years full-time, no longer than five years part-time.
Honours/Graduate Diploma in Japanese entry - one year full-time, no longer than three years part-time.

Course Structure
Bachelor of Arts graduates

Part 1

• Six hours per week of advanced languages coursework over two semesters.
  (four semester subjects of the Graduate Diploma in Japanese program).
  Alternatively a corresponding period of language study might be undertaken at an approved tertiary institution in Japan.
• Thesis: 15,000 to 20,000 words.

The above program is the same as the Japanese honours year program.

Part 2

• Six hours per week of advanced language coursework over two semesters.
  (The remaining four subjects of the Graduate Diploma in Japanese.)
• Minor thesis to be written in English with a substantial summary in Japanese. Thesis length: 15,000 to 20,000 words.

Bachelor of Arts (Honours) (Japanese) graduates

• Six hours per week advanced language study over two semesters. Four semester subjects (not taken in the honours year) of the existing Graduate Diploma in Japanese. Alternatively a corresponding period of language study might be undertaken at an approved tertiary institution in Japan.
• Minor thesis to be written in English with a substantial summary in Japanese. Thesis length: 15,000 to 20,000 words.

Graduate Diploma in Japanese graduates

• Further language study to an extent agreed by the supervisor and the School.
• Minor thesis to be written in English with a substantial summary in Japanese. Thesis length: 15,000 to 20,000 words.

Students undertaking the program on a part-time basis may choose to complete the language component (where applicable) before commencing research or, alternatively, enrol in one language subject and one research component per semester.

Assessment
Assessment is continuous and is based on satisfactory completion of both the language coursework and research components.

Entry requirements
• Bachelor of Arts degree with a major in Japanese with credit or above results in the third year Japanese language subjects and overall high performance level in other discipline.
• Honours (Japanese) with H2A or higher results.
• Graduate Diploma in Japanese with credit or above results in all subjects.

Further information
Contact the course convenor, Dr Aliina Skoutarides on (03) 9214 8051.
KOREAN

N088 Graduate Diploma in Korean

The Graduate Diploma in Korean is an intensive language course based on an examination of Korean current affairs. It is designed to enable students to develop their language skills through reading recent Korean newspaper articles and listening to media broadcasts, and to extend their knowledge of contemporary Korea. Specific training is focused on reading, aural comprehension and speaking. The course is planned so that students who have completed a three-year undergraduate program in Korean can further their knowledge of the Korean language to a stage where they are competent to deal with a wide variety of topics in the written and spoken language. Training in the various styles and speech levels which characterise modern spoken Korean is also a part of the course.

Language development is focused on four major areas of Korean studies: social, cultural, business and political.

Students consider:
- general problems and trends as they are analysed by Korean writers within the framework of the society as a whole; and
- the validity of assertions and generalisations which are made by Korean, as well as foreign writers.

Location
Hawthorn campus.

Course duration
The course may be completed part-time in the evening over two years.

Structure
It comprises eight semester subjects in all and each subject involves four hours of class meetings per week. Usually students enrol for two subjects concurrently in each of the four semesters but may, in special circumstances, enrol for only one subject per semester.

Subjects on Korean society and culture, and on business and politics, are offered in alternate years.

Course subjects
AK400 Korean Society A
AK401 Korean Society B
AK402 Korean Culture A
AK403 Korean Culture B
AK404 Korean Business and Industry A
AK405 Korean Business and Industry B
AK406 Korean Politics A
AK407 Korean Politics B

Entry requirements
Applicants must have a degree, or equivalent, from a recognised university, college or institute.

Further information
Contact the course convener, Dr Alina Skoutarides on (03) 9214 8051.

N081 Graduate Diploma in Korean for Professionals

The Graduate Diploma in Korean for Professionals is an intensive language course specifically designed for graduates with no previous studies in Korean. It provides vocational language skills and basic knowledge of the cultural, social, political and economic aspects of contemporary Korea.

The course is planned so that graduates in business, law, medicine, engineering, etc., who are working, or planning to undertake employment, in an area requiring Korean language skills and knowledge of Korea can acquire the main principles of the written and spoken language as well as vocabulary and expressions pertinent to their professional needs.

Location
Hawthorn campus.

Course duration
This is offered as a part-time evening course.

The language component is six hours per week over four semesters.

Course subjects
Stage 1 (Year 1)

- The language component in the first year includes basic grammar, situational dialogues, aural comprehension and reading/writing sections which provide students with the basic knowledge of the mechanics of the language.

Semester 1
AK420 Korean for Professionals 1A

Semester 2
AK421 Korean for Professionals 1B

Stage 2 (Year 2)

- The language component of the second year level is divided into a core segment of advanced grammar and a segment in which language pertinent to students’ professional needs is studied through reading and conversation.

Semester 1
AK422 Korean for Professionals 2A

Semester 2
AK423 Korean for Professionals 2B

Supporting components
Equivalent to two hours per week over four semesters.

The four supporting components are culture, society, politics/economy and communication.

These components take the form of five three-hour seminars per semester, at times to be arranged.

Entry requirements
Applicants must have a degree, or equivalent, from a recognised university, college or institute.

Further information
Contact the course convener, Dr Alina Skoutarides on (03) 9214 8051.

N094 Master of Arts (Korean)

The course incorporates advanced language coursework and research components. The research topic can pertain to any area related to Korea, provided that a suitably qualified supervisor is available. It is offered as a full-time or a part-time program.

Location
Hawthorn campus.

Course duration
Bachelor of Arts entry - two years full-time, no longer than five years part-time.
Honours/Graduate Diploma in Japanese entry - one year full-time, no longer than three years part-time.

Structure
Bachelor of Arts graduates

Part 1
- Six hours per week of advanced language coursework over two semesters.
- Four semester subjects of the existing Graduate Diploma in Korean.
Alternatively a corresponding period of language study might be undertaken at an approved tertiary institution in Korea.
- Thesis: 15,000 to 20,000 words.
- The above program is the same as the Korean honours year program.

Part 2
- Six hours per week of advanced language coursework over two semesters.
(The remaining four subjects of the Graduate Diploma in Korean.)
- Minor thesis to be written in English with a substantial summary in Korean.
Thesis length: 15,000 to 20,000 words.

Bachelor of Arts (Honours) (Korean) graduates

- Six hours per week advanced language study over two semesters. Four semester subjects (not taken in the honours year) of existing Graduate Diploma in Korean. Alternatively a corresponding period of language study
might be undertaken at an approved tertiary institution in Korea.

- Minor thesis to be written in English with a substantial summary in Korean. Thesis length: 15,000 to 20,000 words.

**Graduate Diploma in Korean graduates**

- Further language study to an extent agreed by the supervisor and the School.
- Minor thesis to be written in English with a substantial summary in Korean. Thesis length: 15,000 to 20,000 words.

Students undertaking the program on a part-time basis may choose to complete the language component (where applicable) before commencing research, or enrol in one language subject and one research component per semester.

**Assessment**

Assessment is continuous and is based on satisfactory completion of both the language coursework and research components.

**Entry requirements**

- Bachelor of Arts degree with a major in Korean with credit or above results in the third year Korean language subjects and overall high performance level in other disciplines.
- Honours (Korean) with H2A or higher results.
- Graduate Diploma in Korean with credit or above results in all subjects.

**Further information**

Contact the course convener, Dr Alina Skoutarides on (03) 9214 8051.

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**PSYCHOLOGY**

**N084 Graduate Diploma of Social Science (Psychology)**

This course is accredited by the Australian Psychological Society as a fourth year of study in Psychology. The course is offered as a one year full-time or two year part-time program. It is designed for students who have completed a first degree with a three-year major sequence of studies in psychology undertaken in a course (or courses) approved for this purpose by the Australian Psychological Society. The program is intended to complete students’ foundation studies in psychology as a science and as a profession. The course is designed to prepare students to enter the profession by meeting the educational requirements for registration as a probationary psychologist with the Victorian Psychologists Registration Board and for Associate Membership of the Australian Psychological Society.

The course has the following objectives:

- to enable students to understand and apply the principles of psychology in practical settings;
- to enable students to acquire knowledge of the principles of social and behavioural science research design and analysis;
- to enable students to extend skills in formulating research problems, gathering and analysing data, interpreting and communicating research findings;
- to enable students to acquire advanced knowledge in selected topic areas within psychology and applied psychology, building upon and extending basic undergraduate preparation;
- to provide students with an understanding of the nature of psychology as a profession, the ethical, legal and social responsibilities of the psychologist, and the role of the Victorian Psychologists Registration Board and the Australian Psychological Society;
- to prepare students for entry level work as psychologists-in-training under supervision in occupational fields such as applied social research, the human services, and human resources.

The course ensures that all students develop basic competencies in research design and analysis, and an understanding of the ethical, legal and social responsibilities of psychologists engaged in social and applied research and professional practice. Students are also expected to acquire advanced knowledge in several areas of psychology.

It will be expected that all students will have basic competence in computer and keyboard skills including familiarity with SPSS.

Students without this competence will be offered a preliminary short course (fee changing) in order to acquire the requisite skills.

There is scope for students to exercise their preferences for particular topics in choosing among elective subjects.

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**Location**

Hawthorn campus.

**Professional recognition**

This course is accredited by the Australian Psychological Society as a fourth year of study in Psychology.

**Course duration**

The course can be completed in one year of full-time study extending across two semesters. In the first semester students will be involved in approximately twelve hours of class contact time per week. In the second semester students will be involved in approximately five hours of weekly class time. Students will also be consulting regularly with an academic supervisor about their research project and the writing of this report.

The course can also be completed in two years of part-time study extending over four semesters. Part-time students usually have approximate weekly class contact hours as follows: Year 1, semester 1: 6 hours; semester 2: 5 hours; Year 2, semester 1: 6 hours, semester 2: 0 hours.

Students will also be involved in regular consultations with an academic supervisor about data analysis for the research project and the writing of the report.

**Course subjects**

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY434</td>
<td>Applied Social Psychology (elective)</td>
<td>2</td>
</tr>
<tr>
<td>AY401</td>
<td>Research Design and Analysis (core)</td>
<td>3</td>
</tr>
<tr>
<td>AY403</td>
<td>Quantitative Methods (core)</td>
<td>3</td>
</tr>
<tr>
<td>AY411</td>
<td>Counselling Psychology (elective)</td>
<td>3</td>
</tr>
<tr>
<td>AY413</td>
<td>Research Project and Report (core)</td>
<td>3</td>
</tr>
<tr>
<td>AY420</td>
<td>Psychological Assessment (core)</td>
<td>2</td>
</tr>
<tr>
<td>AY422</td>
<td>Ethics and Professional Issues (core)</td>
<td>2</td>
</tr>
<tr>
<td>ETH38</td>
<td>Neuropsychology Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

**Further information**

Contact the School of Social and Behavioural Sciences on (03) 9214 5209.

Email: sbsadmin@swin.edu.au.


**N091 Master of Arts (Counselling Psychology)**

The Master of Arts in Counselling Psychology is designed for students who have completed a first degree and have completed a four year sequence of studies in psychology. The course is intended to prepare graduates for professional practice as counselling psychologists. Graduates of the course will be able to:

- assess the current level of psychosocial functioning of individuals, groups, couples and families and formulate appropriate helping interventions;
- provide counselling help to individuals, groups, couples and families experiencing difficulties connected with relationships, education, careers, work, parenting, crises, and life-transitions;
- evaluate and monitor the quality of helping services provided by a counselling services unit;
- provide consulting help to individuals, organisations and community groups in relation to counselling matters.

**Location**

Hawthorn campus.

**Professional recognition**

This course has been granted full accreditation as a fifth and sixth year course in psychology by the Australian Psychological Society.

**Course duration**

This course is offered as a four year, part-time evening program.

**Structure**

Counselling Psychology is diverse, with many particular applications. The course has been organised in such a way as to (a) teach generic skills and areas of knowledge which apply across the various areas of counselling psychology practice, and (b) examine selected areas of practice which exemplify the delivery of counselling-related services to persons with particular needs.
There are three course components: coursework (50%), supervised placements (25%), and an empirical research project (25%).

Course subjects
The overall structure of the course will be as follows:

**Year 1**

**Semester 1**
- AYS12 Counselling Theory and Skills
- AYS15 Psychological Assessment

**Semester 2**
- AYS10 Human Services Research and Evaluation
- AYS06 Supervised Practicum Internship A1

**Year 2**

**Semester 1**
- AYS13 Research Colloquium
- AYS10 Professional, Ethical and Legal Issues

**Semester 2**
- AYS16 Counselling Applications
- AYS07 Supervised Practicum Internship A2

**Year 3**

**Semester 1**
- AYS08 Supervised Practicum Internship B1
- AYS13 Psychology of Work

**Semester 2**
- AYS11 Psychology of the Family
- AYS09 Supervised Practicum Internship B2

**Year 4**

**Semester 1**
- AYS14 Aspects of Professional Practice
- AYS16 Research Project A

**Semester 2**
- AYS17 Research Project B

Three of the coursework subjects comprise advanced study in areas central to the practice of counselling psychology:
- Aspects of Professional Practice
- Psychology of Work
- Psychology of the Family

Four of the coursework subjects comprise professional skill development training:
- Human Services Research and Evaluation
- Psychological Assessment
- Counselling Theory and Skills
- Counselling Applications

There is also a coursework subject examining professional and ethical issues in Counselling Psychology Practice.

Students also participate in supervised work placements (AYS08, AYS07, AYS08, AYS09) in at least 3 separate practice settings. Initially students are placed at the Centre for Psychological Services and following this choose placements suitable in terms of their clientele and mode of service delivery.

Further information
Contact the School of Social and Behavioural Sciences on (03) 9214 5209.
Email: sbsadmin@swin.edu.au.
Website: http://www.swin.edu.au/sbs/

N0901 Master of Arts (Health Psychology)

The Psychology Discipline offers a Master of Arts in (Health Psychology) degree program by coursework, practicum and minor thesis. Health psychologists may engage in health research, health promotion, disease prevention, health care, education, rehabilitation, and policy formulation. The program is designed to provide a broad range of professional skills which reflect the diversity of practice in health psychology.

The program is intended to meet the growing demand for professionals with a high level of training in health psychology.

The objectives of the course are:
- to provide core professional skills relevant to practicing psychologists
- to provide specialist knowledge in the field of health psychology
- to provide practical experience in a variety of health-related settings
- to consolidate research skills through the experience of conducting a research project

Graduates of the course will be able to:
- engage in counselling and rehabilitation of clients
- train and counsel health professionals
- develop and deliver health promotion and education programs
- evaluate health care programs
- contribute to the formulation of public health policy
- consult with government, community, and business organizations
- conduct health-related research

Location
Hawthorn campus.

Professional recognition
On completion of this course students will be eligible for full registration with the Victorian Psychologists Registration Board. Students will also be eligible for full membership of the Australian Psychological Society.

Course duration
Four years part-time.

Structure
The structure of the program follows the guidelines of the Australian Psychological Society.

Course subjects
The overall structure of the course is as follows:

**Year 1**

**Semester 1**
- AYS12 Counselling Theory and Skills
- AYS18 Foundations of Health Psychology

**Semester 2**
- AYS10 Human Services Research and Evaluation
- AYS20 Supervised Health Placement A1

**Year 2**

**Semester 1**
- AYS10 Professional, Ethical and Legal Issues
- AYS13 Research Colloquium

**Semester 2**
- AYS19 Culture, Gender and Health
- AYS21 Supervised Health Placement A2

**Year 3**

**Semester 1**
- AYS15 Psychological Assessment
- AYS22 Supervised Health Placement B1

**Semester 2**
- SM760 Epidemiology for Health Psychologists
- AYS23 Supervised Health Placement B2
Candidates undertaking the DPsych (Health Psychology) program will complete the coursework and placement components of the MA(Health Psychology) course in addition to their major thesis. Graduates will be highly skilled in research and professional practice in the area of health psychology.

Entry requirements
In order to be admitted to the course, an applicant must hold a first or upper second class honours degree in psychology from a recognised Australian university (or hold qualifications deemed by the University’s Higher Degree Committee to be equivalent) and be eligible for Associate Membership of the Australian Psychological Society. Intending applicants should consult with the Coordinator of the program before lodging an application.

Further information
Contact the School of Social and Behavioural Sciences on (03) 9214 5209.
Email: sbsadmin@swin.edu.au.
Website: http://www.swin.edu.au/sbs/

HIGHER DEGREES BY RESEARCH

N090 Master of Arts (by research)

The School of Social and Behavioural Sciences offers the degree of Master of Arts (by research and thesis). Applicants should have a BA (Honours) degree or the equivalent of four years of undergraduate study in a discipline appropriate to the proposed area of study. The level of academic achievement in prior studies must be of a high standard. Other relevant experience, including work experience, will be taken into account in assessing applications.

Location
Hawthorn campus.

Application procedure
Intending applicants should approach the Head of the relevant discipline or the School Research Coordinator to identify staff who may be appropriate and available to supervise the proposed project. Information about staff research expertise is available on the School website (http://www.swin.edu.au/sbs/research). Applications accepted by this committee are then forwarded to the Swinburne University Higher Degrees Committee for approval.

Applicants should note that two to three months should be allowed for a successful application to be evaluated. Additionally, applicants wishing to apply for a postgraduate award must submit their application to the University by the end of October.

A candidate may be required to undertake preliminary coursework as part of the candidature. The Statute for the degree of Doctor of Philosophy sets the regulations governing this qualification. See the separate Policies and Procedures booklet.

Scholarships
Full-time higher degree students will normally receive a HECS exemption scholarship.

Australian Postgraduate Research Award
The Australian Research Council (ARC) offers 900 Australian Postgraduate Research Awards (APRAs) per year to postgraduate researchers of exceptional promise.

Further information
Prospective candidates in the first instance should consult the Higher Degrees and Research Officer on (03) 9214 5224 from whom copies of the Statute for the degree of Doctor of Philosophy and the degree of Master (by research) may be obtained. (Also see the Policies and Procedures booklet).
N001 Doctor of Philosophy (Arts)

The School offers the degree of Doctor of Philosophy on a full-time or part-time basis. Applicants should have a Master degree or the equivalent in a discipline appropriate to the proposed area of study. The level of academic achievement in prior studies should be of a very high standard. Other relevant activities, including work experience, will be taken into account in assessing applications.

Location

Hawthorn campus.

Application procedure

Intending applicants should approach the Head of the relevant discipline or the School Research Coordinator to identify staff who may be appropriate and available to supervise the proposed project. Information about staff research expertise is available on the School website (http://www.swin.edu.au/sbs/staff/welcome.html). An application can proceed only if a staff member with suitable expertise is available and willing to supervise the project.

Candidature application forms are available at http://www.swin.edu.au/ims/home/orgpos.htm

Applications, signed by the applicant, the coordinating supervisor and second supervisor are submitted to the School of Social and Behavioural Sciences Research Committee (secretariat in BA916). Applications accepted by this committee are then forwarded to the Swinburne University Higher Degrees Committee for approval.

Applicants should note that two to three months should be allowed for a successful application to be evaluated.

Additionally, applicants wishing to apply for a postgraduate award must submit their application to the University by the end of October.

A candidate may be required to undertake preliminary coursework as part of the candidature. The Statute for the degree of Doctor of Philosophy sets out the regulations governing this qualification. See the separate Policies and Procedures booklet.

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Further information

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BUSINESS & MANAGEMENT

ACCOUNTING AND FINANCE

A078 Graduate Certificate of Business in Accounting and Finance

The Graduate Certificate of Business in Accounting and Finance develops the technical, practical, analytical and creative skills necessary to support a successful career in accounting and finance. It provides an entry level into tertiary study and the ability to obtain a tertiary qualification for appropriately qualified candidates. Successful completion of the course forms the first stage in a nested program leading to a graduate Diploma and Masters in Accounting and Finance.

At the completion of the course, graduates can expect to:

- have developed the basic technical and practical skills necessary to support a successful career in accounting and finance;
- have developed the analytical and creative skills necessary when dealing with accounting and finance issues within planning and decision making;
- be equipped with suitable skills to continue with further postgraduate study in accounting and finance.

The Graduate Diploma builds on the skills and knowledge acquired in the Graduate Certificate and offers participants the opportunity to specialise in either accounting or finance. It further develops the analytical and creative skills necessary when dealing with accounting and finance issues within planning and decision making. At completion of the course, graduates can expect to have developed the requisite skills to continue with further postgraduate study at the Masters or MBA level.

Location

Hawthorn campus.

Career opportunities

Accounting is the language of business and skills mastered in its study are relevant to many areas of professional interest - marketing, economic forecasting, finance, engineering and many others. A knowledge of accounting and finance can help individuals and business organisations understand how to use money (resources) to the best advantage. Gaining and maintaining wealth are important elements in a market economy.

Finance studies can equip graduates with the skills needed to enter the finance industry, one of the fastest growing areas of employment. Graduates may work in banking, stockbroking, insurance and other areas in the finance industry.

Professional recognition

The Graduate Diploma will provide an avenue for graduates with an accounting specialisation to achieve professional recognition with the Australian Society of Certified Practising Accountants (ASCPA).

Course duration

The Graduate Certificate comprises two semesters of part-time study over one year.

The Graduate Diploma comprises four semesters of part-time study over two years.

Course subjects

Stage 1 - Graduate Certificate

The course involves four compulsory subjects:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC450</td>
<td>Accounting Principles and Systems</td>
</tr>
<tr>
<td>BC451</td>
<td>Corporate Financial Management</td>
</tr>
<tr>
<td>BC452</td>
<td>Managerial Accounting</td>
</tr>
<tr>
<td>BC453</td>
<td>Financial Reporting</td>
</tr>
</tbody>
</table>

Stage 2 - Graduate Diploma

The four Stage 1 subjects plus either the Accounting or Finance Streams.

Accounting Stream

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC520</td>
<td>Income Tax Law</td>
</tr>
<tr>
<td>BC521</td>
<td>Australian Company Law</td>
</tr>
<tr>
<td>BC522</td>
<td>Company Auditing</td>
</tr>
<tr>
<td>BC523</td>
<td>Financial Accounting Theory</td>
</tr>
</tbody>
</table>
The aims and objectives of the course are to give candidates:

- the need for a broader knowledge of this area.
- the administration/management fields, but in the course of their employment feel executives or potential executives, who have not undertaken significant studies in this area.

The Graduate Diploma in Business Administration is offered for qualified applicants who will have a recognised qualification which will assist them in developing management needed by all types of organisations in this time of change.

Participants in the program focus on responsibility and success in a rapidly changing world; the need to make proper use of new technologies, the need to changing global environment;
the middle-management in both private and public enterprise, to manage in a changing global environment;
• an opportunity to examine and practise problem-solving and decision making in management situations, which should equip students in any type of business organisation with the ability to develop logical and creative approaches to their jobs.

After completion of the course, candidates will have improved their analytical skills and effectiveness in dealing with managerial responsibility. Moreover, participants will have a broader outlook extending beyond their immediate specialist needs.

Location
Hawthorn campus.

Course duration
The Graduate Certificate is a one year part-time course.
The Graduate Diploma is a one year full-time or two years part-time program.
The Master of Business Administration is a one year full-time program. The course is also offered on a part-time basis.

Structure
The Graduate Certificate and Graduate Diploma levels of the nested program each consist of four subjects, with each subject having a credit point value of 12.5. These eight subjects form the MBA core. The MBA level has two options: an Executive or a Coursework stream. The Executive MBA consists of three industry based projects each equal to two subjects (25 credit points), with a total credit point value of 75. The Coursework stream is offered in a number of specialisations and has four subjects, with each subject having a credit point value of 12.5 plus a project equal to two subjects (25 credit points). It is possible to exit at each level of the program.

Course subjects

**Year 1 - Graduate Certificate (part-time structure)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course title</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH490</td>
<td>The Learning Organisation 1: Interpersonal, Leadership and Team Skills</td>
<td>12.5</td>
</tr>
<tr>
<td>BM490</td>
<td>Marketing Management</td>
<td>12.5</td>
</tr>
<tr>
<td>BC490</td>
<td>Accounting for Managers</td>
<td>12.5</td>
</tr>
<tr>
<td>BI490</td>
<td>International Business</td>
<td>12.5</td>
</tr>
</tbody>
</table>

On successful completion of the Graduate Certificate in Business Administration students with appropriate academic achievement may seek to continue to the next award level - the Graduate Diploma in Business Administration.

**Year 2 - Graduate Diploma (part-time structure)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course title</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC590</td>
<td>Financial Management</td>
<td>12.5</td>
</tr>
<tr>
<td>BT590</td>
<td>Information Technology for Management</td>
<td>12.5</td>
</tr>
<tr>
<td>BH590</td>
<td>The Learning Organisation 2: People, Change and Continuous Improvement</td>
<td>12.5</td>
</tr>
<tr>
<td>BMS590</td>
<td>Corporate Strategy</td>
<td>12.5</td>
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</tbody>
</table>

On successful completion of the Graduate Diploma in Business Administration students with appropriate academic achievement may seek to continue to the next award level - the Master of Business Administration.

**Year 1 - Masters (full-time structure)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course title</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC490</td>
<td>Accounting for Managers</td>
<td>12.5</td>
</tr>
<tr>
<td>BI490</td>
<td>International Business Foundations</td>
<td>12.5</td>
</tr>
<tr>
<td>BH490</td>
<td>The Learning Organisation 1: Interpersonal, Leadership and Team Skills</td>
<td>12.5</td>
</tr>
<tr>
<td>BM490</td>
<td>Marketing Management</td>
<td>12.5</td>
</tr>
<tr>
<td>BC590</td>
<td>Financial Management</td>
<td>12.5</td>
</tr>
<tr>
<td>BT590</td>
<td>Information Technology for Management</td>
<td>12.5</td>
</tr>
<tr>
<td>BH590</td>
<td>The Learning Organisation 2: People, Change and Continuous Improvement</td>
<td>12.5</td>
</tr>
</tbody>
</table>

The minimum requirement for the award of an MBA is successful completion of the eight core subjects (100 credit points) incorporated in the Graduate Certificate and Graduate Diploma, plus an additional 75 credit points with the content determined by the student's choice of the Executive or Coursework stream at the MBA level.

**Finance Stream**

- BC525 Capital Markets
- BC526 Investment and Portfolio Management
- BC527 Personal Investment
- BC527 International Financial Management

**Entry requirements**

Applicants for the Graduate Certificate should hold an undergraduate degree in any discipline from a recognised university or equivalent institution. Places will also be available to applicants without tertiary qualifications but who have relevant business experience.

For entry to the Graduate Diploma, applicants must have successfully completed the Graduate Certificate of Business in Accounting and Finance. Entry is also available for applicants who wish to complete the Master of Business Administration Finance Specialisation. These applicants would normally choose the finance related subjects listed below. Special entry provision is available for graduates who hold an overseas qualification in accounting, and are seeking provisional membership of the Australian Society of Certified Practising Accountants (ASCPA).

Further information
Contact the School of Business on (03) 9214 5046 or the Course Convener, Mr Dennis Vinen on (03) 9214 8474.
### BM590: Corporate Strategy

12.5 credit points

*Plus an additional 7.5 credit points with the content determined by the student's choice of the Executive or Coursework stream at the MBA level.*

The Executive stream will allow students to complete three, industry-based projects (each worth 25 credit points) as their specialist study.

The Coursework stream enables students to undertake four coursework subjects (50 credit points) and an applied project (25 credit points) in one of the following areas of specialisation:

**General Management**
- BM693: Strategy for Competitive Advantage
- EF947: Entrepreneurship in Corporations
  - and two of:
    - BB702: Management and Innovation
    - BM895: Strategic Execution
    - BB804: Management and Society
  - and the Project (two units) focussed on

**Construction Management**
- CE793: Construction Law
- CE670: Construction Technology
- CE691: Civil Engineering Management
- CE772: Construction Technology
- CE999: Construction Project (two units)

**Enterprise Innovation**
- E920: Managing the Growing Business
- E923: Growth Venture Evaluation
- E936: Opportunity Evaluation Techniques
- E947: Entrepreneurship in Corporations
- E938: Commercialising Innovation
- E924: Project: Business Plan (two units)

**Finance**
- BC524: Capital Markets
- BC703: Investment and Portfolio Management
- BCS26: Personal Investment
- BC704: International Financial Management
- BC705: Project

**Human Resources Management**
- BH691: Managing People Across Cultures
- BH693: Strategy, People and Performance
- HRM001: Human Resource Management
- GH900: Human Resource Development

**Human Resources Management/Organisation Dynamics**
- BH405: Leading, Following and Group Dynamics
- BH404: The Social Structure of Organisation Dynamics
- BH691: Managing People Across Cultures
- BH693: Strategy, People and Performance

**Industrial Engineering Management**
- MM649: Fundamentals of Industrial Engineering
- MM658: Design of Physical Facilities
- MM642: Manufacturing Management Systems
- MM650: Quality and Productivity
- MM653: Expert Systems, Simulation and Modelling
- MM655: Decision Analysis
- MM656: Systems Optimisation and Reliability
- MM660: Project (two unit value)

**Information Technology Management**
- BT502: Current Issues in Information Systems
- BT601: Systems Project Management
- BT607: Information Systems Management
- BT706: Information Technology Effectiveness
- BT999: Project (two unit value)

**International Business**
- BI712: International Marketing
- BI721: International Trade and Finance
- BI722: International Marketing Research
- BI812: Legal Aspects of International Business
- BI813: International Management
- BI822: International Logistics Management

**Logistics**
- OM690: Logistics Management
- OM691: Manufacturing Operations Management
- OM692: Total Quality Management
- OM693: Project Management
- OM694: Risk Management
- OM695: Supply Management
- OM696: Distribution Management
- OM697: Integrated Logistics Support (ILS)
- OM698: Maintenance Management

**Manufacturing/Operations Management**
- OM690: Logistics Management
- OM691: Manufacturing/Operations Management
- OM692: Total Quality Management
- and one of:
  - OM693: Project Management
  - OM694: Risk Management
  - and
  - XX999: Project (two units)

**Marketing**
- BM691: Marketing Analysis
- BM693: Strategy for Competitive Advantage
- BM695: Strategic Execution
- BI722: International Marketing Research
- BM999: Project (two units)

**Organisation Dynamics**
- BH405: Leading, Following and Group Dynamics
- BH404: The Social Structure of Organisation Dynamics
- BH406: Dynamics of Culture and Diversity in Work Organisations
- BH407: Consulting Processes for Organisations

**Note:** availability of specialisations is dependant upon demand.

### Entry requirements

The formal admission requirement for the MBA program is an appropriate undergraduate qualification at an acceptable level from a recognised tertiary institution and at least two years of relevant work experience. Work experience gained in a cooperative education degree program will normally be accepted.

Applicants with other qualifications and experience which, in the opinion of the Head of School, are of equivalent standard will also qualify for entry. In some cases, additional preliminary study may be required. For some specialisations, an interview may be necessary as part of the selection process.

Applicants who do not hold an appropriate qualification but who have significant relevant work experience (normally five years or more) may initially be admitted to the Graduate Certificate level.

### Application procedure

Application forms are available from the Graduate School of Management on (03) 9214 5335 or (03) 9214 8512.

### Further information

Contact the Graduate School of Management on (03) 9214 5335 or (03) 9214 8512.
A007  Professional Doctorate of Business Administration

Business executives are required to operate in a turbulent environment where competition is global, change is the norm, and where radical discontinuities present ever changing decision making frames. Excellence in entrepreneurship, strategic management and organisational change management are essential for organisational viability.

The Swinburne DBA aims to develop high calibre executives with managerial and applied research skills by employing three critical integrating lenses on organisations:

- Entrepreneurship: Opportunity based Management,
- Strategy: Achieving Competitive Advantage, and

The DBA aims to:

- Bring theory and practice to bear on decision making in complex organisational environments in order to help organisations adapt rapidly to changing circumstances and to lay the foundations for long term organisational survival;
- Encourage innovative thinking, within the spirit of a risk taking enterprise;
- Maintain a strong service orientation to all facets of the business;
- Maintain cultures which value cross disciplinary approaches and the management of diversity;
- Provide a rigorous basis for applied work place research;
- Develop teamwork and effective communication skills; and
- Recognise the influence of technology in bringing about organisational change.

Location
Hawthorn campus.

Course duration
The duration of the DBA is two and a half years full-time (or equivalent part-time).

Consideration will be given to granting appropriate candidates advanced standing in the coursework/research components. However, it must be noted that the Practicum is a forum for the exploration of issues associated with each person’s thesis ie. formulation of the research question, rationale for methods etc. and is therefore a vital aspect of work for the thesis.

Structure
The DBA is essentially a research degree with 30% of assessment being devoted to coursework outcomes and 70% devoted to research.

Course subjects

Semester 1
- DBA802  Strategy: Achieving Competitive Advantage
- DBA800  Organisations: Managing in Complexity, Uncertainty and Change
- DBA803  The Practicum
- DBA804A  Thesis

Semester 2
- DBA801  Entrepreneurship: Opportunity Based Management
- DBA802B  Strategy: Achieving Competitive Advantage
- DBA803  The Practicum
- DBA804A  Thesis

Semester 3
- DBA800B  Organisation: Managing in Complexity, Uncertainty and Change
- DBA801B  Entrepreneurship: Opportunity Based Management
- DBA803  The Practicum
- DBA804A  Thesis

Semester 4
- DBA804C  Thesis

Entry requirements
The formal admission requirements for the DBA Program are:

1. a Master of Business Administration degree from Swinburne University of Technology or another recognised university, or
2. another approved course work Masters degree in a management related area relevant to organisations and their management, or
3. qualifications accepted as equivalent by the DBA Admission Committee, or
4. a Masters degree in a field other than business plus a Bridging Program, or
5. a research Masters degree in Business Administration or related area, and
6. at least five years suitable managerial experience in a field related to the candidates’ thesis topic, and a minimum of credit level work in most of the coursework units of the MBA (or equivalent).

7. Admission will also be subject to interview. Where applicants do not have the minimum entry requirements in terms of subjects at Masters level which prepare them to undertake the DBA, but do hold a Masters degree or equivalent, a Bridging Program will be available. Bridging studies will be negotiated with each applicant in accordance with their qualifications.

Further information
Contact the Graduate School of Management on (03) 9214 8512, (03) 9214 5332, or (03) 9214 5335.

ENTREPRENEURSHIP AND INNOVATION

Y072  Graduate Certificate in Enterprise Management

Y082  Graduate Diploma in Entrepreneurship and Innovation

Y091  Master of Enterprise Innovation (MEI)

The Graduate Certificate in Enterprise Management provides the basic entry level for people seeking careers and qualifications in the management of innovation and entrepreneurship, or it may serve to broaden the skills of managers qualified in other tertiary disciplines.

This program recognises the need to educate intending entrepreneurs and middle managers within existing organisations in the management of innovation based on integrating three key skill areas – organisational dynamics, marketing and quantitative assessment skills including basic accountancy – into a multi-disciplinary assessment of the commercial feasibility of innovative opportunities.

Not all ‘great ideas’ are commercially viable and worthy of full-scale business planning. These four subjects integrate and culminate in an ability to screen out the viable opportunities from the non-viable. The final project is a commercial feasibility analysis of a real-world, real-time business opportunity. The course provides a sound theoretical base in organisational behaviour, marketing, basic accountancy, and opportunity screening and the ability to apply that theory to management of an innovative profit centre, a new product development, a systems change or other project requiring professional management of activities new to, or different from, the established activities of the firm.

The program provides for articulation of accredited subjects into higher level programs offered by the CIE. The four subjects comprising the Graduate Certificate are also the first four subjects of both the Graduate Diploma in Entrepreneurship and Innovation and the Master of Enterprise Innovation programs.

Subject to demand, the Graduate Certificate can be offered as an in-house training program for companies or other organisations. This makes it ideal for employees of organisations who have been charged with responsibility for creating and operating a genuinely new venture with high growth potential. The new venture may challenge existing company management practices and require the ability to manage the innovation process. The company not only reaps the benefits of individual employees acquiring the skills offered by the program, but students’ team projects will provide the company with full commercial feasibility assessments of potential company projects.

The Graduate Diploma of Enterprise Management has been developed for people who intend to start new, innovative businesses or to play a leading role in an innovative unit of an established organisation. The core of the program provides the theoretical and practical skills required to produce a comprehensive business plan integrating marketing, organisational behaviour and financial planning via a flexible corporate strategy into a business plan capable of attracting the risk capital equity investors – venture capitalists and others. This program provides professional capabilities not only to potential entrepreneurs, but also to ‘entrepreneurial professionals’ and managers with an entrepreneurial outlook who
wish to stay within an organisation and practise entrepreneurship by generating new ventures under the corporate umbrella.

The first eight subjects of the Master of Enterprise Innovation program comprise the Graduate Certificate of Enterprise Management and the Graduate Diploma in Entrepreneurship and Innovation.

The final four subjects extend the student beyond the frontiers of new venture business planning to a greater depth of understanding of the theory and practice of ongoing entrepreneurship. Teaching methods also change to include a greater emphasis on case analysis and self-initiated projects.

In the subject Growth Venture Evaluation, students’ perspectives are enhanced to gain appreciation of ‘the other side of the fence’ i.e. how an investor, particularly a professional venture capitalist, perceives and analyses an entrepreneur rather than how an entrepreneur perceives and analyses an investor. The subject Strategic Intent and Corporations deepens their knowledge of a range of major issues based on the problem of effective strategy formulation as it impacts on entrepreneurial business development. The ability to conduct rigorous, formal research in the discipline of entrepreneurship is fostered by the Entrepreneurial Research Project. Finally, the combined knowledge acquired in these three subjects can be added to students’ existing skills to produce an advanced business plan – one capable of passing the most rigorous scrutiny of a professional investment analyst for a multinational venture capitalist company.

Location
Hawthorn campus.

Course duration
The Graduate Certificate in Enterprise Management is one year part-time.

The Graduate Diploma in Entrepreneurship and Innovation is two years part-time.

The Masters program is three years part-time.

Each subject may be taught in the traditional mode of one (three-hour) night class per week over a thirteen week semester or in ‘block mode’ (usually two three-day block modules). Students are expected to spend a minimum of the equivalent class contact hours per week in private study and/or team project work.

Course subjects

**Year 1 - Graduate Certificate**

Also Year 1 of the Graduate Diploma in Entrepreneurship and Innovation and the Master of Enterprise Innovation.

**Semester 1**

EF 713 The Entrepreneurial Organisation
EF 936 Opportunity Evaluation Techniques

**Semester 2**

EF 810 New Venture Marketing
EF 938 Commercialising Innovation

**Year 2 - Graduate Diploma**

Year 2 of both the Graduate Diploma in Entrepreneurship and Innovation and the Master in Enterprise Innovation. Year 1 of the Graduate Diploma is as per the Graduate Certificate in Enterprise Management program.

**Semester 1**

EF940 Innovation Creativity and Leadership
EF920 Managing The Growing Business

**Semester 2**

EF811 New Venture Financial Planning
EF814 The Business Plan

**Year 3 - Masters**

Year 1 of the Masters program is as per the Graduate Certificate in Enterprise Management. Year 2 of the Masters program is as per year 2 of the Graduate Diploma in Entrepreneurship and Innovation.

**Semester 1**

EF 923 Growth Venture Evaluation
EF 924 Advanced Business Plan
EF 934 Entrepreneurial Research Project

**Semester 2**

EF 943 Strategic Intent And Corporations
EF 924 Advanced Business Plan

EF 934* Entrepreneurial Research Project 20

* These subjects extend over both semesters.

**Entry requirements**

For Graduate Certificate entry there are no prerequisites other than discipline and commitment to a task, role or project requiring skills in the management of innovation. A tertiary qualification would be an advantage. Applicants may be admitted to the program at the considered discretion of the Selection Committee.

Applicants at Graduate Diploma level should comply with one of the following:

- the completion of a degree or diploma with experience in new business creation;
- the completion of the Graduate Certificate in Enterprise Management with no grade less than a credit and at least two grades of distinction or above;
- a limited number of applicants not meeting the criteria above may be admitted after interview on the basis of considerable relevant experience and level of responsibility in industry or business.

Applicants at Master level should comply with one of the following:

- have completed a degree in a professional field at a recognised university or college, preferably at Honours level;
- have completed the Graduate Diploma in Entrepreneurship and Innovation or the Graduate Diploma in Management or the Graduate Diploma in Manufacturing (Management) with no less than four grades at or above the distinction level;
- have such other qualifications or experience as, in the opinion of the Selection Committee, are of a satisfactory standard and are suitable preparation for entry to the program.

**Further information**

Contact the Graduate School of Management on (03) 9214 8512, (03) 9214 5332 or (03) 9214 5335.

**Y075 Graduate Certificate in Enterprise Management (Family Business)**

This program is interdisciplinary in content and in expected outcomes, combining the strengths and opportunities which the Division’s existing subjects can provide with two new subjects specifically aimed at providing skills relevant to the operation of enterprises which are family owned and run.

It combines several skill areas - organisational behaviour, marketing and quantitative assessment - and draws them together to enable comprehensive analysis of the firm’s competitive and innovation performance in order to focus the firm’s resources on the achievement of long-run success.

Recent studies have concluded that family businesses are fundamentally different from non-family businesses, having a number of unique problems, particularly in the areas of succession issues, dynastic tensions and funding of growth.

These issues, of considerable importance to those concerned with family businesses, have not previously been covered in depth in the existing suite of innovation and enterprise programs.

**Location**

Hawthorn campus.

**Course duration**

Normally one year part-time

**Course subjects**

EF713 The Entrepreneurial Organisation
EF938 Opportunity Evaluation Techniques
EF721 Operating the Family Business Internationally
EF722 Strategic Management of the Family Business

**Entry requirements**

A tertiary qualification would be an advantage. However, persons without formal qualifications who demonstrate that they can apply appropriate discipline and commitment to a task, role or project requiring skills in the area of the management of family businesses may be admitted to the program at the considered discretion of the selection committee.

**Further information**

Contact the Graduate School of Management on (03) 9214 8512, (03) 9214 5332 or (03) 9214 5335.

Swinburne University of Technology | 1999 Higher Education Handbook
**EXPORT**

**A076  Graduate Certificate in Export**

The Graduate Certificate in Export is a one year course available to graduates and/or those with significant experience in exporting. It is a unique course in that it combines essential business skills with exposure to current export experience. This course offers students personalised teaching facilitated by maintaining relatively small intake groups.

**Location**

Hawthorn campus.

**Career opportunities**

This course offers students new areas of expertise which both enhance the likelihood of gaining employment and for those already in jobs, it ensures they become more productive, improving their mobility and promotional opportunities. Group work makes for strong net-working amongst members of the group and between group members and experienced exporters who present within the course. This provides career and professional opportunities.

**Course duration**

The course is offered on a one year part-time basis. Classes are held on Saturday mornings, 8:00am - 1:00pm over a period of thirteen weeks each semester.

**Structure**

Each of the four subjects make up 12.5 credit points, making up 50 credit points for the Graduate Certificate qualification. Normally students would need to spend at least as much time out of class (4.5 hours) as in class. This will vary considerably according to the students’ background and course content.

**Course subjects**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC4X1  Export Strategy - Major Determinants</td>
<td>12.5</td>
</tr>
<tr>
<td>BC4X2  Export Strategy - Applications</td>
<td>12.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC4X3  Export Administration</td>
<td>12.5</td>
</tr>
<tr>
<td>BC4X4  Exporting in Practice</td>
<td>12.5</td>
</tr>
</tbody>
</table>

**Entry requirements**

Applicants must have either completed an undergraduate degree or have approximately three years experience in exporting and be able to support their ability to complete the course.

**Fees**

The Graduate Certificate in Export is a full-fee paying course.

**Credit transfer**

It is intended that students will gain two subjects credits from this course towards a Graduate Diploma in International Business which may articulate into the Master of International Business.

**Further information**

Contact the School of Business on (03) 9214 5046 or the course convener, Julie Gerstman on (03) 9214 8408.

**HUMAN RESOURCE MANAGEMENT**

**A181  Graduate Diploma of Business (Human Resource Management)**

The Graduate Diploma of Business (Human Resource Management) is a nested program. The first year of the Graduate Diploma, the Graduate Certificate of Business (Human Resource Management), is designed to provide entry level Human Resource Management (HRM) studies for: Human Resource Management practitioners who have not undertaken any formal studies in HRM; and managers with an appropriate level of business experience with a view to assisting them to develop their careers in business.

The first year of this program will provide course participants with the knowledge, competencies and skills in fundamental HRM functions and activities. Students may exit at this point and apply for the award of a Graduate Certificate of Business (HRM). Refer to the TAFE handbook entry for the Graduate Certificate of Business (HRM) for further details about this program.

The second year, the Graduate Diploma of Business (Human Resource Management) will build on the knowledge and skills gained in the first year, and develop abilities in two main areas. The first deals with strategic and international issues as they impact on the organisation’s business objectives and profitability. The second area provides course participants with the knowledge and ability to assess the organisational context, such as the political and cultural nature of the organisation, on which they are operating. Also course participants will focus on the issues involved in consulting to the various areas of the organisation as well as the interpersonal and group dynamics in which they are involved in relation to the strategic, cross-cultural and day-to-day HRM activities they perform.

**Location**

Hawthorn campus.

**Professional recognition**

Graduates of this course are eligible for membership to the Australian Human Resources Institute.

**Course duration**

The Graduate Diploma of Business (Human Resource Management) is a two-year part-time program which consists of eight subjects. Course participants undertake two subjects per semester of two and a half hours duration each.

**Course subjects**

**Year 1 - Graduate Certificate**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRM001  Human Resources Management</td>
<td>12.5</td>
</tr>
<tr>
<td>HRM002  Employee Relations</td>
<td>12.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>OH200  Recruitment and Selection</td>
<td>12.5</td>
</tr>
<tr>
<td>OS300  Human Resource Development</td>
<td>12.5</td>
</tr>
</tbody>
</table>

**Year 2 - Graduate Diploma**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHS20  The HRM as Internal Consultant</td>
<td>12.5</td>
</tr>
<tr>
<td>BHS21  Introduction to Organisation Dynamics</td>
<td>12.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHS22  Managing People across Cultures</td>
<td>12.5</td>
</tr>
<tr>
<td>BHS23  Strategy, People and Performance</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Refer to Subject Details entry in the Higher Education Handbook for subjects in the Graduate Diploma of Business (Human Resource Management) and the TAFE Handbook for subjects in the Graduate Certificate of Business (Human Resource Management).

**Entry requirements**

A degree or diploma from a recognised tertiary institution, and at least three years relevant work experience. Applicants who do not hold an appropriate qualification but who have considerable relevant experience of at least five years and an appropriate level of responsibility in industry will be considered. Applicants may apply for admission to the second year of the Graduate Diploma on the basis of other postgraduate qualifications and experience, in accordance with the University’s policy on Recognition of Prior Learning (RPL). These applicants will be considered on a case-by-case basis.

**Fees**

The Graduate Diploma of Business (Human Resource Management) is a full-fee paying course.

**Further information**

Contact the School of Business on (03) 9214 5046 or the course convener, Heather Russell, on (03) 9214 8391.
INTERNATIONAL BUSINESS

G170  Graduate Certificate in International Business

G180  Graduate Diploma in International Business

G190  Master of International Business

The Master of International Business is a specialised, vocational and multi-disciplinary program aimed at preparing graduates for careers in the dynamic and diverse world of international business.

It has been developed to meet the demand by business and industry to educate managers and potential managers in the constantly changing multicultural and global perspective required to achieve and sustain international competitive advantage and world best practice now and beyond the year 2000.

At the completion of the program, students have a clear grasp of the key issues in international business, are capable of analysing problems and opportunities and encouraging, developing and evaluating innovative solutions to business opportunities, and are able to apply the latest theoretical concepts and tools in the pursuit of practical solutions.

Location
Hawthorn campus.

Course duration
The program is taken over three semesters of full-time study or six semesters of part-time study. Students are normally required to undertake either four or two subjects each semester, depending on whether they are enrolled in the full-time or part-time option. Additional summer semester studies may be offered as the program develops.

Subject to demand and resource limitations, the University may offer some or all subjects in an intensive, block-teaching format.

Structure
The program consists of fourteen subjects including a two-subject equivalent business project of approximately 12,000 words. The subjects are organised into three stages, and are consistent with the objectives of providing a broad coverage and integration of the various disciplines studied. There are no electives, although students may choose the language and cultural stream they wish to pursue from those currently being offered.

These streams will normally be based on the language and cultural study programs available at Swinburne, which at present include Italian, Japanese, Korean, Chinese and Australian.

Students who wish to study a language and cultural program other than these five, may be allowed to do so if a suitable program is offered at Swinburne or another accredited institution can be identified.

Course subjects
Stage 1 - Graduate Certificate
MIB611 Foundations of International Business
MIB612 International Marketing
MIB613 Business Language and Cultural Context A
MIB614 International Management

Stage 2 - Graduate Diploma
MIB621 International Trade and Finance
MIB622 International Financial Management
MIB623 Business Language and Cultural Context B
MIB624 International Business Policy

Stage 3 - Master
MIB631 International Marketing Context
MIB632 Legal Aspects of International Business
MIB633 Business Language and Cultural Context C
MIB634 International Logistics Management
MIB641 International Business Project (Methodology)
MIB642 International Business Project (Dissertation)*

*Dissertation normally taken over stages two and three.

Further information
Contact the Graduate School of Management on (03) 9214 8512, (03) 9214 5332 or (03) 9214 5335.

MANAGEMENT

Y170  Graduate Certificate of Management

Y180  Graduate Diploma of Management

Y190  Master of Management

The development of a growing economy depends directly on the quality of the management and leadership skills guiding and facilitating individual business ventures. This dependence is heightened in organisations actively engaged in innovative change processes and committed to the fundamental processes of continuous improvement.

The Graduate Certificate of Management provides a foundation management skill set for people developing business opportunities or seeking careers and qualifications in management.

In the Graduate Diploma of Management, the course participant builds upon the skill and knowledge set developed in the Graduate Certificate. The aim is to provide adequate knowledge, skills and project-based experience in developing a business plan for either a new or an existing venture. The business plan, as an organisational response to external and internal changes pertaining to the organisation, integrates operational aspects such as leadership, team building, change management, innovation, and the realisation and commercialisation of business opportunities and the creation of wealth via business venturing.

The Master of Management program aims to prepare graduates with current or future business responsibilities that demand the acquisition of innovative management skills which have not been provided by their prior specialist training. The introductory skill set established within the Graduate Certificate and the extended management skill set established in the Graduate Diploma are built upon by providing additional strategic management skill sets at the business level, and allowing students to undertake management research in a field of their interest and/or to study specialist fields of management practice from a comprehensive suite of elective subject offerings. This program is quite distinct from others and provides education and training management and functional areas for those early in their careers.

Location
Hawthorn campus.

Course duration
A Graduate Certificate program consists of an approved grouping of subjects with a minimum value of 50 credit points. Delivery is over one semester full-time or equivalent part-time.

A Graduate Diploma program consists of an approved grouping of subjects with a minimum value of 100 credit points. Delivery is over two semesters full-time or equivalent part-time.

A Masters program consists of an approved grouping of subjects with a minimum value of 150 credit points. Delivery is over three semesters full-time or equivalent part-time.

Course subjects
Stage 1 - Graduate Certificate
EB615 Introduction to Accounting and Finance 12.5
EB616 Management Fundamentals 12.5
EB617 Project and Asset Management 12.5
EB618 Management Practices 12.5

Stage 2 - Graduate Diploma
EB645 New Venture Accounting and Finance 12.5
EB650 Marketing Management 12.5
EB651 Leadership Team Building and Change Mgt 12.5
EB654 The Business Plan 12.5

Stage 3 - Masters
EB652 Strategic Intent in Enterprise Management 12.5
plus 3 of the following elective subjects
EB655 Strategic Service Management 12.5
EB662 Total Quality Management 12.5
Entry requirements

The formal admission requirement to a Masters degree program is successful completion of an appropriate degree or its equivalent. Applicants not holding an appropriate degree or equivalent may initially be admitted to either the Graduate Certificate or the Graduate Diploma program. Applicants with other qualifications and experience which, in the opinion of the selection committee, are of a satisfactory standard will also qualify for entry. In some cases extra preliminary studies may be required. For some applicants and programs, an interview may be necessary.

Application procedure

Australian residents
Contact the Graduate School of Management on (03) 9214 5332 or (03) 9214 5335.

International students
Students wishing to study at Swinburne and who are not Australian residents should call the International Student Unit:
Telephone: (03) 9214 8647 International: (+613) 9214 8647
Facsimile: (03) 9214 3648 International: (+613) 9214 3648

Further information
Contact the Graduate School of Management on (03) 9214 5332, (03) 9214 5335, (03) 9214 8512.
Website: www.swin.edu.au/sgsm

Organisation Dynamics

A077 Graduate Certificate in Organisation Dynamics
A185 Graduate Diploma in Organisation Dynamics
A091 Master of Business (Organisation Dynamics)

This program is for managers and specialist role holders (e.g. organisation consultants) who wish to extend their knowledge and understanding of the dynamics of human behaviour in work settings. Most students in this course have significant experience of trying to achieve organisational outcomes with and through the efforts of other people, whether in large or small organisations. At the completion of the Graduate Certificate and the Graduate Diploma, it is expected that students will have:

- understood and be able to critique established and emerging systems of knowledge about organisations and human behaviour in organisational settings;
- strengthened through applied learning, their capacities for tolerating and engaging with the dynamics of work life from particular organisational roles, especially those of managing and consulting;
- particular knowledge of, and skill in the processes of leading, following and changing in diverse, multicultural organisations;
- had the opportunity to establish the foundations for further post graduate study in organisation dynamics.

The objectives of the Master degree are:

- to extend the learning objectives of the graduate diploma into further domains of organisation behaviour and
- to develop the capacity of participants to conduct applied research into behavioural issues in organisations.

Location

Hawthorn campus.
A002 Professional Doctorate in Organisation Dynamics

The Professional Doctorate in Organisation Dynamics is at the highest level of accredited management education in the discipline of Organisation Dynamics. The philosophy of the course is to develop further, ‘reflective practitioners’ and build on the Master of Business (Organisation Dynamics).

A strength of the course is its focus on applied research and a work based practicum with attention paid to organisational role analysis, institutional and inter-organisational thinking, transitional dynamics and supervised reflection on professional practice.

Program objectives:
The course focuses on applied learning, designed to link practice with theory, with a strong emphasis on leadership, transition and the management of Organisation Dynamics.

At completion of the course, graduates will be:
- capable of self management in working to the highest standards in the service of the task and the client;
- capable of carrying out independent research into Organisation Dynamics and related management issues;
- capable of contributing to the field of knowledge and practice of Organisation Dynamics.

These capabilities will be developed via a program of study and supervised practice which involves formal assessment, peer and client review, and rigorous self assessment.

Location
Hawthorn campus.

Professional recognition
This program is recognised by the Australian Human Resources Institute for membership purposes.

Course duration
Four years part-time.

Structure
The course consists of eight subjects organised into four years of part-time study, practice and supervised research extending over eight semesters. The course includes applied coursework subjects, a practicum focused on the development of high level management and consulting skills through an action learning method, and a research thesis, developed and implemented within a collaborative framework with industry. There is a strong emphasis on action research methods.

Course subjects
Stage 1
BH708, BH709, BH710, BH711 Processes of Inquiry and Research
See details listed under the Master of Business (Organisation Dynamics) course entry.

BH904E Professional Doctorate Thesis

Stage 2
BH803 Doctoral Practicum
BH804 Private Reading Unit A (Elective subject)
BH805 Private Reading Unit B (Elective subject)
BH904E Professional Doctorate Thesis

Stage 3
BH904 Professional Doctorate Thesis

Stage 4
BH904 Professional Doctorate Thesis

Entry requirements
The normal requirements for admission will be significant experience as a manager, organisational consultant or social scientist working with organisations, together with appropriate academic qualifications, normally at the Master level. Where candidates do not have a Master degree, entry will normally be into the Master of Business (Organisation Dynamics).

Entry at an advanced level may be negotiated in those cases where students have completed the Master of Business (Organisation Dynamics). For those students without sufficient prior studies in Organisation Dynamics, the preliminary program may be negotiated.

Further information
Contact the Graduate School of Management on (03) 9214 5332, (03) 9214 5335 or (03) 9214 8512 or Professor Susan Long, Program Manager on (03) 9214 8145.

TRAINING MANAGEMENT

YO73 Graduate Certificate in Training Management

This program is offered by the Centre for Innovation and Enterprise in association with the Australian Institute of Management (AIM).

Location
Normally classes will be held at the Australian Institute of Management (AIM), 181 Fitzroy Street, St Kilda.

Career opportunities
The program is designed for people interested in the use and effects of training in the innovation process but will be of particular value to employees of organisations who have been charged with the responsibility of developing training interventions to support organisational change.

The courses in the program cover four key aspects of training management:
- principles and planning of training interventions;
- design and development of training programs;
- innovation and evaluation of training;
- administration of training programs.

The program provides a sound theoretical base in all four areas and the major projects and exercises undertaken in the program will provide the opportunity for participants to apply their learning to their own or other organisations. A tangible outcome of the program will be some actual training programs designed and detailed ready for implementation.

Course duration
The program is designed to be completed within one calendar year of commencement of the first subject.

Course structure
Subjects are block taught in a modular structure and the course is as follows:
EF822G Planning of Training Programs
EF821G Program Design
EF822I Training Innovation and Evaluation
EF823I Administrative Training

Each subject is taught over four consecutive Wednesdays of nine hours a day, with a months break between subjects. This includes evaluation and examination sessions.

Entry requirements
Applicants should comply with one of the following:
- A first degree in any discipline and commitment by an employee to a task, role or project requiring skills in training management.
- Applicants who lack a first degree may be admitted to the program at the discretion of the Head of the Division.

Further information
Contact the Centre for Innovation and Enterprise on (03) 9214 8512 or Dr Bruce Johnson on (03) 9214 8381.

HIGHER DEGREES BY RESEARCH

A090 Master of Business

The Division offers the degree of Master (by research and thesis) on a full-time or part-time basis. Applicants should have at least an undergraduate degree or the equivalent in a discipline appropriate to the proposed area of study. The level of academic achievement in prior studies must be of a high standard. Other relevant activities, including work experience, will be taken into account in assessing applications. Intending applicants should contact the Research Coordinator, or the Executive Officer, of the School in which they intend to undertake their studies. The Research Coordinator will refer the applicant to the appropriate member(s) of the staff who may act as supervisor(s) for the degree. Formal applications for candidature, bearing the signatures of the supervisors and Head of School, are
considered by the Divisional Research Committee. The Statute for the degree of Master (by research) sets out the regulations governing this qualification.

**Location**
Hawthorn campus.

**Course duration**
Two years full-time, four years part-time.

**Course subjects (1994 syllabus)**

<table>
<thead>
<tr>
<th>Clusters</th>
<th>Software Software</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>IT904</strong> The Software Process</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td><strong>IT914</strong> Systems Analysis</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td><strong>IT924</strong> Object Oriented Design and Programming</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td><strong>IT934</strong> Real Time Systems</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td><strong>IT944</strong> Advanced Database Technology</td>
<td>12.5</td>
</tr>
</tbody>
</table>

| Automated Systems Development   | **IT954** Information System Requirements                     | 12.5          |
|                                 | **IT974** System Strategies 4                                 | 12.5          |
|                                 | **IT984** Automated Development Methods                       | 12.5          |

| Human Computer Interaction      | **IT906** Human-Computer Interaction                          | 12.5          |
|                                 | **IT916** Programming the User Interface 4                    | 12.5          |
|                                 | **IT926** Interactive Systems Development                     | 12.5          |
|                                 | **IT996** HCI Project                                         | 12.5          |

| Intelligent Systems Engineering | **IT909** Foundations of Intelligent Systems                  | 12.5          |
|                                 | **IT919** Intelligent Systems Applications                    | 12.5          |
|                                 | **IT929** Adaptive Intelligent Systems                        | 12.5          |
|                                 | **IT999** ISE Project                                         | 12.5          |

| Research Project                | **IT903** Software Engineering Project (for 2 semesters)      | 25.0          |
|                                 | **IT913** Automated Systems Development Project (for 2 semesters) | 25.0          |
|                                 | **IT993** Research Project (for 2 semesters)                  | 25.0          |

(If IT903 and IT913 may only be chosen in conjunction with the appropriate cluster.)

Student demand and staff resources will determine the availability of subjects for study.

**Further information**
Contact the School of Business on (03) 9214 5046.

**Y001 Doctor of Philosophy in Innovation and Enterprise**

**Australian Postgraduate Research Award**
The Australian Research Council (ARC) offers 900 Australian Postgraduate Research Awards (APRAs) per year to postgraduate researchers of exceptional promise.

**Industry Sponsored Scholarships**
The Division of Business, Humanities and Social Science has been fortunate to obtain a number of scholarships from industry for which its higher degree students can apply.

**Division Scholarships**
The Division of Business, Humanities and Social Science is able to offer scholarships for full-time higher degree students from time to time.

**Location**
Hawthorn campus.

**Further information**
Contact the School of Business on (03) 9214 5046.

**N001 Doctor of Philosophy (Business)**
The Division offers the degree of Doctor of Philosophy on a full-time or part-time basis. Applicants should have a Master degree or the equivalent in a discipline appropriate to the proposed area of study. The level of academic achievement in prior studies should be of a very high standard. Other relevant activities, including work experience, will be taken into account in assessing applications.

Intending applicants should approach the Research Coordinator, or the Executive Officer, of the School in which they intend to undertake their studies. The Research Coordinator will refer the applicant to the appropriate member(s) of staff who may act as supervisor(s) for the degree. Formal applications for candidature, bearing the signatures of the supervisors and the Head of School, are considered by the Divisional Research Committee and the University Higher Degrees Committee. A candidate may be required to undertake preliminary coursework as part of the candidature.

The Statute for the degree of Doctor of Philosophy sets out the regulations governing this qualification, see the separate 1998 Policies and Procedures booklet.

**Scholarships**

**Higher Education Contribution Scheme (HECS) exemption**
Full-time higher degree students will normally receive a HECS exemption scholarship.
**COMPUTING & INFORMATION TECHNOLOGY**

**CAD/CAM/CIM**

**M084**  
Graduate Certificate of Engineering (CAD/CAM)

**M085**  
Graduate Diploma of Engineering (Computer Integrated Manufacture)

**M086**  
Master of Engineering (Computer Integrated Manufacture)

The aim of this program is to prepare graduates, mainly from engineering and the physical sciences, for future roles in the application of Computer Aided Design (CAD) and/or Computer Aided Manufacturing (CAM) and the development and application of Computer Integrated Manufacturing in the Australian manufacturing industry.

Computer aided design is defined as a system that uses a computer to assist in the creation or modification of a design. Computer aided manufacturing is defined as the effective utilisation of computer technology in the management, control and operation of the manufacturing facility through direct or indirect interface with the physical and human resources of the company.

Computer integrated manufacturing is an important and effective means of achieving productivity improvements which must be seriously considered by manufacturing companies wishing to become and remain competitive, and which should be encouraged in the national interest so that application of appropriate technology can improve our ability to compete on international markets and against cheaper, high quality imports in the domestic market.

**Location**

Hawthorn campus.

**Structure**

The Masters of Engineering (CIM) is a one and a half year equivalent full-time program incorporating the academic program for the Graduate Certificate of Engineering (CAD/CAM) and the Graduate Diploma (CIM).

Students are not normally permitted to extend their course enrolment beyond five years, except when leave of absence has been granted.

**Course subjects**

**Semester 1 - Graduate Certificate**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM662</td>
<td>Computer Aided Design</td>
<td>12.5</td>
</tr>
<tr>
<td>MM663</td>
<td>Manufacturing Management Systems</td>
<td>12.5</td>
</tr>
<tr>
<td>MM664</td>
<td>Advanced Robotics</td>
<td>12.5</td>
</tr>
<tr>
<td>MM665</td>
<td>Numerical Control</td>
<td>12.5</td>
</tr>
</tbody>
</table>

**Semester 2 - Graduate Diploma**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM666</td>
<td>Intelligent Manufacturing Systems</td>
<td>12.5</td>
</tr>
<tr>
<td>MM667</td>
<td>Computer Control and Sensing</td>
<td>12.5</td>
</tr>
<tr>
<td>MM668</td>
<td>Expert Systems Simulation and Modelling</td>
<td>12.5</td>
</tr>
<tr>
<td>MM669</td>
<td>Computer Modelling and FEA</td>
<td>12.5</td>
</tr>
</tbody>
</table>

**Semester 3 - Master**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM661</td>
<td>Research Project</td>
<td>50.0</td>
</tr>
</tbody>
</table>

**Entry requirements**

Candidates for the Master of Engineering (Computer Integrated Manufacture) shall satisfy the following requirements:

- They should have a four year engineering degree or equivalent. Applicants with other qualifications and experience which are considered by the Divisional Board to be of satisfactory standard will also qualify for entry.
- Applicants not holding an appropriate four year degree or equivalent may initially be admitted to the Graduate Certificate (CAD/CAM) or Graduate Diploma (CIM) program.

**Continuing students**

Candidates continuing to the Master of Engineering (CIM) must be aware that there are limits to the provision of multiple awards. Students who continue from one stage to the next stage without interruption to enrolment will not be eligible to take the award of the stage just completed. In this way students may not seek multiple awards for the same study sequence.

**Further information**

Contact the Industrial Research Institute Swinburne (IRIS) on (03) 9214 9600.  
Website: www.iris.swin.edu.au

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**INFORMATION SYSTEMS**

**A097 Master of Information Systems (Management)**

The Master of Information Systems (Management) focuses on the effective management of information technology for strategic advantage. This includes an examination of issues and directions in information technology and the development of analytical and managerial skills to manage these.

This course will meet the needs of applicants who wish to enhance their career opportunities through developing expertise in the current approaches to the management of information technology.

Note that this course is designed for IT professionals and managers who work with information systems. It is unsuitable for students who do not have relevant business experience.

**Key features of the Master of Information Systems (Management):**

- The course has flexible entry points with study programs designed to meet the needs of individual students.
- The course adds value through building on students’ strengths and experiences.
- The course content is designed to meet the current and future needs of employers.
- Students who leave the course after successfully completing four subjects only will be eligible for the Graduate Certificate in Information Systems.

**Location**

Hawthorn campus.

**Professional recognition**

Application has been made for recognition of the course at Professional Level (the highest level) with the Australian Computer Society.

**Course duration**

The course is offered on a part-time basis and takes a minimum of three years. However in the case of students admitted directly to Stage 2A the course takes a minimum of two years.

**Course subjects**

**Stage 1**

- Note: Students receive four exemptions on the basis of significant relevant business experience.
- HIT8003 Business Analysis
- HIT7036 Information Technology Strategies
- Plus two elective subjects

(See note under Electives regarding the choice of these subjects).

**Stage 2A**

- HIT7803 Information Technology Effectiveness
- HIT7802 Information Systems Management
- BH604 Management, Organisation and People
- HIT8060 Systems Project Management

**Stage 2B**

Four program choices are available at Stage 2B. Most students undertake either Stage 2B(i) or Stage 2B(ii). Students should choose to do Stage 2B(ii) unless advised otherwise by the Program Manager.

**Stage 2B(i)**

- HIT8012 Current Issues in Information Systems
- BM602 Strategic Management
- HIT8062 Technological Forecasting and Innovation
- BH707 Strategic Change
- OR

**Stage 2B(ii)**

- Two subjects from Stage 2B(i) plus two approved Masters level electives.
- OR

**Stage 2B(iii)**

- Two subjects from Stage 2B(ii) plus 25 credit point Project
- OR

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Swinburne University of Technology | 1999 Higher Education Handbook
M060 Graduate Certificate of Engineering (Industrial Information Technology)

M061 Graduate Diploma of Engineering (Industrial Information Technology)

M062 Master of Engineering (Industrial Information Technology)

This program aims to prepare professionals for working in IT areas within the industrial environment. The Graduate Certificate emphasises the acquisition of industry-recognised competency, leading to certification from major industry vendors and organisations. The Graduate Diploma enables professionals to develop additional skills including project management, process improvement, programming or enterprise requirements planning. Certification from major industry vendors and organisations is included. The Masters program is designed to generate high-calibre industry professionals with capacity to undertake projects in the industrial IT environment.

Location
Hawthorn campus.

Course duration
The Masters takes one and a half year full-time or equivalent part-time, incorporating the Graduate Certificate and the Graduate Diploma.

Course subjects

Semester 1

IR501 Manufacturing Enterprise Concepts 12.5
IT5073 Computer and Network Technologies 12.5
IR502 Manufacturing Systems 12.5
IT5074 Database Concepts and Applications 12.5

Semester 2

Student must complete a total of 4 subjects (minimum of 1 subject each group, subject to availability and timetable restriction)

Enterprise Systems Subject Group

IR602 Enterprise Systems Concepts 12.5
IR603 Implementing Enterprise Systems 12.5
IR604 Factory Communication and Interfacing 12.5
IT5088 Customising Enterprise Systems 12.5

Programming Subject Group

IT5077 Event-Based Programming 12.5
IT7041 Multimedia Web Development 12.5

IT5078 Object-Oriented Design and Programming 12.5
IT5089 Technical Programming 12.5

IT and Process Management Subject Group

IT5075 Practical IT Project Management 12.5
IR601 Process Improvement 12.5
IT5076 Management of IT 12.5
MM636 Technology Management 12.5

Semester 3

Students need to undertake a Minor Thesis or 2 approved subjects and a Project

IR701 Project 25.0
IR702 Minor Thesis 50.0

Entry requirements
A degree in engineering or science/computerscience.

Further information
Contact the School of Information Technology on (03) 9214 8647.
Email: itinfo@swin.edu.au
Website: www.it.swin.edu.au

International students should, in the first instance, contact the International Student Unit, telephone (03) 9214 8647.

INFORMATION TECHNOLOGY

Stage 2B(iv)

Minor Thesis

Electives
Electives are usually chosen from Graduate Diploma and Masters level subjects offered by the School of Information Technology. However, students need to ensure that the electives they choose are appropriate for the Stage in question and so the advice of the Program Manager must be sought. Students must meet the prerequisite requirements of the electives they select. Availability of all electives is subject to timetabling and resource constraints.

Entry requirements
Entry is available only to students who have significant relevant business experience. Students who do not hold a degree will undertake a Graduate Certificate in Information Systems in place of Stage 1. However, students who have a degree will be eligible for exemption from the two elective subjects in Stage 1. Students who have a degree or graduate diploma in Information Systems may be eligible to commence the course at Stage 2A.

Further information
Contact the School of Information Technology on (03) 9214 5505.
Website: www.iris.swin.edu

Further information
Application has been made for recognition of the course at Professional Level (the highest level) with the Australian Computer Society. Graduates are viewed by employers as having the knowledge and skills necessary for entry-level positions in the IT industry.

Location
Hawthorn campus.

Professional recognition
Application has been made for recognition of the course at Professional Level (the highest level) with the Australian Computer Society. Graduates are viewed by employers as having the knowledge and skills necessary for entry-level positions in the IT industry.

Course duration
One year full-time or two years part-time.

Structure
The Graduate Diploma consists of 100 Credit Points (CP), equivalent to 1 year of full-time study, and involves completing eight subjects. The program is available in both full-time and part-time modes. Entry to both courses is possible in both Semester 1 (March) and Semester 2 (July).

Students choose to study one of three alternative Graduate Diploma courses at enrolment. Information Systems Applications is described here. Separate entries describe Information Systems Development and Multimedia Software Development. A change of course may be possible after commencement of studies, but this may result in the student taking more than eight subjects, and longer than minimum time to complete the program.

Course subjects

IT5025 Introduction to Information Systems
IT6016 Database 1
IT5008 Business Programming 1
IT6006 Business Computing
IT7007 Business Computing Applications
IT7036 Information Technology Strategies

Plus 2 electives
The Graduate Diploma consists of 100 Credit Points (CP), equivalent to 1 year of full-time study, and involves completing eight subjects. The program is available in both full-time and part-time modes. Entry to both courses is possible in both Semester 1 (March) and Semester 2 (July).

Students choose to study one of three alternative Graduate Diploma courses at enrolment. Information Systems Applications is described here. Separate entries describe Information Systems Development and Multimedia Software Development. A change of course may be possible after commencement of studies, but this may result in the student taking more than eight subjects, and longer than minimum time to complete the program.

**Course subjects**

- IT5025 Introduction to Information Systems
- IT6016 Database 1
- IT5009 Business Programming 1 (VB) or IT5051 Software Development 1 (Java)
- IT7008 Business Data Communications
- IT7017 Database 2
- IT6010 Business Programming 2 (VB) or IT6080 Introduction to Programming in C
- IT5052 Software Development 2 (Java)
- Plus 2 additional subjects.

Students who choose IT5051 and IT5052 must also study IT5031 Introduction to Software Engineering and one elective (which must not be IT7056). Students who choose IT5009 and IT6010 or IT6080 select two electives.

**Electives**

- IT7008 Business Data Communications
- IT6049 Systems Analysis and Design
- IT6010 Business Programming 2
- IT6080 Introduction to Programming in C
- IT7029 Information Systems Analysis
- IT7017 Database 2
- IT7038 Knowledge Based Systems

Availability of elective subjects depends on timetabling and resource constraints. Not all electives will necessarily be offered in every semester, or at night.

**Entry requirements**

Entry to the Graduate Diploma in IT is generally restricted to people who have a degree (or equivalent) in a non-IT discipline.

As no prior knowledge of IT is assumed, applicants with a degree in IT will be considered only if that degree was obtained several years ago, and/or that degree has little overlap with the curriculum of the chosen stream. Of the eight subjects in the program, students may be granted exemptions from one or two, on the basis of previous studies or prior knowledge.

For those without a degree who have substantial relevant business experience, Swinburne offers the Graduate Certificate in Information Technology - a program consisting of the first four subjects in the Graduate Diploma. Students who have successfully completed the Graduate Certificate may apply for admission to the Graduate Diploma.

**Application procedure**

Applications for full-time and part-time places must be made directly to the School of Information Technology. Application forms are available from the School's administration on telephone (03) 9214 5505.

**Further information**

Contact the School of Information Technology on (03) 9214 5554.
E-mail: itinfo@swin.edu.au
Website: http://www.it.swin.edu.au/

**1082 Graduate Diploma in Information Technology (Information Systems Development)**

Information Systems is concerned with the application of information technology to support organisations in the conduct of their business. It examines the organisational issues and the techniques and technology required for the analysis, design and implementation of business solutions.

The Information Systems Development course aims to provide the skills and knowledge to allow graduates to begin or progress in careers such as software development or systems analysis. This course is more technically oriented than the Information Systems Applications course and is intended to provide a broad foundation of knowledge and skills in Information Systems development. The programming languages Visual Basic and Java are offered as alternatives, and in the database area, students will gain valuable experience with the widely used Oracle Database Management System.

The program naturally extends into Swinburne's Master of Information Technology degree, where there is an opportunity to specialise in advanced information systems development, as well as in areas such as software engineering, human-computer interaction and client-server computing. Students completing the Graduate Diploma with a grade average of credit may automatically proceed to the Masters.

**Location**

Hawthorn campus.

**Professional recognition**

Application has been made for recognition of the course at Professional Level (the highest level) with the Australian Computer Society. Graduates are viewed by employers as having the knowledge and skills necessary for entry-level positions in the IT industry.

**Course duration**

One year full-time or two years part-time.

**Structure**

The Graduate Diploma consists of 100 Credit Points (CP), equivalent to 1 year of full-time study, and involves completing eight subjects. The program is available in both full-time and part-time modes. Entry to both courses is possible in both Semester 1 (March) and Semester 2 (July).

Students choose to study one of three alternative Graduate Diploma courses at enrolment. Information Systems Applications is described here. Separate entries describe Information Systems Development and Multimedia Software Development. A change of course may be possible after commencement of studies, but this may result in the student taking more than eight subjects, and longer than minimum time to complete the program.

**Course subjects**

- IT5025 Introduction to Information Systems
- IT6016 Database 1
- IT5009 Business Programming 1 (VB) or IT5051 Software Development 1 (Java)
- IT7008 Business Data Communications
- IT7017 Database 2
- IT6010 Business Programming 2 (VB) or IT6080 Introduction to Programming in C
- IT5052 Software Development 2 (Java)
- Plus 2 additional subjects.

Students who choose IT5051 and IT5052 must also study IT5031 Introduction to Software Engineering and one elective (which must not be IT7056). Students who choose IT5009 and IT6010 or IT6080 select two electives.

**Electives**

- IT7036 Information Technology Strategies
- IT7048 Software Platforms and the Internet
- IT7056 Software Engineering 1
- IT7038 Knowledge Based Systems
- IT6049 Systems Analysis and Design
- IT7029 Information Systems Analysis
- IT7018 Database 3
- IT6013 COBOL Programming

Availability of elective subjects depends on timetabling and resource constraints. Not all electives will necessarily be offered in every semester, or at night.

**Entry requirements**

Entry to the Graduate Diploma in IT is generally restricted to people who have a degree (or equivalent) in a non-IT discipline.

As no prior knowledge of IT is assumed, applicants with a degree in IT will be considered only if that degree was obtained several years ago, and/or that degree has little overlap with the curriculum of the chosen stream. Of the eight subjects in the program, students may be granted exemptions from one or two, on the basis of previous studies or prior knowledge.

For those without a degree who have substantial relevant business experience, Swinburne offers the Graduate Certificate in Information Technology - a program consisting of the first four subjects in the Graduate Diploma. Students who have successfully completed the Graduate Certificate may apply for admission to the Graduate Diploma.

**Further information**

Contact the School of Information Technology on (03) 9214 5554.
E-mail: itinfo@swin.edu.au
Website: http://www.it.swin.edu.au/

**1081 Graduate Diploma in Information Technology (Multimedia Software Development)**

The Graduate Diploma in Information Technology (Multimedia Software Development) is designed to provide extensive education in contemporary software development. The course is aimed primarily at professionals in other disciplines who are interested in establishing a career in software development, and at current IT professionals who lack a formal qualification in the area. It is also relevant to IT professionals who may have qualified several years ago, and who are now seeking to move into more contemporary areas of software development.
The program naturally extends into Swinburne’s Master of Information Technology degree, where there is an opportunity to specialise in software engineering, as well as in areas such as computer networks, human-computer interaction and client-server computing. Students completing the Graduate Diploma with a grade average of credit may automatically proceed to the Masters.

**Location**
Hawthorn campus.

**Professional recognition**
Application has been made for recognition of the course at Professional Level (the highest level) with the Australian Computer Society. Graduates are viewed by employers as having the knowledge and skills necessary for entry-level positions in the IT industry.

**Course duration**
One year full-time or two years part-time.

**Structure**
The Graduate Diploma consists of 100 Credit Points (CP), equivalent to 1 year of full-time study, and involves completing eight subjects. The program is available in both full-time and part-time modes. Entry is possible in both Semester 1 (March) and Semester 2 (July).

Students choose to study one of three Graduate Diploma courses at enrolment: Multimedia Software Development (described here), Information Systems Applications or Information Systems Development. Separate entries provide details of the Information Systems streams. A change of course may be possible after commencement of studies, but this may result in the student taking more than eight subjects, and longer than minimum time to complete the program.

**Course subjects**

<table>
<thead>
<tr>
<th>Semester 1 Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT8023 Human-Computer Interaction</td>
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<tr>
<td>IT8026 Information Modelling 1</td>
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<tr>
<td>IT8030 Information Systems Modelling Project</td>
</tr>
<tr>
<td>IT8037 Java for Client Server*</td>
</tr>
<tr>
<td>IT8039 Local Area Networks</td>
</tr>
<tr>
<td>IT8040 Multimedia Systems</td>
</tr>
<tr>
<td>IT8042 Object-Oriented Systems 1</td>
</tr>
<tr>
<td>IT8058 The Software Process</td>
</tr>
<tr>
<td>IT8063 Unix Systems Programming</td>
</tr>
<tr>
<td>IT8065 Windows Programming*</td>
</tr>
</tbody>
</table>

**Entry requirements**
Entry to the Graduate Diploma in IT is restricted to people who have a degree (or equivalent). No prior knowledge of IT is assumed, but students without prior knowledge will be required to undertake an additional introductory IT subject in the month prior to commencement of the course.

Admission may be granted to students with a degree in IT if that degree was obtained several years ago, and/or that degree has little overlap with the curriculum of the Graduate Diploma. Of the eight subjects in the program, students may be granted exemptions from one or two, on the basis of previous studies or prior knowledge.

For those without a degree but who have substantial relevant experience in the IT industry, Swinburne offers the Graduate Certificate in Information Technology - a program consisting of the first four subjects in the Graduate Diploma. Students who have successfully completed the Graduate Certificate may apply for admission to the Graduate Diploma.

**Further information**
Contact the School of Information Technology on (03) 9214 5054.
E-mail: info@swin.edu.au
Website: http://www.it.swin.edu.au/

**IO91 Master of Information Technology**

Swinburne’s Master of Information Technology degree provides the opportunity to study some of today’s most exciting IT developments in depth.

Stage 1 of the course is designed for students with a degree in a non-computing discipline. Stage 2 is designed for graduates in an Information Technology discipline (Computer Science, Information Systems, Computer Systems Engineering) as well as students who have completed Stage 1. Details of Stage 1 (equivalent to Graduate Diploma in IT) are provided in the Grad Dip IT brochures.

Stage 2 of the Master of Information Technology is aimed to suit the needs of recent graduates who wish to pursue advanced studies, and also experienced IT professionals seeking to extend or update their knowledge. The aims of the program are to enhance vocational skills and conceptual knowledge, and to provide the theoretical underpinning for these skills and knowledge.

**Location**
Hawthorn campus.

**Course duration**
Students commencing at Stage 2 can complete the course in one year full-time or two years part-time. For students commencing at Stage 1, the course is two years full-time or four years part-time.

**Structure**
Stage 2 of the Master of Information Technology degree consists of 100 Credit Points, equivalent to 1 year of full-time study. The program is available in both full-time and part-time (evening: 5.30 - 9.30) modes. Entry is possible in both Semester 1 (Feb/March) and Semester 2 (July), but the full range of options is available only to students who enter in Semester 1. The most common program consists of eight coursework subjects. Development projects and research subjects are also offered.

**Course subjects**

<table>
<thead>
<tr>
<th>Semester 2 Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT8000 Advanced Database*</td>
</tr>
<tr>
<td>IT8001 Automated Development Methods</td>
</tr>
<tr>
<td>IT8019 Database for Client Server*</td>
</tr>
<tr>
<td>IT8021 Distributed Object Technology*</td>
</tr>
<tr>
<td>IT8027 Information Modelling 2</td>
</tr>
<tr>
<td>IT8028 Interactive Systems Design</td>
</tr>
<tr>
<td>IT8033 Information Systems Development Project</td>
</tr>
<tr>
<td>IT8043 Object-Oriented Systems 2*</td>
</tr>
<tr>
<td>IT8045 Personal Software Process</td>
</tr>
<tr>
<td>IT8046 Wide Area Networks</td>
</tr>
</tbody>
</table>

**Research subjects**

| IT8067 Minor Thesis |
| IT8068 Research Seminar |
| IT8069 Research Paper |
| IT8070 Research Report |

**Note:** Subjects marked * require C++ knowledge. A subject providing this (IT5072 Introduction to C++) is available on a not-for-credit basis in February and July.

Students wishing to undertake research subjects must present evidence of their capacity for research. Students who are approved to study research subjects may choose no more than one of IT8067 Minor Thesis, IT8069 Research Paper, IT8070 Research Report.

Although students are free to choose any combination of subjects, subject to prerequisite requirements, many wish to complete the course with a particular focus.

The following are possible:

**Client-Server Computing Emphasis**

**Semester 1**

| IT8037 Java for Client Server (P/T-Y1) |
Students with a degree with minor studies in IT (consisting of the equivalent of at least half a year of full-time study) may be granted some exemptions in Stage 1, and will enrol in the Master of Information Technology.

Further information
For more detailed information about this course contact the Postgraduate Administrative Officer of the School of Information Technology on (03) 9214 5054.  
E-mail: ritinfo@swin.edu.au
Internet address: http://www.it.swin.edu.au/

**DESIGN**

**DMD30 Master of Design (Multimedia Design)**

**Graduate Diploma of Design (Multimedia Design)**

**Graduate Certificate of Design (Multimedia Design)**

This course aims to produce postgraduates with a specialist understanding of communication design, media studies and programming as applied to the World Wide Web and computer interactive mediums. They will acquire specialist skills for communication design in typography, animation, 3D modelling, audio and video as applied to electronic mediums.

**Location**
Prahran campus.

**Professional recognition**
Graduates of the course are eligible for Membership of the Australian Graphic Design Association (AGDA), Membership of multimedia industry Network (mmIN) and Associate Membership of the Design Institute of Australia (DIA).

**Course duration**
Graduate Certificate: one semester full-time, one year part-time.
Graduate Diploma: one year full-time, two years part-time.
Master: two years full-time, four years part-time.

**Structure**
The Master of Design (Multimedia Design) course will operate under a student workload model based on 100 credit points for a full-time academic year. To qualify for the award the student must complete (or have been granted exemption for) the subjects shown in below.

The program has skills acquisition as a component of the course delivered by intensive teaching and an individual minor project. The major component of the program is based on a collaborative group project undertaken by small teams of students. This mirrors the methodology of professional practice. There is a written component at each level of the course consisting of a dissertation of approximately 2,500 to 3,500 words.

**Course subjects**

**Semester 1 - Graduate Certificate**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Name</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDT701</td>
<td>Multimedia Design Technology 1</td>
<td>12.5</td>
</tr>
<tr>
<td>MDP701</td>
<td>Individual Multimedia Design Project 1</td>
<td>12.5</td>
</tr>
<tr>
<td>MMM701</td>
<td>Group Multimedia Design Project 1</td>
<td>25.0</td>
</tr>
</tbody>
</table>

**Semester 2 - Graduate Diploma**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Name</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDT702</td>
<td>Multimedia Design Technology 2</td>
<td>12.5</td>
</tr>
<tr>
<td>MDP702</td>
<td>Individual Multimedia Design Project 2</td>
<td>12.5</td>
</tr>
<tr>
<td>MMM702</td>
<td>Group Multimedia Design Project 2</td>
<td>25.0</td>
</tr>
</tbody>
</table>

**Master of Design (includes semesters 1 and 2)**

**Semester 3**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Name</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDT701</td>
<td>Multimedia Design Technology 3</td>
<td>12.5</td>
</tr>
<tr>
<td>MDP701</td>
<td>Individual Multimedia Design Project 3</td>
<td>12.5</td>
</tr>
<tr>
<td>MMM701</td>
<td>Group Multimedia Design Project 3</td>
<td>25.0</td>
</tr>
</tbody>
</table>

**Semester 4**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Name</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDT702</td>
<td>Multimedia Design Technology 4</td>
<td>12.5</td>
</tr>
<tr>
<td>MDP702</td>
<td>Individual Multimedia Design Project 4</td>
<td>12.5</td>
</tr>
<tr>
<td>MMM702</td>
<td>Group Multimedia Design Project 4</td>
<td>25.0</td>
</tr>
</tbody>
</table>
Further Information
Contact the Swinburne National School of Design on (03) 9214 6755.
Email: shuxley@swin.edu.au
Website: www.swin.edu.au/design

MD90  Master of Design (by research)
The MDes by research involves the investigation of a design-related topic using appropriate research methods. It can be pursued on a full or part-time basis. Supervision is available in the areas of Design History and Critical Theory, and Design Psychology (particularly in Aesthetics and Colour Cognition).
Emerging areas of interest within the School are in Public Perceptions of Design, 20th Century Australian Design, and User Friendly Information Design. Admission is not restricted to those with a design background. Applicants from any academic area are welcome. Applicants should have either:
(a) an honours degree or
(b) a degree or diploma plus professional or educational experience.

Further information
Contact the National School of Design on (03) 9214 6755.

DD90  Doctor of Philosophy in Design
Current research projects include:
- the cognitive structure of colour space
- the design of an instrument for use in Anterior Cruciate Ligament surgery
- a cognitive simulation model of colour design strategies
- lithographic transfer as a catalyst for invention
- public perceptions of the design profession

Further information
Contact the National School of Design on (03) 9214 6755.

ENGINEERING & TECHNOLOGY

AVIATION

M089  Graduate Certificate of Technology
(Air Transportation Management)
M099  Graduate Diploma of Technology
(Air Transportation Management)
MF96  Master of Technology
(Air Transportation Management)
This program has been developed in partnership with the aviation industry and will provide students with the skills necessary in the field of Air Transportation Management. Additionally, insight into the multiple facets of management and its application in air transportation is given.
The aims of these programs are to develop within an operational environment:
- an advanced understanding of the principles and complexities of the industry;
- the skills necessary to implement Air Transportation Management within a company environment;
- proactive skills to achieve and sustain competitive advantage in a rapidly changing global industry.
The programs are designed primarily to meet the needs of people currently employed in the aviation industry who wish to upgrade their skills at tertiary level. They are also designed to have considerable application for people in related technologically based service and business industries.

Location
The course will be available by distance education only and will be delivered by technologically advanced means. There is a requirement for attendance at a mandatory seminar/workshop four days each year at Swinburne University of Technology.

Course duration
Graduate Certificate: two semesters (four subjects) of full-time study or equivalent part-time.
For the Graduate Diploma, four semesters (eight subjects) of full-time study or equivalent part-time is required.
It is also possible on completion of the Graduate Diploma to undertake a third year of study to qualify for a Master of Business Administration or Master of Management; however, entry is conditional on the attainment of a credit average, or better in the Graduate Diploma.

Structure
To qualify for the award of Graduate Certificate, a student must complete MF611 plus three other subjects.
To qualify for the award of Graduate Diploma, a student must complete MF611 plus seven other subjects.

Course subjects

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF611</td>
<td>Air Transportation - General</td>
<td>12.5</td>
</tr>
<tr>
<td>MF612</td>
<td>Airport Development and Management</td>
<td>12.5</td>
</tr>
<tr>
<td>MF613</td>
<td>Airlines Operations Management</td>
<td>12.5</td>
</tr>
<tr>
<td>MF614</td>
<td>Aircraft Performance and Facilitation</td>
<td>12.5</td>
</tr>
<tr>
<td>MF615</td>
<td>Aircraft selection, Acquisition and Contracts</td>
<td>12.5</td>
</tr>
<tr>
<td>MF616</td>
<td>Flight Time Limitations, Fatigue and Aircrew Issues</td>
<td>12.5</td>
</tr>
<tr>
<td>MF617</td>
<td>Emergency Planning and Management Part 1</td>
<td>12.5</td>
</tr>
<tr>
<td>MF618</td>
<td>Emergency Planning and Management Part 2</td>
<td>12.5</td>
</tr>
<tr>
<td>MF619</td>
<td>Aviation Security, Risk Management, Insurance</td>
<td>12.5</td>
</tr>
<tr>
<td>MF620</td>
<td>Air Transportation Financial Management</td>
<td>12.5</td>
</tr>
<tr>
<td>MF621</td>
<td>Airline Alliances and Related Topics</td>
<td>12.5</td>
</tr>
<tr>
<td>MF622</td>
<td>Aviation Law and Air Transport</td>
<td>12.5</td>
</tr>
<tr>
<td>MF623</td>
<td>Financial Management</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Entry requirements
University graduates or completed two years operational experience as air traffic controllers, licensed aircraft maintenance engineers, company managers and supervisors, military personnel and pilots, pilots holding a full ATPL licence.
Others may be eligible if they are working in the aviation industry, have demonstrable academic capacity to deal with the study required and would benefit from participation in the program.

Further information
Contact the School of Engineering and Science on (03) 9214 5066.
Website: www.swin.edu.au/aviation/

M094 Graduate Certificate in Aviation Human Factors
M095 Graduate Diploma in Aviation Human Factors
M096 Master of Technology (Aviation Human Factors)

These courses are designed primarily to meet the needs of personnel currently involved in the aviation industry who wish to upgrade their skills at tertiary level in the specialist area of human factors. In addition, however, the courses are designed to have considerable application for personnel in other technologically based industries including rail, shipping, heavy industry, chemical industry and energy production.

The aims of the course are to develop:

- an advanced understanding of the principles of human factors as they apply within the operational environment;
- the skills necessary to conceptualise and undertake applied human factors research within the operational environment;
- an understanding of how management factors impinge on an organisation’s ability to implement a successful human factors program;
- an ability to embark on a research project in a disciplines fashion.

Location
The course will be available by distance education only and will be delivered by technologically advanced means. There will be a requirement for attendance at a mandatory two day residential seminar/workshop for each subject.

Course duration
Certificate: two semesters (four subjects) of full-time study or equivalent part-time.
Diploma: four semesters (eight subjects) of full-time study or equivalent part-time.
For the masters, six semester of full-time or equivalent part-time.

Course subjects

Year 1 - Graduate Certificate

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF600 Introductory Human Factors</td>
<td>12.5</td>
</tr>
<tr>
<td>MF601 Air Trans. Manage and Facilitation</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Semester 2

| MF602 Crew Resource Management/Leadership | 12.5 |
| MF603 Organisational Change in Aviation | 12.5 |

Year 2 - Graduate Diploma

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF604 Advanced Human Factors</td>
<td>12.5</td>
</tr>
<tr>
<td>MF605 Research Design and Methodology</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Semester 2

| MF606 Human Factors in Specialist Operations | 12.5 |
| MF607 Research Project (Minor) | 12.5 |

Year 3 - Masters

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF608 Major Project</td>
<td>25.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF608 Major Project</td>
<td>25.0</td>
</tr>
</tbody>
</table>

Entry requirements
To be eligible for consideration for entry to the course, students would be a university graduates or completed at least 2 years operational experience in Air Traffic Controllers, Licensed Aircraft Maintenance Engineers, Mid-Level company managers, Military pilots who have completed a “Wings Course”, Pilots holding an Airline Transport Pilot’s Licence.

Further information
Contact the School of Engineering and Science on (03) 9214 5066.
Website: www.swin.edu.au/aviation/

BUILDING SURVEYING

C065 Graduate Certificate of Engineering (Performance Building Surveying)

The main aim of this course is to give building professionals an understanding and basic knowledge of the physical processes associated with fire initiation, development, fire growth and spread, fire suppression and human behaviour under emergency conditions.

The course aims to develop the following:

- an understanding of fire science and technology fundamentals;
- technical skills required in the application and use of codes of practice dealing with materials and fire;
- ability to apply rational system design for buildings.

Location
Hawthorn campus.

Course duration
The Certificate will be available on a part-time basis over a period of two semesters.

Structure
The Graduate Certificate comprises four subjects each of 12.5 credit points, provided in a part-time evening mode. Each subject involves four hours of lectures and tutorials per week for the 13 weeks of the semester.

Course subjects

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES6810 Statutory Control A</td>
<td>12.5</td>
</tr>
<tr>
<td>ES6840 Fire Technology A</td>
<td>12.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES6815 Statutory Control B</td>
<td>12.5</td>
</tr>
<tr>
<td>ES6845 Fire Technology B</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Entry requirements
A Bachelor of Technology (Building Surveying) or other qualifications with appropriate experience.

Further information
Contact the School of Engineering and Science on (03) 9214 8372.
Email: engsci@swin.edu.au

CAD / CAM / CIM

M084 Graduate Certificate of Engineering (CAD/CAM)
M085 Graduate Diploma of Engineering (Computer Integrated Manufacture)
M086 Master of Engineering (Computer Integrated Manufacture)

Refer to main entry in the Computing and Information Technology section, page 182.
CHEMICAL ENGINEERING

P083  Graduate Diploma in Chemical Engineering

The purpose of the program is to provide students with a basic core of chemical engineering knowledge. It is designed to meet the needs of graduates who are not chemical engineers but who are working in the chemical industry or some related field.

Location
Hawthorn campus.

Course duration
One year full-time, two years part-time.

Course subjects

Schedule A

Semester 1
- ES2051 Basic Process Analysis and Calculations 12.5
- ES3021 Heat Transfer 12.5
- ES3041 Fluid Particle Systems 12.5
- ES5051 Process Equipment and Reactor Design 12.5

Semester 2
- ES2340 Fluid Mechanics 12.5
- ES3045 Separation Processes 12.5
- ES3025 Mass Transfer 12.5
- ES3065 Process Plant Design and Economics 12.5

Schedule B

The subjects offered under Schedule B are included to allow students to follow a particular field of interest related to chemical engineering. They have been divided into interest groups. The final choice of subjects will be made with significant consultation between the student and the lecturers involved.

Group 1: Risk Engineering Group
- MM720 Risk Perception and Analysis 12.5
- MM724 Risk Management Systems 12.5

Group 2: Environmental Studies Group
- ES4720 Environmental Management 12.5
- ES4725 Occupational Health and Safety 12.5

Group 3: Bioprocess Engineering Group
- ES3095 Microbial Biotechnology 12.5
- ES5095 Bioprocess Engineering 12.5

Group 4: Instrumentation and Control Group
- ES3310 Control Engineering 12.5
- ES5055 Process Control and Environmental Engineering 12.5

Entry requirements
Applicants are required to possess either a degree or diploma in applied science or engineering. However, consideration will be given to applicants who do not possess the formal admission requirements, but who, by virtue of an extensive period of industrial or other experience, can demonstrate they have the capacity to cope with the study load involved.

Further information
Contact the School of Engineering and Science on (03) 9214 8372.
Website: www.mm.swin.edu.au

CLEANER PRODUCTION

CHC50  Graduate Diploma of Engineering (Cleaner Production)

CHC52  Master of Engineering (Cleaner Production)

See also Graduate Diploma / Master of Applied Science in Cleaner Production

The main aim of the course is to produce graduates equipped with the knowledge, skills and attitudes to enable them to audit, operate and design industrial systems according to the principles of cleaner production. The aim is achieved by providing a course which covers technical foundations in a general introduction to cleaner production, followed by more detailed courses in Environmental Systems, Environmental Economics and Eco-Design and Auditing. These three subject areas form the base for the Graduate Diploma and Masters degree. The knowledge gained will then be applied in three case-study-based subjects in cleaner production, covering manufacturing, chemical processes and primary industries. For candidates in the Masters degree, the synthesis of all of these subject areas will occur through the completion of a research project. The research project will normally be industry based and will focus on an audit and redesign of a particular activity of that industry to bring about a “cleaner” method of production.

Objectives:
- To develop an understanding of the philosophy and principles of sustainable development and cleaner production.
- To shift the engineer’s and scientist’s approach to the design and operation of engineering and production systems to encompass these principles.
- To develop the ability to audit and redesign engineering systems to minimise waste.
- To provide a research focus in an industrial setting in order to develop the skills required to undertake applied and basic research.

Location
Hawthorn campus.

Course duration
The Diploma is one year full-time or equivalent part-time.
The masters program is 3 semesters of full-time or equivalent part-time.

Structure
Diploma students must complete the subjects specified for the graduate certificate and an additional 4 subjects, for a total of 100 credit points.
Masters students must complete the subjects specified for the graduate certificate, graduate diploma and an additional 3 subjects, for a total of 150 credit points. The research project of 25 credit points must be included.

Course subjects

Semester 1

Core subjects
- CP001 Principles of Cleaner Production 7.5
- CP002 Resource Technology 7.5
- CP003 Environmental Regulation 7.5
- CP004 Environmental Management 7.5

Elective subjects (Minimum 2 required)
- CPE01 Biological Waste Management 10.0
- CPE02 Environmental Audition 10.0
- CPE03 Design and Manufacture for Cleaner Production 10.0
- CPE04 Minor Research Project 10.0
- CPE05 Environmental Monitoring 10.0

Semester 2

Core subjects
- CP700 Environmental Systems 12.5
- CP701 Environmental Economics 12.5
- CP702 Eco-Design and Auditing 12.5
- CP703 Cleaner Production in Industry PART 1 12.5
- CP704 Cleaner Production in Industry PART 2 12.5
- CP705 Cleaner Production in Industry PART 3 12.5
CONSTRUCTION MANAGEMENT

C082  Graduate Diploma of Engineering (Construction Management)
C092  Master of Engineering (Construction Management)

The main aim of the course is to provide graduates of proved academic ability the skills required for future roles in managing technology and human resources in construction and building operations. It is proposed to achieve this aim by providing a structured study of advanced management and engineering techniques in the fields of construction and building.

The course aims to develop the following:*
- skill at allocation, organisation and direction of manpower and material resources;
- awareness of and ability to apply modern construction technology;
- understanding of the financial considerations of project funding;
- understanding of human resource management on construction sites;
- knowledge of the bidding process and other aspects of economic decision-making;
- appreciation of contractual obligations and risks;
- quality management.

Professional recognition
Associate Membership of the Australian Institute of Building.

Course duration
Diploma: one year full-time or two years part-time, commencing in March or July.
Masters: one and a half years full-time or three years part-time, commencing in March or July.

Course subjects
Graduate Diploma

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core topics</td>
<td></td>
</tr>
<tr>
<td>CE670 Construction Technology</td>
<td>12.5</td>
</tr>
<tr>
<td>CE690 Civil Eng Project Control</td>
<td>12.5</td>
</tr>
<tr>
<td>CE780 Financial Project Control or (2)</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Minor strand (Construction)

CE770 Construction Engineering (1) | 12.5 |

OR

Minor strand (Building)

CE677 Quantity Surveying A | 12.5 |

OR

Minor strand (Infrastructure Asset Management)

CE689 Infrastructure Systems | 12.5 |

Semester 2

<table>
<thead>
<tr>
<th>Core topics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CE691 Civil Engineering Management or</td>
<td>12.5</td>
</tr>
<tr>
<td>CE695 Property Management</td>
<td>12.5</td>
</tr>
<tr>
<td>CE692 Communications</td>
<td>12.5</td>
</tr>
<tr>
<td>CE696 Building Macroeconomics</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Minor strand (Construction)

CE770 Construction Engineering (1) | 12.5 |

OR

Minor strand (Building)

CE677 Quantity Surveying B | 12.5 |

OR

Minor strand (Infrastructure Asset Management)

CE689 Infrastructure Systems | 12.5 |

Year 2

Semester 1

<table>
<thead>
<tr>
<th>Core topics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CE773 Research Project*</td>
<td>50.0</td>
</tr>
</tbody>
</table>

* One semester subject which can be taken in either semester.

Semester 1 (For part-timers)

<table>
<thead>
<tr>
<th>Core topics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CE773P Research Project</td>
<td>25.0</td>
</tr>
</tbody>
</table>

Semester 2 (For part-timers)

<table>
<thead>
<tr>
<th>Core topics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CE773P Research Project</td>
<td>25.0</td>
</tr>
</tbody>
</table>

Entry requirements
Bachelor of Engineering or equivalent qualifications, or a four year degree in building or architecture, or other qualifications and experience which are...
considered to be a suitable preparation for study in the masters program. Admission with 'Advanced Standing' is available.

Further information
Contact the School of Engineering and Science on (03) 9214 8372.
Email: engsci@swin.edu.au

INDUSTRIAL ENGINEERING

M073 Graduate Certificate of Engineering (Industrial Engineering)
M074 Graduate Diploma of Engineering (Industrial Engineering)
M075 Master of Engineering (Industrial Engineering)

This integrated suite of programs aims to provide graduates with knowledge and skills in the application of scientific methods to increase productivity by re-engineering of processes, systems modelling and analysis.

The Industrial Engineering (IE) program is designed in response to the critical need in modern society for an engineering approach to solving problems relating to the interplay of people, productivity, information, and management. IE relates to the total picture of productivity improvement through the analysis, design, installation, control, evaluation, and improvement of integrated systems of people, materials, information, equipment, processes.

In the first semester, the Graduate Certificate, emphasis is placed on fundamentals through a thorough coverage of the major concepts of IE, to provide insights into the IE profession. This is supplemented with other subjects emphasising the detailed aspects of total quality and procedures for productivity improvement, and the modern ways of managing manufacturing systems including JIT technique for decision making. The technology management topics discuss issues of technology management, including financial analysis, project management and traditional and modern production methods.

Second semester (Graduate Diploma) subjects focus on more advanced and technical topics of Industrial Engineering. Computers and Industrial Engineering attempts to introduce the latest relevant computing enabling graduates to design simple systems and understand how to approach computer issues. Simulation and expert systems provide solid techniques for analysis of complicated systems which enables students to effectively utilise space and facilities. This and other situations are assisted by mathematical modelling techniques and statistical analysis tools.

Students wishing to complete a Masters degree in Industrial Engineering need to successfully complete the Graduate Diploma in Industrial Engineering. Then they can either take a Minor Thesis which is research information on a practical or theoretical topic in Industrial Engineering or they can take two additional subjects and a project.

Location
Hawthorn campus.

Career opportunities
The unique feature of IE graduates is their ability to apply their knowledge in any organisation. Examples are Banks, Hospitals, Insurance and Airline companies, Governmental offices, Transportation Industry, Telecommunication and all types of manufacturing companies.

Course duration
The Masters takes one and a half years full-time or equivalent part-time, incorporating the Graduate Certificate and the Graduate Diploma.

Course subjects

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM649 Fundamentals of Industrial Engineering</td>
<td>12.5</td>
</tr>
<tr>
<td>MM650 Quality and Productivity</td>
<td>12.5</td>
</tr>
<tr>
<td>MM663 Manufacturing Management Systems</td>
<td>12.5</td>
</tr>
<tr>
<td>MM665 Decision Analysis</td>
<td>12.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM688 Expert Systems, Simulation and Modelling</td>
<td>12.5</td>
</tr>
<tr>
<td>MM686 Systems Optimisation and Reliability</td>
<td>12.5</td>
</tr>
<tr>
<td>MM687 Computing for Industrial Engineering</td>
<td>12.5</td>
</tr>
</tbody>
</table>

MM658 Design of Physical facilities 12.5

Semester 3

MM659 Minor Thesis 50.00
OR 2 approved subjects and 1 small project

Further information
Contact the Industrial Research Institute Swinburne (IRIS) on (03) 9214 8600.
Website: www.iris.swin.edu.au

INFORMATION TECHNOLOGY

M060 Graduate Certificate of Engineering (Industrial Information Technology)
M061 Graduate Diploma (Industrial Information Technology)
M062 Master of Engineering (Industrial Information Technology)

Refer to main entry in the Computing and Information Technology section, page 183.

LOGISTICS

C066 Graduate Certificate of Technology (Logistics)
C076 Graduate Diploma of Technology (Logistics)
C086 Master of Technology (Logistics)

The suite of postgraduate programs in Logistics is designed to meet the needs of applicants who have an association with the industry to enhance their career opportunities and enable them to make a more effective contribution to a key industry. Industrially based applicants will be able to develop expertise in the technical and managerial aspects of the industry. Recent graduates can gain a knowledge of the industry to prepare them for a role in Logistics. The use of industrial practitioners to bring current case studies into the class for presentation and discussion will be a particular feature of many of the subjects, thus keeping the course relevant.

The objective of the program is to provide a body of advanced study in subjects related to Logistics. The programs assist the student to gain knowledge through lectures and case studies and to develop new knowledge through research.

Location
Hawthorn campus.

Course prerequisites
A four year engineering degree or equivalent. Applicants with other qualifications and experience may also qualify for entry.

Course duration
Certificate: One semester of full-time study or equivalent part-time.
Diploma: Two semesters of full-time study or equivalent part-time.
Masters: Three semesters of full-time study or equivalent part-time.

Admission dates for individual programs will normally be in February or July and both depending upon timetabling and resources.

Course subjects

Stage 1 - Graduate Certificate

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES6130 Strategic Logistics Planning</td>
<td>12.5</td>
</tr>
<tr>
<td>ES6131 Procurement and Inventory Management</td>
<td>12.5</td>
</tr>
<tr>
<td>ES6132 Managing Modern Distribution</td>
<td>12.5</td>
</tr>
<tr>
<td>ES6133 The Industry Overview and the Customer</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Stage 2 - Graduate Diploma

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES7130 Human Resources and Industrial Relations</td>
<td>12.5</td>
</tr>
<tr>
<td>ES7131 Introduction to Finance and Administration in Logistics</td>
<td>12.5</td>
</tr>
<tr>
<td>ES7132 Administration and Finance of Logistics</td>
<td>12.5</td>
</tr>
</tbody>
</table>
ES7133 Transport and Freight Operations 12.5

Stage 3 - Masters

Semester 3

ES8130 Research Project 50.0

Entry requirements

Applicants not holding an appropriate four-year engineering degree or equivalent may initially be admitted to a Graduate Certificate or Graduate Diploma program. Recognition of prior learning gained from other courses including programs mounted inhouse by business, or appropriate work experience, will be granted upon proof of level of course and standard of performance. Students who have undertaken appropriate Engineering Education Australia (EEA) programs will have that prior learning recognised on production of proof of success.

Further information

Contact the School of Engineering and Science on (03) 9214 8372.
Email: engsci@swin.edu.au

MAINTENANCE ENGINEERING

M078 Graduate Certificate in Maintenance Engineering

M088 Graduate Diploma in Maintenance Engineering

This part-time course is designed for those who have a qualification such as a diploma or degree in engineering or applied science, and who wish to take advanced studies based on maintenance engineering, maintenance management and its interaction with industry in general. Course content comprises common core material with the Graduate Diploma in Risk Management, emphasising maintenance engineering's place as a major sub-set of business risk management activity, complemented by specialist subjects relating to the practice of maintenance engineering. The course will usually spread over two years.

Building on fundamental tools acquired in the Graduate Certificate in Risk Management program, a range of advanced topics concerning the risk phenomenon in areas of maintenance engineering practice and technologies are taught by means of lectures, case studies and practical work. These studies provide the basis for undertaking an investigation into a risk related topic of the student's choice and the compilation of a dissertation.

A student who has completed the Graduate Certificate in Maintenance Engineering and who wishes to obtain the Graduate Diploma in Maintenance Engineering may retain credit for subjects already passed and must complete the additional subjects not yet completed for the Graduate Diploma program.

Primary aims of the proposed programs are:

- To focus on the significance of risk as a phenomenon within society and organisations and to assist students to develop skills related to the cost effective minimisation of organisational and personal loss.
- To enable students from all over Australia and overseas to study risk management or maintenance engineering by offering a course using the latest technologies.
- To ensure that the course will provide students with leading edge principles to assist them seek and implement practical solutions to complex real-world problems.

At the completion of this integrated program, graduates should be capable of applying suitable management philosophies and strategies to the areas of loss prevention.

Location

Hawthorn campus.

Course duration

Certificate: a one year part-time course commencing in March.
Diploma: two years part-time, commencing in March or July.

Course subjects

Graduate Certificate

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM700</td>
<td>Maintenance Management Systems</td>
<td>12.5</td>
</tr>
<tr>
<td>MM701</td>
<td>Maintenance Strategies</td>
<td>12.5</td>
</tr>
<tr>
<td>MM702</td>
<td>Maintenance Tools and Techniques</td>
<td>12.5</td>
</tr>
<tr>
<td>MM703</td>
<td>Quantitative Risk and Modeling</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Graduate Diploma

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM70S</td>
<td>Maintenance Management Systems</td>
<td>12.5</td>
</tr>
<tr>
<td>MM70T</td>
<td>Maintenance Strategies</td>
<td>12.5</td>
</tr>
<tr>
<td>MM70U</td>
<td>Maintenance Tools and Techniques</td>
<td>12.5</td>
</tr>
<tr>
<td>MM70V</td>
<td>Quantitative Risk and Modeling</td>
<td>12.5</td>
</tr>
</tbody>
</table>

The first year provides the basic principles which enable students to understand the nature of maintenance and how it is analysed and managed.

Graduate Diploma

The subject from the Graduate Certificate and:

- MM720 Risk Perception and Analysis 12.5
- MM721 Risk Management Principles 12.5
- MM722 Financial Risk Management 12.5
- MM723 Risk Research and Project 12.5

Entry requirements

A degree or diploma in any branch of engineering, applied science or business.

Further information

Contact the School of Engineering and Science on (03) 9214 8372.
Email: engsci@swin.edu.au

PAVEMENT TECHNOLOGY

CE60 Graduate Certificate of Engineering (Pavement Technology)

CE70 Graduate Diploma of Engineering (Pavement Technology)

CE80 Master of Engineering (Pavement Technology)

The objective of the program is to provide a body of advanced study in subjects related to Pavement Technology. The program assists the student to gain knowledge through lectures and case studies and to develop new knowledge through research. The advanced study includes:

- the development of analytical skills of application to pavement technology.
- an understanding of the process involved in pavement technology.
- the development of computer skills to understand the application of computer systems in pavement technology.
- an examination of the current issues related to pavement technology within the country and offshore.
- acquisition of advanced skills to appreciate the complex issues of pavement technology and to provide possible solutions to those issues.

Location

Hawthorn campus.

Course duration

Certificate: one semester of full-time study, or equivalent part-time.
Diploma: two semesters of full-time study, or equivalent part-time.
Masters: three semesters of full-time study or equivalent part-time.

The Masters programs may be offered in a format which will allow students to complete studies in less than eighteen months by including much of the project component in a summer semester.

Course subjects

Stage 1 - Graduate Certificate

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE800</td>
<td>Introduction to Pavements</td>
<td>12.5</td>
</tr>
<tr>
<td>CE801</td>
<td>Pavement Design</td>
<td>12.5</td>
</tr>
<tr>
<td>CE802</td>
<td>Pavement Construction</td>
<td>12.5</td>
</tr>
<tr>
<td>CE803</td>
<td>Pavement Wearing Surfaces</td>
<td>12.5</td>
</tr>
<tr>
<td>CE804</td>
<td>Asphalt Mix Design</td>
<td>12.5</td>
</tr>
<tr>
<td>CE805</td>
<td>Pavement Maintenance, Rehabilitation and Recycling</td>
<td>12.5</td>
</tr>
</tbody>
</table>

A maximum of 2 of the following subjects may be selected.

CE890 Civil Engineering Project Control 12.5
CE891 Civil Engineering Management 12.5
CE892 Communications 12.5
CE790 Financial Project Control 12.5

Stage 2 - Graduate Diploma

Completion of Stage 1 plus 4 Subjects making a total of 50 credit points that have not been completed in the Graduate Certificate.
Masters: three years part-time commencing in March.
Diploma: two years part-time commencing in March.
Certificate: one year part-time commencing in March.
Course duration throughout the broad field of commerce and industry.

Loss prevention management processes and strategies are in place to ensure that a number of organisations employ professionals in order to ensure that adequate knowledge in risk management.

Career opportunities
Hawthorn campus. Subjects can also be taken off-campus.

Location
Production. The program provides further studies for graduates from all branches of resources associated with short and long term risk to people, assets and people.

Risk management involves processes and techniques aimed at the cost effective loss prevention of an organisation's assets and resources. The program covers areas of health, safety, plant, property, financial control and maintenance. This program addresses needs of industry to improve the management of various financial and societal resources. All organisations need to know how to make good decisions in order to achieve goals and reduce those losses that arise from unexpected incidents, poor maintenance, accidents or illness within the workforce. Also, legislation requirements for safety and occupational health impose important demands to ensure the overall well-being of people.

Further information
Contact the School of Engineering and Science on (03) 9214 8372.
Email: engsci@swin.edu.au

RISK MANAGEMENT

M077 Graduate Certificate in Risk Management
M087 Graduate Diploma in Risk Management
M097 Master of Technology (Risk Management)

Australian organisations increasingly face the challenge to provide more effective management of various financial and societal resources. All organisations need to know how to make good decisions in order to achieve goals and reduce those losses that arise from unexpected incidents, poor maintenance, accidents or illness within the workforce. Also, legislation requirements for safety and occupational health impose important demands to ensure the overall well-being of people.

Risk management involves processes and techniques aimed at the cost effective loss prevention of an organisation's assets and resources. The program covers areas of health, safety, plant, property, financial control and maintenance. This program addresses needs of industry to improve the management of various financial and societal resources. All organisations need to know how to make good decisions in order to achieve goals and reduce those losses that arise from unexpected incidents, poor maintenance, accidents or illness within the workforce. Also, legislation requirements for safety and occupational health impose important demands to ensure the overall well-being of people.

Risk management involves processes and techniques aimed at the cost effective loss prevention of an organisation's assets and resources. The program covers areas of health, safety, plant, property, financial control and maintenance. This program addresses needs of industry to improve the management of various financial and societal resources. All organisations need to know how to make good decisions in order to achieve goals and reduce those losses that arise from unexpected incidents, poor maintenance, accidents or illness within the workforce. Also, legislation requirements for safety and occupational health impose important demands to ensure the overall well-being of people.

Further information
Contact the School of Engineering and Science on (03) 9214 8372.
Email: engsci@swin.edu.au
Website: www.mm.swin.edu.au

ROBOTICS AND AUTOMATION

M091 Graduate Certificate of Engineering (Robotics and Automation)
M092 Graduate Diploma of Engineering (Robotics and Automation)
M093 Master of Engineering (Robotics and Automation)

This integrated suite of programs aims to prepare graduates in engineering for future roles in the development and application of robotics and automation. It is designed primarily to meet the needs of personnel currently involved in or wishing to be involved in the robotics and automation industry. It has considerable application for personnel in a wide range of technologically based industries including rail, shipping, heavy industry, the chemical industry and energy production.

Location
Hawthorn campus.

Career opportunities
Graduates from this program will be readily employable by those manufacturing companies which intend to adopt advanced manufacturing technologies, particularly robotics and automation. It is expected that such companies will recognise the advantages of employing a professional engineer who has sound postgraduate qualification, a comprehensive understanding of the practical applications of robotics and automation systems and demonstrated ability to carry out detailed investigation and research at a high academic level into specific aspects of robotics and automation. It is envisaged that such a person would be employed within the company as a project engineer or advanced programs manager, with the following functions:
- developing company policy relating to the implementation of robotics and automation within the company;
- identifying suitable applications for robotics and automation;
- specifying robotic and automated systems including the specification, where appropriate, of both hardware and software requirements;
• assessing available hardware and software and their suppliers to determine those most suitable for the company’s requirements;
• preparing proposals for the justification of investment in robotics and/or automation;
• managing engineering projects related to all aspects of the design, construction, installation and commissioning of robotic or automated systems;
• liaising with suppliers of hardware and software to ensure that these are supplied, installed and commissioned in accordance with specifications;
• managing the current operations of robotics and/or automation systems;
• undertaking as required, detailed research at an advanced level into specific aspects of robotics or automation in order to satisfactorily carry out the above job functions;
• developing an awareness of the potential of robotics and automation within the organisation and establishing educational programs within the organisation related to these disciplines.

Course duration
The Masters is a one and a half year full-time or three years part-time course, incorporating the Graduate Diploma and the Graduate Certificate.

Course subjects

**Semester 1**
- **MM664** Advanced Robotics 12.50
- **MM634** Non-Contact Inspection 12.50
- **EE730** Engineering Software 12.50
- **MM667** Computer Control and Sensing 12.50

**Semester 2**
- **MM635** Robot Systems 12.50
- **MM669** Computer Modelling and FEA 12.50
- **SE601** Industrial Electronics 12.50
- **MM636** Technology Management 12.50

**Semester 3**
- **MM637** Project Work 50.00

Entry requirements
A degree in Mechanical, Electrical, Electronic or Manufacturing Engineering.

Further information
Contact the Industrial Research Institute Swinburne (IRIS) on (03) 9214 8600.
Website: www.iris.swin.edu.au

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TELECOMMUNICATIONS

**E076** Graduate Certificate of Engineering (Telecommunications)
**E086** Graduate Diploma of Engineering (Telecommunications)
**E096** Master of Engineering (Telecommunications)

These programs are intended for graduates in electrical, communications, computer engineering or computer science seeking careers in engineering telecommunications networks to meet society’s needs for human and information communications. It provides instruction in basic communications theory, the engineering of modern telecommunications networks, and the emerging technologies underpinning the networks. The course makes extensive use of an advanced telecommunications/computer network simulation facility (OPNET).

Location
Hawthorn campus.

Course duration
Graduate Certificate: one semester full-time.
Graduate Diploma: two semesters full-time.
Masters: three semesters full-time.
BH693  Strategy, People & Performance

12.5 Credit Points • one semester, two hours per week; or in block or Saturday mode • Hawthorn • Prerequisites: completion of MBA core subjects • Assessment: Individual Workplace Project, Syndicate Report - Organisational Case Study, Syndicate Presentation
A subject in the Master of Business Administration

Aims and objectives
To develop an understanding of the critical links between strategic change, people and performance in achieving organisational success; to identify the importance of the implementation of corporate strategy, HRM and functional strategies; to consider the impact of strategic business decisions such as outsourcing, telecommuting etc. on HRM strategy and individual performance; to consider the HRM strategic choices available to an organisation in meeting it’s performance objectives; and to explore some of the above issues through a workplace project which focuses on the issues of maintaining competitive advantage through people whilst meeting organisational requirements for continuous improvement.

Content
Strategic Context
Understanding internal and external environments, managing change from a strategic perspective, business, HRM and functional strategies, current strategic issues such as globalisation, outsourcing, telecommuting, social responsibility and ethics.

Managing the HRM Activity and Strategic Choices
Attraction and placement of human resources, maximising HR productivity and continuous improvement, maintaining human resources, strategic separation.

Developing Capability and Performance
Aligning employee expectations with strategy, enabling and evaluating performance.

Recommended reading

BH708  Processes of Inquiry and Research in Organisation Behaviour, Part 1 (Intercultural Understanding)

2 hours per week • Hawthorn • Prerequisite: nil • Assessment: essay and research project
A subject in the Master of Business (Organisation Dynamics)

Aims and objectives
- To develop within participants an understanding of their cultural identity and how this influences the way they manage and research.
- To research ‘Australian-ness’ as a cultural identity in management using a team based ‘inter-view’.

Content
Drawn from studies in psychology, sociology and social anthropology it provides a starting point for the conceptualism of cultural identity. Concepts include gender, authority, religion, and race.

Recommended reading
Sue, D.W., Counseling the Culturally Different: 2nd edn, New York, Wiley, 1990

BH709  Processes of Inquiry and Research in Organisation Behaviour, Part 2 (Senior Management Responsibilities)

2 hours per week • Hawthorn • Prerequisite: nil • Assessment: critique of two research based papers, development of questionnaire and test and evaluation of questionnaire
A subject in the Master of Business (Organisation Dynamics)

Aims and objectives
To inquire into the responsibilities of senior management with regard to the strategic direction of their organisation using a personal questionnaire designed by the student.

Content
The conceptualisation of corporate policy and strategic planning and the development of a testable questionnaire instrument to research these activities with senior managers.

Recommended reading

BH710  Processes of Inquiry and Research in Organisation Behaviour, Part 3 (Framing Organisational Learning)

2 hours per week • Hawthorn • Prerequisite: nil • Assessment: design research, conduct and analyse pilot interviews; essay providing rationale for research design
A subject in the Master of Business (Organisation Dynamics)

Objective
To develop a capacity to evaluate methodological alternatives for investigating a particular research focus; to design qualitative research; and to develop skills in in-depth interviewing.

Content
The unit considers alternative frameworks for researching a complex organisation system. The nature of knowledge and understanding is explored, along with alternate research frameworks, and methods of qualitative data collection and analysis. The technique of in-depth interviewing is practised and developed.

Recommended reading

BH711  Processes of Inquiry and Research in Organisation Behaviour, Part 4 (Managing Oneself in Role)

2 hours per week • Hawthorn • Prerequisite: nil • Assessment: role analysis report
A subject in the Master of Business (Organisation Dynamics)

Aims and objectives
To explore and understand the process, risks and judgements required in finding, making and taking an organisational role.

Content
The concepts of role, system and unconscious defences are explored as a basis for understanding role performance in organisations. The technique of organisational Role Analysis is practised and developed.

Recommended reading
To be provided in class

BH803  Doctoral Practicum

25 credit points • Hawthorn • Prerequisites: BH708, BH709, BH710, BH711
A subject in the Professional Doctorate in Organisation Dynamics

Objective and content
The practicum involves a work based action learning project. This is designed to develop and extend the student’s capacities to work at a high professional level within their organisation or, in the case of consultants and social scientists, with client organisations. Students meet on a weekly basis to discuss their projects.

BH804  Private Reading Unit A

12.5 credit points • Hawthorn • Prerequisites: BH708, BH709, BH710, BH711
An elective subject in the Professional Doctorate in Organisation Dynamics

Objective and content
A subject of the student’s choice, approved by the Program Manager, from any other postgraduate program relevant to the student’s professional development.

BH805  Private Reading Unit B

12.5 credit points • Hawthorn • Prerequisites: BH708, BH709, BH710, BH711
An elective subject in the Professional Doctorate in Organisation Dynamics.
A subject of the student’s choice, approved by the Program Manager, from any other postgraduate program relevant to the student’s professional development.
BH904 Professional Doctorate Thesis

50 credit points  Hawthorn  Prerequisites: BH708, BH709, BH710, BH711

Subjects in the Professional Doctorate in Organisation Dynamics.

Objective and content
The doctoral thesis reports on a piece of high level research conducted in the area of Organisational Dynamics. This research is likely to take the form of an action research project but may involve other forms of research as agreed by the project supervisor. The research may be conducted by teams of students, although the thesis is the work of an individual. Personal supervision is provided. The thesis will be examined externally by academics from other Australian or international universities. There is a class based research seminar that is part of this subject. This seminar is conducted fortnightly.

BI229 International Investment and Taxation

12.5 Credit Points  2 hours per week over 1 semester  Hawthorn  Prerequisite Subjects: BC110 Accounting 1 and BL 111 Law in Global Business  Teaching Method: Lecture and tutorial  Assessment: To be advised

A subject in the Bachelor of Business.

Aims and objectives
This subject is aimed at the needs of any businessperson or professional adviser operating in an international business environment. The subject does not assume any previous knowledge of taxation law.

Content
This subject examines various investment and taxation issues relevant to a business wishing to operate overseas. The course analyses the key features of domestic and international investment regulations used to promote or control foreign investment. It analyses the international taxation aspects of Australian taxation law. It also compares other tax systems especially in selected Asian countries.

References
Davidson, P., Investment in Southeast Asia: Laws and Policy, Butterworths, Singapore, 1995

BI288 European Union

12.5 credit points Credit Points: 3 hours per week over 1 semester  Hawthorn  Prerequisites: Any stage one business/arts subject  Teaching Method: Lectures and class discussions  Assessment: Class Presentation 25%, Assignment 1 25%, Assignment 2 50%

A subject in the Bachelor of Business.

Aims and objectives
The aim of this course is for students to acquire an understanding of the process of economic integration in Western Europe. The course will analyse the social, political and economic changes in Europe, particularly since the mid 1980s.

The course will critically analyse the structure, operation and policies of the institutions of the European Union (EU) and discuss the significance of the Single European Act and the Maastricht and Amsterdam Treaties for European unity. The course will also consider the unique structure of the EU as a regional trading block.

Content
Particular topics for study will be: institutions and negotiation process of the EU and the development and implementation of European industrial, economic and social policy. These will be examined in the context of the European market and the changes taking place in Europe today. Other issues to be explored include the deepening of the institutions of the European Union, regionalism versus the nation-state and EU accession negotiations of the Central and Eastern European countries.

References
Archer, C., Organising Europe, University of Aberdeen, U.K., 1994
Harrison, D.M., The Organisation of Europe, Routledge, 1995
Jovanovic, M., European Economic Integration, Routledge, 1997
Salmon, T., and Nicoll, W., Building European Union, Manchester University Press, 1997

BI300 Industrial Project

Credit Points: Nil (optional subject)  24 or 48 weeks  Hawthorn  Prerequisites: Nil

(This subject is available to 2nd year students who have obtained a credit average (or better) in the preceding twelve months of study)  Teaching Method: Students on an industry placement are supervised by their employer and an academic staff member from the School of Business  Assessment: written report/satisfactory performance

A subject in the Bachelor of Business.

Aims and objectives
The objective of this elective is for students to integrate theoretical knowledge with the practical applications and experiences in a commercial environment. This subject also aims to assist the student by providing opportunities for personal growth and developing both technical and interpersonal skills.

Benefits to the student include:
- Academic performance is often seen to improve following the industry experience
- Opportunity to experience particular areas of the chosen branch of their profession before graduation
- Ability to earn while they learn
- A head start to a successful future. As students with industry experience already have a point of comparison, career decisions are made easier and students have more to offer graduate employers

Content
Not applicable

References
Not applicable

BI389 Work Experience in Europe

12.5 Credit Points  Two/three months work placement  Hawthorn  Prerequisite subjects: BI288 European Union and BI392 European Union Business Context (Basic competence in a second language is recommended)  Teaching Method: Three months’ full-time attendance at place of employment, four x 2 hour preparatory lectures  Assessment: Report/completion of the work experience component

A subject in the Bachelor of Business.

Aims and objectives
The aim of this elective subject is to provide students with a two/three month experience of living in a European country and working in a European company as a regular employee.

The work experience subject further complements the essential benefit of the double degree, which is to provide students with the linguistic and cultural competence and skills critical to the international trade environment.

This subject allows students to gain that essential hands-on experience in the European Union (EU) business world by exposing the students to the commercial environment of the European market place.

Content
Employment in a European company or organisation. Some of the topics to be covered during the subject are:
- Political Economy of the EU
- Single European Market
- European Monetary Union
- European Business Practices

Text
Subject to placement and to be advised on an individual basis.

References

BI390 Study Tour to the European Union

12.5 Credit Points  Study Tour of approximately four weeks conducted in November/December  Hawthorn  Prerequisite Subjects: All Stage one subjects completed (it is recommended that students pass BI288 European Union and AA119 Post-War Italy before undertaking this subject)  Teaching Method: Not applicable  Assessment: Satisfactory participation, submission of a report, journal

A subject in the Bachelor of Business.
Aims and objectives
This unit aims to expose students to the cultural, political and regulatory environment of the European Union. To provide an opportunity for students to gain a hands-on experience of business in Europe. To provide an opportunity for students to participate in debate with a range of individuals actively involved in this region.

Content
The basis of the course is a Study Tour to several European countries. Students will be provided with industry briefings by European companies such as WELLA (Germany), General Electric (Italy) and others as well as briefings by AUSTRADE (Germany and France) and other national offices for international trade (Germany and Italy). Students will be provided with briefings by the institutions of the European Union (such as the European Parliament, the European Investment Bank, the European Court of Justice and the offices of the European Commission). Lectures on contemporary issues relevant to the European Union will be provided by European universities. The tour is preceded by three briefing sessions.

References
European Documentation Series, official publications of the European Community, Luxembourg

BI391 Asian Business Study Tour

12.5 Credit Points  Equivalent of 3 hours per week  Hawthorn  Prerequisite subjects: None  Teaching Method: Seminars  Assessment: Seminar discussion 30%, Research papers 70%
A subject in the Bachelor of Business.

Aims and objectives
The objective of this subject is for students to gain a thorough understanding of the culture of a particular Asian country and the impact of this on business practices. The travel costs to be borne by students.

Content
The subject entails students attending fifteen hours of seminars at Swinburne University and travelling to a selected Asian country for a period of approximately three weeks. During their stay they will attend lectures at a local university on culture, economics, marketing and practices relevant to that country. In addition, students will visit a number of factories and attend seminars with representatives of important local industries and other workplaces.

By the end of the subject the students should have:
- Acquired knowledge of local customs, values, attitudes and beliefs of Asian and Western countries in general and the host country in particular
- Gained first hand, experience of the host country’s business practices
- Gained a comparative knowledge of business systems and practices used in the host country and Australia

References
Because of the nature of the subject no recommended reading list is provided. Comprehensive reading lists will be provided at the first seminar.

BI392 European Union Business Context

12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite subjects: Any stage two Business or Arts subject (BI288 is recommended)  Teaching Method: Lectures, class discussion, the web  Assessment: Assessment tasks provided online 30%, Assignment (2000 words) 40%, Examination 30%
A subject in the Bachelor of Business.

Aims and objectives
To provide an overview of the main features of the European Single Market regulatory environment. To analyse the European Union (EU) in the global trading environment and comparatively as a regional trading entity; to consider the individual economies of the EU in terms of the European integration process; to identify opportunities and threats affecting trade between Australia and Europe; to analyse EU external relations with Asia, and in particular, with Australia; to familiarise students with online international business research in the European markets.

Content
The structure of the subject will comprise of a number of modules. Specific modules will be compulsory components of the subject, other modules will be optional to be negotiated with the European Studies Convenor.

Topics: Introduction to the European Union (optional), EU trading environment, specific industry sector - review, marketing to the EU, European business operations, cultural differences in European practices; agricultural trade; Europe/Asia recent developments; European Monetary Union; EU competition law and policy, restrictive trade practices (EU policy); Australian case studies. There will be optional topics for students to select.

References
Australian EU Trade & Investment, Towards 2002, DFAT, 1996
Harris, P., and McDonald, F., European Business and Marketing Strategic Issues, Paul Chapman Publishing, 1994

BI400 International Business Honours Dissertation

60 Credit Points  Hawthorn  Prerequisite subjects: None  Teaching Method: Supervision
A subject in the Bachelor of Business (Honours).

Aims and objectives
The student’s independent research work will be supervised by a suitably qualified member of Swinburne academic staff. The topic of the dissertation, whilst being set by the student, must be one consistent with:
- The broad content of the discipline within which the research has been taken
- The capacity of the student to realistically complete research into the topic in the prescribed time

Content
Normally, a student will produce a written, minor dissertation of between 10,000 and 15,000 words. The structure of the dissertation will be consistent with both the proposal developed in BI401 Advanced Reading Unit and with the quality expectations that are carried with a work of this kind.

The dissertation will include:
1. A statement of the issue
2. Hypothesis or problem
3. Current literature review
4. Cogent argument
5. Clear conclusions and if necessary, appropriate recommendations if necessary, appropriate recommendations

BI401 International Business Advanced Reading Unit

60 Credit Points  3 x 4 hour seminars over 1 semester  Hawthorn  Prerequisite Subjects: None  Teaching Method: Seminars  Assessment: Seminar presentations of prescribed reading and of the Honours dissertation proposal, Written Honours Dissertation Proposal
A subject in the Bachelor of Business (Honours).

Aims and objectives
To explore the breadth and depth of the area of study chosen by the student in a structured environment. To allow the student to use this exploratory approach as a means of arriving at a viable topic for their dissertation.

Content
A common core of prescribed reading in the area of study of both text and journal articles, and seminars on current business and social topics. The purpose of the readings, which will be allocated to individual students, is to engage the student in a critical appraisal of the material, and to develop further their research instincts.

All students will be required to both contribute in discussion and to lead discussion through the occasional presentation of their analysis of prescribed reading.

References
References will be discipline specific.
BI490  International Business

12.5 credit points, One semester  Hawthorn  Prerequisites: Nil  Assessment: class test, group assignment, written examination

A subject in the core of the Master of Business Administration and is required to complete the Graduate Certificate and Graduate Diploma in Business Administration

Objectives
To provide a framework for the study of international business. It looks at the development of international business from a historical perspective up until the present day, and outlines the key challenges facing international business managers into the 21st century. Whilst eclectic and global in coverage, the subject also seeks to focus on the topic from the context of Australia’s international outlook and perspectives.

Content
- Defining international business
- Historical development of international business

Macro-economic factors
- international trade
- balance of payments accounts and international monetary systems
- global investment factors

International Organisational Environment
- culture
- political
- technological
- competition and competitive advantage

Managing International Business
- strategic decisions
- implementation issues

Australia’s International Context
- a critical analysis of Australia’s international competitive advantage
- identification of future trends and opportunities

Textbook

Recommended reading

BL220 Contract Law

12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite Subject: BI111 Law in Global Business  Assessment: Two mid semester tests (25% each) 50%, Final examination 50%

A subject in the Bachelor of Business.

Aims and objectives
To enable students to gain an understanding of the law applicable to agreements, and in particular those negotiated during the course of the establishment and conduct of businesses. Particular attention is also given to the legal repercussions of concluding an agreement (including the impact of statute) and breaching obligations undertaken.

Content
- Formation of contract
- Terms of contracts
- Validity of contract
- Termination of contract and remedies

References
Khoury, G., and Yamouni, Y.S., Understanding Contract Law. 4th Edn, Butterworths, Sydney, 1995

BL221 Company Law

12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite Subjects: BI111 Law in Global Business  Teaching Method: Lecture and tutorial  Assessment: Two mid semester tests (25% each) 50%, Final examination 50%

A subject in the Bachelor of Business.

Aims and objectives
To conduct a legal analysis of business organisations, including partnerships, joint ventures, and trusts. The major type of the course will examine legal principles and processes used by businesses. Particular attention is also given to the legal repercussions of concluding an agreement (including the impact of statute) and breaching obligations undertaken.

Content
- Types of business organisations
- Companies: introductions, including corporate characteristics and the company as a separate legal entity; classification; pre-incorporation contracts; contracts with the companies; shareholders; management of companies; company litigation and minority shareholder; the company in trouble

Text
The Corporations Law, CCH, Sydney, 1998

References
Burnett, B., Australian Corporations Law, CCH, Sydney, 1995

BL222 Marketing Law

12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite Subject: BI111 Law in Global Business  Teaching Method: Lecture and tutorial  Assessment: Assignment 25%, Test 25%, Final examination 50%

A subject in the Bachelor of Business.

Aims and objectives
The subject aims to provide students with a practical knowledge of the legal controls imposed on the manufacturing, labelling, packaging, distribution, promotion, pricing, and retailing of goods and (where applicable) services.
Content

Topics involved in this study are the liability of manufacturers and retailers of goods at common law and under statute; proprietary interests in products; packaging and labelling of goods; advertising and promotion of goods and services; restrictive trade practices.

References

Clarke, B. and Sweeney, B., Marketing and the Law, Butterworths, Sydney, 1997

BL224 Retailing Law

12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite

Subject: BL111 Law in Global Business  Teaching Method: Lecture and tutorial

Assessment: Two mid semester tests (25% each) 50%, Final examination 50%

A subject in the Bachelor of Business

Aims and objectives

The objective of this subject is to provide a practical knowledge and awareness of the laws which impinge upon the function of retailing, concentrating upon those areas affecting the day-to-day activities of the business.

Content

Topics covered in this subject include the liability of retailers under the laws of contract and negligence, crime and retailing, establishing a retail business, franchising, the retailer and credit, the retailer and safety, trade description and consumer protection laws, and other general rights and duties owed by retailers.

References

Clarke, B., and Kapnoullas, S., Law for Retailers in Australia, Data Legal, Brisbane, 1995

BL226 Information Technology and Communications Law

12.5 Credit Points  2 hours per week over 1 semester  Hawthorn  Prerequisite

Subject: BL111 Law in Global Business  Teaching Method: Seminars  Assessment: 4,500 word paper 75%, Class test 25%

A subject in the Bachelor of Business.

Aims and objectives

To conduct a legal analysis of current topics in Information and Communications Law.

Content

Current topics:

- Introduction to The Australian Legal System
- Information Technology in Society
- Information Technology and Intellectual Property - an Introduction
- Does the Law of Copyright protect computer software?
- Other forms of protection
- Computer Crime and Security
- Privacy
- The Internet
- Computer Contracts and the Licensing of Information Technology and Intellectual Property
- Communications Regulation in Australia
- Media Ownership in Australia
- The Cable Rollout
- Legalities of Telephony
- Defamation

References

Because no text provides a suitable coverage of current issues, students will be provided with or given access to materials including a reading guide on a weekly basis.

BL331 International Business Law

12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite

Subject: BL111 Law in Global Business  Teaching Method: Lecture and tutorial  Assessment: Two mid semester tests (25% each) 50%, Final examination 50%

A subject in the Bachelor of Business.

Aims and objectives

The general objective of this subject is to introduce students to the legal aspects of international business law.

Content

The emphasis of the subject is on the following topics:

- Introduction to international law concepts
- Basics of international contracts
- International sales of goods
- International conventions
- International treaties
- International intellectual property - international patents, trademarks, copyright, designs
- Vienna Sales Convention
- International investment law
- Conflicts of laws

References

Mo, J., International Commercial Law, Butterworths, Australia, 1997

BL332 Employment Law

12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite

Subject: BL111 Law in Global Business  Teaching Method: Lecture and tutorial

Assessment: Two mid semester tests (25% each) 50%, Final examination (open-book) 50%

A subject in the Bachelor of Business.

Aims and objectives

A comprehensive overview of Australian Employment Law assesses the impact of law on the relationship of employer and employee. The primary focus is on the common law of employment and the Federal Industrial Relations System, examining the Workplace Relations Act 1996 (Cth). Discrimination, Equal Opportunity and Occupational Health and Safety laws are also outlined. Important recent developments in employment law emphasise the dynamic nature of the law as it operates within a social/political context.

Content

- The common law of employment and the rights and obligations of employees and employers under the contract of employment
- The relationship of the contract of employment to industrial awards and collective agreements
- The operation of the Workplace Relations Act 1996, and the system of awards, collective agreements, and the enforcement mechanisms in industrial law
- The statutory and common law regulation of termination of employment and the role of law in regulating industrial conflict
- Other statutory developments in the employment law area, including discrimination and equal opportunity, occupational health and safety law

Text


References

McCallum, R., and Prittard, M., Australian Labour Law Cases and Materials

Students will also be referred to specific cases and articles from:

C.C.H. Australian Labour Law Reporter
Australian Journal of Labour Law
Australian Industrial Law Reports

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Subjects Details

BL333  Finance Law
12.5 Credit Points  • 3 hours per week over 1 semester  • Hawthorn  • Prerequisite Subject: BL111 Law in Global Business  • Teaching Method: Lecture and tutorial  • Assessment: Two mid semester tests (25% each), Final examination 50%  

A subject in the Bachelor of Business.

Aims and objectives
The general objective of this subject is to provide students with an understanding of banking, finance, and securities law in the context of the Australian legal system.

Content
• Banker/customer relationship
• Legal framework of lending
• Negotiable instruments
• Tangible and intangible legal implications of securities
• Remedies
• Bankruptcy
• Insolvency
• Electronic banking issues

References

BL334  Asian Legal Systems
12.5 Credit Points  • 3 hours per week over 1 semester  • Hawthorn  • Prerequisite Subjects: BL111 Law in Global Business or Stage 1 Politics subject  • Teaching Method: Lecture and tutorial  • Assessment: Seminar paper 20%, Mid-semester test 20%, Final examination or research paper 50%  

A subject in the Bachelor of Business.

Aims and objectives
The general objectives of this subject are to introduce students to the legal environment of business in Asia and to develop an understanding of the context of law in Asian countries, particularly the cultural and historical context.

Content
The subject will examine the interrelationship between law, business and society in selected Asian countries. It will explore the way the law has been used to stimulate economic development. It will concentrate on the process of constitutional development in Asia, in particular, the link between economic development and democratisation in selected Asian societies. Countries studied will include Indonesia, Hong Kong, Korea and India.

References
Lindsey, T., At the Crossroads: Current Issues in Indonesian Law, Oxford University Press, 1998
Song Sang-Lyun, Korean Laws in the Global Economy, Bak Young Sa, Seoul, 1996

BL400  Business Law Honours Dissertation
80 Credit Points  • Hawthorn  • Prerequisite subjects: None  • Teaching Method: Supervision  

A subject in the Bachelor of Business (Honours).

Aims and objectives
The student’s independent research work will be supervised by a suitably qualified member of Swinburne academic staff. The topic of the dissertation, whilst being set by the student, must be one consistent with:

• The broad content of the discipline within which the research has been taken
• The capacity of the student to realistically complete research into the topic in the prescribed time

Content
Normally, a student will produce a written, minor dissertation of between 10,000 and 15,000 words. The structure of the dissertation will be consistent with both the proposal developed in BL401 Advanced Reading Unit and with the quality expectations that are carried with a work of this kind.

The dissertation will include
1. A statement of the issue
2. Hypothesis or problem
3. Current literature review
4. Cogent argument
5. Clear conclusions and if necessary, appropriate recommendations if necessary, appropriate recommendations

BL401  Business Law Advanced Reading Unit
20 Credit Points  • 3 x 4 hour seminars over 1 semester  • Hawthorn  • Prerequisite Subjects: None  • Teaching Method: Seminars  • Assessment: Seminar presentations of prescribed reading and of the, Honours dissertation proposal, Written Honours Dissertation Proposal  

A subject in the Bachelor of Business (Honours).

Aims and objectives
To explore the breadth and depth of the area of study chosen by the student in a structured environment. To allow the student to use this exploratory approach as a means of arriving at a viable topic for their dissertation.

Content
A common core of prescribed reading in the area of study of both text and journal articles, and seminars on current business and social topics.

The purpose of the readings, which will be allocated to individual students, is to engage the student in a critical appraisal of the material, and to develop further their research instincts.

All students will be required to both contribute in discussion and to lead discussion through the occasional presentation of their analysis of prescribed reading.

References
References will be discipline specific.

BM110  The Marketing Concept
12.5 Credit Points  • 3 hours per week over 1 semester  • Hawthorn  • Prerequisite Subjects: Nil  • Teaching Method: Lecture/tutorial field work  • Assessment: Tutorial participation 5%, Assignments 55%, Examination 40%  

A subject in the Bachelor of Business.

Aims and objectives
• To provide a broad understanding of the major theoretical principles upon which the practice of marketing is based
• To apply these principles in analysing a range of marketing problems
• To enable students to identify marketing management tasks and understand how marketing fits into the organisational environment

Content
• Marketing, strategic planning and the marketing process
• Information needs and marketing research
• Consumer and business markets and buyer behaviour
• Market segmentation, targeting and positioning for competitive advantage
• Designing products and services: new product development & product life cycle strategies
• Promoting products and services
• Placement: the logistics of making & distributing products and services
• Global marketing
• Designing & implementing competitive marketing strategies
• Social and ethical issues, and legal compliance in marketing

Texts

References
Menczer, D., Marketing, Blackwell, Oxford, 1992
BM220 Market Behaviour

12.5 Credit Points • 2 hours per week for 1 semester • Hawthorn • Prerequisite Subjects: BM110 The Marketing Concept • Teaching Method: Lecture

Aims and objectives

The objective of this subject is to examine the concepts of planning and strategy in marketing, the role and methods of strategic analysis, as well as issues related to satisfying needs and desires and be able to use, and apply knowledge from a marketing perspective. This subject draws heavily on theories developed in a variety of fields such as Anthropology, Sociology and Psychology, and presents them in terms of their usefulness to marketers. Above all though, it is a practical subject, one students should be able to relate to easily—for we are all consumers.

Content

• What is consumer behaviour and why study it
• Analysis of specific behavioural models and the decision making process
• Market segmentation and positioning
• Internal influences: perception, motivation, personality, learning, memory and attitudes
• External influences: reference groups, adoption and diffusion processes, social class and culture
• Other applications of consumer behaviour
• Future scenarios

Texts


References

Hawkins, D., Neal, C., Quester, P., and Best, R., Consumer Behaviour—Implications for Marketing Strategy, Irwin, Sydney, 1994

BM222 Marketing Planning

12.5 Credit Points • 2 hours per week for 1 semester • Hawthorn • Prerequisite Subjects: BM110 The Marketing Concept • Teaching Method: Lecture/tutorial/field work

Aims and objectives

The objective of this subject is to enable students to apply their marketing knowledge to the marketing planning process as a key tool in an organisation’s interaction with its environment. This subject gives students the opportunity to acquire a working understanding of various methods of marketing planning and the ability to apply them appropriately in developing and implementing marketing strategies and programs that respond to the challenges of the environment.

Content

• The state of marketing and planning
• An integrated marketing planning model
• Analysing environments including industry structure analysis
• Generic competition strategies
• The marketing program: strategies and elements
• Implementation and control of plans: goals and procedures
• Market potential and forecasting
• Future scenarios

Texts


References


Harris, L.C., and Pierry, N., Market orientation is free: the real costs of becoming market-led, Management Decision, Jan-Feb 1997, v35 n1-2, p33-40

BM223 International Marketing

12.5 Credit Points • 2 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BM110 Marketing Concept, and BM220 Market Behaviour recommended • Teaching Method: Lecture, tutorial and field work • Assessment: Case study 20%, Group assignment 30%, Class participation 10%, Exam 40 %

A subject in the Bachelor of Business.

Aims and objectives

The purpose of the unit is twofold:

• To introduce students to the global business environment and to the fundamentals of the international marketing task and
• To discuss the need for, and the mechanisms and requirements of, international competitiveness

Content

• Globalisation and the Australian economy
• Significance of economic blocs for international marketing
• EPRG schema—planning international expansion
• Pre-entry market selection: political and economic analysis
• Pre-entry market selection: sociocultural and technological analysis
• Product and price as elements of the international marketing mix
• Payment and place as elements of the international marketing mix
• Promotion as element of the international marketing mix
• International negotiations
• Modes of market entry
• The international key success factors
• International marketing trends.

Texts


References

Cooke, I.M., Overseas Marketing from Australia, Australian Institute of Export, Brisbane, 1983
Koch, A., Does Success in International Business Require Specific Capabilities: An Australian Perspective, Swinburne University of Technology Business Working Papers, Serial No.110, 1995
Koch, A., A subject in the Bachelor of Business.

Aims and objectives

The objective of this unit is to enable students to apply their marketing knowledge to the particular area of product management. Within this broad unit objective, there are a
number of specific objectives. These specific aims address the unit from a practical approach, that is to say, with a lesser emphasis on other approaches such as economic, technical, or purely creative. These areas are not ignored; they are treated as contributory disciplines.

Content
- The relationship between marketing planning and product planning.
- The new product innovation charter
- Overview of the new products process
- Strategic planning for new products
- The marketing mix and product management
- Concept generation and evaluation
- Success and failure factors
- Commercialisation: product, price, communication and distribution issues
- Product plan preparation
- Product launch details

Textbook

References

Various refereed journal articles and business magazines and newspapers, as referred to from time to time in classes.

BM331 Services Marketing and Management
12.5 Credit Points • 2 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BM222 Marketing Planning and one other Stage 2 Marketing subject

Teaching Method: Lecture, tutorial and practical assignment • Assessment: Class work 20%, Assignment 35%, Examination 45%

A subject in the Bachelor of Business.

Aims and objectives
The subject aims to provide students with an appreciation of the marketing and management of services using both theoretical and practical approaches. Students who have completed the subject will be expected to have an understanding of the importance of the services sector in Australia and globally, the differences between product and services marketing and the specific problems of services marketing management; the interactive nature of services and the resulting issues that need to be faced by managers; and the general skills required for the marketing of services.

Content
- The importance of services and their specific characteristics
- Service quality and customer expectations, perceptions and satisfaction
- Managing services products, and demand and supply
- Internal marketing
- Complaint behaviour and service recovery
- Customer retention and relationship marketing

Text

References
Bateson, E.G., Managing Services Marketing, 3rd Edn., Dryden, USA, 1995
Lovelock, C., Services Marketing, 3rd Edn., Prentice-Hall, USA, 1996

BM332 Communication Strategy
12.5 Credit Points • 2 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BM220 Market Behaviour and BM222 Marketing Planning, and BM229 Marketing Research recommended • Teaching Method: Lecture, tutorial, and field work

Assessment: Seminar paper 25%, Assignment 45%, Examination 30%

A subject in the Bachelor of Business.

Aims and objectives
The aim of this subject is to enable students to apply their marketing knowledge to the specific areas of communication strategy. This subject examines the underlying process of integrated marketing communication – it is about the principles that are involved in developing sound communication strategies and effective execution of these strategies.

Content
- Integrated marketing communication
- The role of marketing communication
- The communication plan
- Briefing communication agencies
- Communication models
- Media strategy
- Campaign studies
- Sales promotion
- Personal selling
- Public relations
- Direct marketing
- Issues and trends in communication

References

BM336 European Business Studies
12.5 Credit points • 2 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BM223 International Marketing • Teaching Method: Lecture/tutorial/field work • Assessment: Case study 25%, Group assignment 30%, Class participation 5%, Exam 40%

A subject in the Bachelor of Business.

Aims and objectives
- To look at the components of a country’s business environment and business infrastructure
- To recognise distinctive characteristics of Australia’s business culture
- To enable students to get a working appreciation of the three of European country markets and their business environments
- To enhance student’s capacity to see the general implications of business environments differences for their products/services
- To apply their knowledge to suggest appropriate market entry and marketing mix decisions for their products/services
- To estimate the sales potential of their products/services in those countries. Australian companies capacity to successfully market their products or services to these countries

Content
- Global business environment, its components and trends
- Evaluation of Australia’s business environment
- Economies, business infrastructure, traditions and customs of the three selected European countries
- Three selected European countries and European union, challenging stereotypes, studying trends
- European companies’ customer profiles
- Trade relationships with Australia

Texts
No prescribed text for this course.
References
Koch, Adam J. "International Market Expansion and Entry Mode Decision: Toward a Holistic Framework", forthcoming

BM338 Asian Pacific Business Practices
12.5 Credit Points • 2 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BM223 International Marketing • Teaching Method: Lecture/tutorial/field work • Assessment: Individual assignment 20%, Group Case study 20%, Group Field Assignment 20%, Examination 40% • A subject in the Bachelor of Business.

Aims and objectives
This subject aims to provide students the knowledge to enable them to understand the business environments that exist in the rapidly changing Asian countries of the Pacific Rim. The general approach taken is to view this region from the Australian business point of view. It also examines the business links and opportunities which may exist for Australian businesses and organisations.

Content
• To give students an understanding of the current state of economic development in the major Northeast and Southeast Asian economies. Particular attention is paid to regional and sub-regional groupings based on economic and business factors.
• To provide an understanding of some important macro-environmental factors which affect the conduct of business in the major markets in the Northeast and Southeast Asian region. Special attention is given to the political-legal environments and the social-cultural environments.
• To examine the emergence of a 'fourth economic force' [The Overseas Chinese] in the region and its implications for Australia and the region as a whole.
• To study the emergence of 'Greater China' (China, Hong Kong and Taiwan) and its implications for Australia and the region.
• To study and learn about the various business practices and cultures prevailing in the Northeast and Southeast Asian countries.

Text
Lassere, P., and Schutte, H., Strategies for Asia Pacific, MacMillan Education Australia, South Melbourne, 1995

References
ASEAN Focus Group, Peter Church (editor), Focus on Southeast Asia, Allen & Unwin, St Leonards, NSW, Australia, 1995
East Asia Analytical Unit, Overseas Chinese Business Networks in Asia, Department of Foreign Affairs and Trade, Canberra, Australia,1995
Irwin, H., Communicating with Asia, Allen & Unwin, St Leonards, NSW, Australia, 1996
March, R.M., The Honourable Consumer, Butterworth, Sydney, 1992

BM341 Business Strategy
12.5 Credit Points • 2 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: A capstone subject in the Marketing major or Management major, students must have completed the four Stage 2 and Stage 3 subjects required for each major respectively or enrolled to study Business Strategy in parallel with Stage 3 subjects, normally in the final semester of the course • Teaching Method: Lecture, tutorial, and field work • Assessment: Individual tutorial work 20%, Group work 40%, Examination 40% • A subject in the Bachelor of Business.

Aims and objectives
This is an interdisciplinary subject in which teaching staff representing the accounting discipline and human resource management will also give lectures.

Students in this subject are given a practical understanding of how the strategic planning process works, how corporate objectives are developed and how these are translated into strategic plans.

Content
• The state of business strategy in contemporary competitive environments
• The importance of monitoring external trends and events
• The understanding of key interrelationships among internal functional areas of business
• The importance and difficulties of implementation of strategies as well as measuring their effectiveness
• The management problems involved in all of the above

Texts

References
Barney, J.B., Gaining and Sustaining Competitive Advantage, Addison Wesley, 1997
Porter, M., Competitive Advantage, Free Press, 1985

As a matter of course students are expected to read, on a regular basis, the daily press and current business magazines as well as academic journals on business strategy.

BM400 Marketing Honours Dissertation
60 Credit Points • Hawthorn • Prerequisite subjects: None • Teaching Method: Supervision • A subject in the Bachelor of Business (Honours).

Aims and objectives
The student's independent research work will be supervised by a suitably qualified member of Swinburne academic staff. The topic of the dissertation, whilst being set by the student, must be one consistent with:
• The broad content of the discipline within which the research has been taken
• The capacity of the student to realistically complete research into the topic in the prescribed time

Content
Normally, a student will produce a written, minor dissertation of between 10,000 and 15,000 words. The structure of the dissertation will be consistent with both the proposal developed in BM401 Advanced Reading Unit and with the quality expectations that are carried with a work of this kind. The dissertation will include:
1. A statement of the issue
2. Hypothesis or problem
3. Current literature review
4. Cogent argument
5. Clear conclusions and if necessary, appropriate recommendations

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BM401 Marketing Advanced Reading Unit

20 Credit Points • 3 x 4 hour seminars over 1 semester • Hawthorn • Prerequisite Subjects: None • Teaching methods: Seminar • Assessment: Seminar presentations of prescribed reading and of the Honours dissertation proposal, Written Honours Dissertation Proposal

A subject in the Bachelor of Business (Honours)

Aims and objectives
To explore the breadth and depth of the area of study chosen by the student in a structured environment. To allow the student to use this exploratory approach as a means of arriving at a viable topic for their dissertation.

Content
A common core of prescribed reading in the area of study of both text and journal articles, and seminars on current business and social topics. The purpose of the readings, which will be allocated to individual students, is to engage the student in a critical appraisal of the material, and to develop further their research instincts.

All students will be required to both contribute in discussion and to lead discussion through the occasional presentation of their analysis of prescribed reading.

References
References will be discipline specific.

BM490 Marketing Management

12.5 credit points • One semester • Hawthorn • Prerequisites: Nil • Assessment: Individual assignment, Group assignment, Final examination

A subject in the core of the Master of Business Administration and is required to complete the Graduate Certificate and Graduate Diploma in Business Administration

Aims and objectives
To introduce candidates to the principles of marketing as a function within the organisation and to market decision making processes.

Content
- The marketing concept and the concept of consumer behaviour examined.
- Market demand, market information and the market research approach.
- The marketing mix: product, price, place and promotion considerations.
- An introduction to services marketing and marketing planning functions.

References

BM590 Corporate Strategy

12.5 Credit Points • One semester • Hawthorn • Prerequisites: Usually taken, together with BM100 The Learning Organisation 2, as the last subject in the Graduate Diploma • Assessment: individual assignment, group assignment, class paper

A subject in the Master of Business Administration and is required to complete the Graduate Diploma of Business Administration

Aims and objectives
To provide an understanding of management problems involved in developing strategic policies for organisations in both the public and private sectors in contemporary, competitive environments, both locally and globally, and to provide a practical understanding of how the strategic planning process works, how corporate objectives are developed and how these are translated into strategic plans and implemented.

Content
- The nature and value of the strategic planning process.
- Defining the company's mission.
- External audit - Porter's Five Forces model, competitive analysis, financial analysis.
- Company internal analysis - analysis of markets and competitors' strategy.
- Business ethics, organisational culture and politics, leadership.
- Crafting strategy: portfolio analysis, generic strategies, grand strategies for both single-dominant product business and multi-business companies.
- Implementation: structure, re-structure and controls.

Textbook

Recommended reading


BM691 Marketing Analysis

12.5 Credit Points • one semester, 2 hours per week • Hawthorn • Prerequisites: completion of MBA core subjects or equivalent • Assessment: major group assignment and seminar presentation

A subject in the Master of Business Administration

Aims and objectives
To provide students with an understanding of the issues related to the decision making processes involved in Marketing. Students will be introduced to the principals and practices of marketing research and will learn how to interpret information such as demographics, scenarios, demand forecasts and sensitivity analysis to assist them to make marketing decisions. Students will also learn how to evaluate the tools that are required by marketing professionals to make informed decisions.

Content
- Introduction to Marketing Research
- Defining the marketing research problem, types of research, questionnaire design, buying and evaluating marketing research.
- Market segmentation: The principals involved in segmenting a market, information needs when segmenting a market.
- Demographics: Sources of demographic information, the use of demographics in assisting marketing professionals to assess the viability of a new product or retail outlet, assessing Australia's demographics and the populations of our major trading partners to assist business decision making and strategic planning.
- Business Forecasting: Introduction to business forecasting, assessing product and services demand forecasts, interpreting time series data and assessing its use in marketing decisions.
- Scenario Analysis: Using optimisation to enhance the decision making process.
- Risk Analysis: Using uncertainty, risk and simulations to monitor marketing decisions.

Recommended reading

BM693 Strategy for Competitive Advantage

12.5 Credit Points • one semester, 2 hours per week • Hawthorn • Prerequisites: completion of MBA core subjects or equivalent • Assessment: Individual assignment/ seminar paper, Group assignment, final test

Aims and objectives
To explore the breadth and depth of the area of study chosen by the student in a critical appraisal of the material, and to develop further their research instincts.

The purpose of the readings, which will be allocated to individual students, is to engage the student in a critical appraisal of the material, and to develop further their research instincts.

All students will be required to both contribute in discussion and to lead discussion through the occasional presentation of their analysis of prescribed reading.

References
References will be discipline specific.

Content
- The purpose of the readings, which will be allocated to individual students, is to engage the student in a critical appraisal of the material, and to develop further their research instincts.
- All students will be required to both contribute in discussion and to lead discussion through the occasional presentation of their analysis of prescribed reading.

References
Recommended reading
References will be discipline specific.
A subject in the Master of Business Administration

**Aims and objectives**
To provide an appreciation of the various issues that are currently significant in the area of competitive advantage. It will help students to develop the ability to constantly monitoring those aspects of running a business that affect its competitive position in its markets.

**Content**
Having considered the basic framework of competitive advantage theory through various perspectives in an introductory section, students then move on to a study of particular issues of relevance to today's manager. Recognising that the factors which confer a competitive advantage may vary rapidly in today's highly competitive business world, the issues discussed, and their relative importance, will change as the business environment changes. Particular issues to be considered will include:

- indicators of performance - financial and non-financial;
- competitive advantage through customer satisfaction management;
- competitive advantage through quality management;
- competitive advantage through relationship building;
- competitive advantage through strategic alliances;
- competitive advantage through information technology;

as well as various issues of current topical relevance.

**Recommended reading**
Barney, J., Gaining and Sustaining Competitive Advantage, Addison-Wesley, 1997.
Other readings as advised.

**BMG400 Management Honours Dissertation**

80 Credit Points • Hawthorn • Prerequisite subjects: None
A subject in the Bachelor of Business (Honours)

**Aims and objectives**
The student's independent research work will be supervised by a suitably qualified member of Swinburne academic staff. The topic of the dissertation whilst being set by the student, must be one consistent with:

- The broad content of the discipline within which the research has been taken
- The capacity of the student to realistically complete research into the topic in the prescribed time

**Content**
Normally, a student will produce a written, minor dissertation of between 10,000 and 15,000 words. The structure of the dissertation will be consistent with both the proposal developed in BMG3401 Advanced Reading Unit and with the quality expectations that are carried with a work of this kind.

The dissertation will include

1. A statement of the issue
2. Hypothesis or problem
3. Current literature review
4. Cogent argument
5. Clear conclusions and if necessary, appropriate recommendations

**BMG401 Management Advanced Reading Unit**

20 Credit Points • 3 x 4 hour seminars over 1 semester • Hawthorn • Prerequisite Subjects: None • Teaching Method: Seminars • Assessment: Seminar presentations of prescribed reading and of the Honours dissertation proposal/ Written Honours Dissertation Proposal
A subject in the Bachelor of Business (Honours).

**Aims and objectives**
To explore the breadth and depth of the area of study chosen by the student in a structured environment. To allow the student to use this exploratory approach as a means of arriving at a viable topic for their dissertation.

**Content**
A common core of prescribed reading in the area of study of both text and journal articles, and seminars on current business and social topics.

The purpose of the readings, which will be allocated to individual students, is to engage the student in a critical appraisal of the material, and to develop further their research instincts.

All students will be required to both contribute in discussion and to lead discussion through the occasional presentation of their analysis of prescribed reading.

**References**
References will be discipline specific.

**BP228 Manufacturing Management 1**
12.5 Credit Points • 2 hours per week over 1 semester • Hawthorn • Prerequisite Subject: Nil • Assessment: Assignments (two) 80%, Class test 20%
A subject in the Bachelor of Business.

**Aims and objectives**
This subject reviews integrated manufacturing systems and the manufacturing management function production, production planning and control, maintenance, quality control, etc.

**Content**
The relationship between manufacturing and other organisational functions in the company and the application of analytical techniques relevant to production and related functions such as market forecasting, scheduling, materials requirement planning will be covered.
The 5 Fs of Japanese manufacturing technique, VAM, world class manufacturing, JIT production system and theory Z.

**References**

**BP336 Manufacturing Management 2**
12.5 Credit Points • 2 hours per week over 1 semester • Hawthorn • Prerequisite Subject: Nil (Students should not undertake this subject if they have completed BP335 Quality Mechanisms and Measures.) • Assessment: Assignments (two) 80%, Class test 20%
A subject in the Bachelor of Business.

**Aims and objectives**
This subject develops the undertaking of Quality Management and outlines the implementation of Total Quality Management in the Australian context.

**Content**
A course focusing on the requirements of total quality management within an enterprise. The stages of quality progression are developed within a practical context from buyer beware, through corrective, preventive and cost based quality, to the requirements of serving the customer chain. Current quality demands on industry are reviewed and evaluated for impact on management systems.
The definition of quality, competing through the dimensions of quality. The steps to ISO 9000 accreditation and benchmarking are also discussed.

**References**
A List of Australia Standards, Standards Association of Australia, Standard Australian, North Sydney, NSW, 1990

**BP337 Managing Technology and Innovation**
12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subject: BP226 Manufacturing Management 2 • Assessment: Assignments (two) 70%, Class test 30%
A subject in the Bachelor of Business.

**Aims and objectives**
This subject develops an understanding of technology strategy in relation to 'product' (device, service or process) and process innovation, value chains, competitive reaction, barriers to market entry, intellectual property protection, and an international perspective on converting a good idea/opportunity into a productive commercial success.

**Content**
It examines selecting, staffing and managing R&D projects to achieve strategic
business objectives and the problems of accelerating the pace of technological innovation in product development. Particular consideration is given to invention, development and innovation as they relate to commercialisation processes. Students' accounting skills will be extended to include cash flow techniques and analysis. The techniques acquired in this subject are applied to the production of a commercial feasibility analysis, heavily emphasizing cash flow projections. National and international case studies will be used to demonstrate the elements of market and financial success for developed products and services.

References

BP400 Manufacturing Management Honours Dissertation

80 Credit Points • Hawthorn • Prerequisite subjects: None
A subject in the Bachelor of Business (Honours).

Aims and objectives
The student's independent research work will be supervised by a suitably qualified member of Swinburne academic staff. The topic of the dissertation, whilst being set by the student, must be one consistent with:
• The broad content of the discipline within which the research has been taken
• The capacity of the student to realistically complete research into the topic in the prescribed time

Content
Normally, a student will produce a written, minor dissertation of between 10,000 and 15,000 words. The structure of the dissertation will be consistent with both the proposal developed in BP401 Advanced Reading Unit and with the quality expectations that are carried with a work of this kind.

The dissertation will include
1. A statement of the issue
2. Hypothesis or problem
3. Current literature review
4. Cogent argument
5. Clear conclusions and if necessary, appropriate recommendations

BP401 Manufacturing Management Advanced Reading Unit

20 Credit Points • 3 x 4 hour seminars over 1 semester • Hawthorn • Prerequisite Subjects: None • Teaching Method: Seminars • Assessment: Seminar presentations of prescribed reading and of the Honours dissertation proposal, Written Honours Dissertation Proposal
A subject in the Bachelor of Business (Honours).

Aims and objectives
To explore the breadth and depth of the area of study chosen by the student in a structured environment. To allow the student to use this exploratory approach as a means of arriving at a viable topic for their dissertation.

Content
A common core of prescribed reading in the area of study of both text and journal articles, and seminars on current business and social topics.

The purpose of the readings, which will be allocated to individual students, is to engage students in a critical appraisal of the material, and to develop further their research instincts.

All students will be required to both contribute in discussion and to lead discussion through the occasional presentation of their analysis of prescribed reading.

References
References will be discipline specific.

BQ220 Business Forecasting

12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: MB110 Quantitative Analysis A or MB111 Quantitative Analysis B, IT1025 Introduction to Information Systems • Teaching Methods: Lecture and tutorial • Assessment: Log books 20%, Assignment 45%, Assignment 35%
A subject in the Bachelor of Business

Aims and objectives
• Give a practical introduction to current business forecasting techniques.
• Introduce students to the statistical tools available on integrated packages such as MS Excel.
• To demonstrate the use of forecasting in a business environment via case studies.

Content
Techniques covered will include time series analysis, moving averages, exponential smoothing and regression analysis.

References
Ragsdale, C.T., Spreadsheet Modelling and Decision Analysis, Course Technology, 1995
recommended to include this subject as part of their studies.

Aims and objectives
- Provide students with an awareness of the range of business modelling techniques and their application to a variety of accounting and general business problems.
- Give students an understanding of the inter-relationships between business modelling techniques and the traditional accounting function in an organisation.
- Form the basis for a more extensive study of the application of these techniques in subsequent subjects.

Content
The emphasis of this subject is on the practical solution of specific business problems and, in particular, on the recognition, formulation and interpretation stages of a business modelling solution. In this subject considerable use will be made of MIS Excel.

Areas of study will normally include:
- The use of business modelling techniques to manage inventory, encompassing traditional and modern methods;
- The general problem of resource allocation with an emphasis on linear programming, including an introduction to post-optimality analysis;
- The evaluation of risk in the business environment through computer based software.

Texts
Ragsdale, C.T., Spreadsheet Modelling and Decision Analysis, Course Technology, 1995
References

BQ229 Marketing Research
12.5 Credit Points  2 hours per week over 1 semester  Hawthorn  Prerequisite Subjects: MB110 Quantitative Analysis A or MB111 Quantitative Analysis B  Corequisite Subjects: BMX298 Market Behaviour, BMX221 Market Planning  Teaching Methods: Lecture and tutorial  Assessment: Tutorial work 5%, Assignment 30%, Examination 65%
A subject in the Bachelor of Business.

Aims and objectives
The main focus of this subject is to get students to develop an understanding of the market research process, with the goal of enabling students to make informed decisions about the benefits and uses of Market Research.

Content
- Understanding the nature of the marketing problem in Market Research terms;
- Developing an understanding of the Code of Ethics of the Market Research Society of Australia;
- Developing the most appropriate research design using both exploratory and conclusive marketing research;
- Implementation of the research design;
- Basic analysis of the results;
- Communication of the results;

Students will be required to learn how to use SPSS for windows to analyse market research data.

References
Mahotra, Hall, Shave, and Crisp, Marketing Research: An Applied Orientation, Prentice Hall, 1996

BQ390 Electronic Marketing
12.5 Credit Points  2 hours per week over 1 semester  Hawthorn  Prerequisite Subjects: Nil  Teaching Methods: Lecture and tutorial  Assessment: Classwork 15%, Assignment 40%, Examination 45%
A subject in the Bachelor of Business.
It is highly recommended that students undertake this subject prior to commencing BMX41 Business Strategy.

Aims and objectives
The purpose of the subject is to give students a strategic overview of the current mature and emerging computer and Internet based technologies with their strengths and limitations in a marketing context.
On completion of the subject, students should understand, or be able to use:
- Internet technologies in various personal communication applications (Email, forums, discussion lists, Web pages);
- Conduct secondary and primary marketing research through electronic media;
- Explain the techniques of database marketing, relationship marketing, data mining, and data visualisation;
- The strategic use and practical application to marketing of the various Internet and computer based techniques and technologies.

Content
The course consists of:
- Data mining and data visualisation;
- Database and relationship marketing;
- Marketing use of the Internet;
- Electronic commerce using the Internet and World Wide Web;
- Issues and future direction.

References

BQ330 Market Modelling
12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite Subjects: MB110 Quantitative Analysis A or MB111 Quantitative Analysis B and IT1025 Introduction Information Systems  Teaching Method: Lecture and tutorial  Assessment: Class work 10%, Assignment 40%, Assignment 50%
A subject in the Bachelor of Business.

Aims and objectives
To introduce students to versatile techniques and methods of model building which may be used to support decision making in a marketing and business environment. Students will specifically be introduced to:
- The modelling process.
- The framework for decision making.
- Modelling with a personal computer based spreadsheet.
- Case studies to illustrate particular areas of market modelling.

Content
The material covered will include decision models, formulation, defining variables, sensitivity analysis, documentation of models, spreadsheets as decision support systems (DSS), testing, implementation and maintenance.

References
Hesse, B., Managerial Spreadsheet Modelling and Analysis, Irwin, 1997

BQ332 Advanced Marketing Research
12.5 Credit Points  2 hours per week over 1 semester  Hawthorn  Prerequisite Subjects: BQ229 Marketing Research (Students should not do this subject if they have completed BQ221, BQ225, BQ226 or BQ227)  Teaching Methods: Lecture and tutorial  Assessment: Assignment 50%, Examination 50%
A subject in the Bachelor of Business.
Aims and objectives
The focus of this subject is the application of marketing research. The main objective being to teach students to appreciate and understand the applications of marketing research rather than concentrating on the conceptual and practical aspects of marketing research. Marketing research is used daily by managers to make important decisions concerning new brands, advertising, product development and even using market research for legal advice. This subject will be useful to students wishing to pursue a career in management, marketing, advertising or marketing research. The broad areas of marketing a new brand, marketing an existing brand and monitoring a market will be explored using a case study approach.

Content
- Project evaluation
- Developing an understanding of the Code of Ethics of the Market Research Society of Australia
- Product testing
- Segmentation and positioning
- Naming, packaging and pricing a product
- Advertising research and media scheduling
- Test marketing
- Sales analysis
- Monitoring consumers and competitors
- International marketing research

References

BQ335 Quality Mechanisms and Measures
12.5 Credit Points • 2 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: MB110 Quantitative Analysis A or MB111 Quantitative Analysis B • Teaching Methods: Lecture and tutorial • Assessment: Assignment 60%, Examination 40%

A subject in the Bachelor of Business

Aims and objectives
- To look at quality from a cross functional perspective
- To equip students with a mixture of tools and practices useful for creating and maintaining quality in the workplace
- To critically evaluate existing quality practices within an organisation and recommend improvements

Content
Quality management is composed of two related systems - the management system and the technical system. The management system is concerned with planning to meet customers needs, organising resources, managing continuous improvement and facilitating employee involvement. The quantitative issues relating to quality form the basis of the technical system. This subject will focus on both qualitative and quantitative issues relating to quality control and improvement.

References
Evans, J.R., and Lindsay, W.M., The Management and Control of Quality, 3rd Edn., West, 1996

BQ400 Business Modelling Honours Dissertation
60 Credit Points • Hawthorn • Prerequisite subjects: None • Teaching Method: Supervision

A subject in the Bachelor of Business (Honours).

Aims and objectives
The student’s independent research work will be supervised by a suitably qualified member of Swinburne academic staff. The topic of the dissertation whilst being set by the student, must be one consistent with:
- The broad content of the discipline within which the research has been taken
- The capacity of the student to realistically complete research into the topic in the prescribed time

Content
Normally, a student will produce a written, minor dissertation of between 10,000 and 15,000 words. The structure of the dissertation will be consistent with both the proposal developed in BQ401 Advanced Reading Unit and with the quality expectations that are carried with a work of this kind.

The dissertation will include:
1. A statement of the issue
2. Hypothesis or problem
3. Current literature review
4. Cogent argument
5. Clear conclusions and if necessary, appropriate recommendations

BQ401 Business Modelling Advanced Reading Unit
20 Credit Points • 3 x 4 hour seminars over 1 semester • Hawthorn • Prerequisite Subjects: None • Teaching Method: Seminars • Assessment: Seminar presentations of prescribed reading and of the Honours dissertation proposal, Written Honours Dissertation Proposal

A subject in the Bachelor of Business (Honours).

Aims and objectives
To explore the breadth and depth of the area of study chosen by the student in a structured environment. To allow the student to use this exploratory approach as a means of arriving at a viable topic for their dissertation.

Content
A common core of prescribed reading in the area of study of both text and journal articles, and seminars on current business and social topics.

The purpose of the readings, which will be allocated to individual students, is to engage the student in a critical appraisal of the material, and to develop further their research instincts.

All students will be required to both contribute in discussion and to lead discussion through the occasional presentation of their analysis of prescribed reading.

References
References will be discipline specific.

BQ405 Research Methodology
20 Credit Points • 13 x 4 hour classes • Hawthorn • Prerequisite Subjects: None • Teaching Method: Several teaching methods will be adopted including formal lectures, tutorials, laboratories and seminars • Assessment: Class exercises 25%, Minor quantitative assignment 15%, Major quantitative assignment 35%, Qualitative assignment 25%

A subject in the Bachelor of Business (Honours).

Aims and objectives
To equip students with the necessary research skills to conduct studies for higher degrees. The student will become competent in finding, evaluating and applying research findings to a wide variety of problems. Students will be exposed to all research methods not just those relevant to their discipline of study.

Content
The subject will include the following topics:
- Introduction to research
- Selection and definition of a problem
- Preparation and evaluation of research proposals
- Selection of a sample
- Selection of a measuring instrument
- Selection and evaluation of qualitative and quantitative research methods
- Data analysis and interpretation
- Preparation of a research report and
- Research critiques

Text

References

Swinburne University of Technology | 1999 Higher Education Handbook

**BSH400 Administration and Management**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: BSL100 Introductory Law; BSL200 Environmental Health Management 2  •  Corequisites: Nil  •  Teaching methods: Lectures/presentations/discussion groups  •  Assessment: Assignments; Examinations; Oral Presentation

A subject in the Bachelor of Applied Science (Environmental Health).

**Aims and objectives**
- To further develop an understanding of the application of legal processes essential to good management techniques
- To bring an awareness of professional legal responsibility and the cost of administrative negligence
- To develop an understanding of the nature and behaviour of organisations
- To examine the characteristics and role of management
- To understand the culture of change

**Content**
The consideration of efficient internal administrative procedures to ensure against liability for negligent advice.
Regulatory controls - statutory duties and liability for breach, effective administration procedures and alternatives in regulatory techniques.
Legal responsibility of business units, contractors and corporate entities.
The role of the Ombudsman and Committees of Enquiry.
The Administrative Law Act and review by courts and tribunals of the administrative process, the application of the rules of natural justice, notice and fair hearing, the duty to give reasons, impartiality and bias.
Role of Civil and Administrative Tribunal (VCAT). Alternative dispute resolution/mediation.
An introduction to organisational and management theory and practice.
Organisational culture - myths metaphors and behaviours.
Management characteristics of leadership, power and decision making, conflict and negotiations, management roles and team work/group processes.
Financial and resource management. Organisational change.
Human resources, industrial relations and workplace agreements.
Competitive tendering, inc: client/provider split, business plans, specifications, tender bids, tender evaluation, contract management.
Principles of Risk Management.

**Recommended reading**
Dunford, R., Organisational Behaviour: An Organisational Analysis Perspective. Wesley, 1992
Hubbard, G., et al, Practical Australian Strategy

**BSL100 Introductory Law**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Teaching methods: Lectures, tutorials, workshops  •  Assessment: Class presentations; Examinations; Tests

Bachelor of Applied Science (Environmental Health).

**Aims and objectives**
- To gain an understanding of the Australian legal system and of the interrelationships between parliaments, statutory authorities, the courts and non-court tribunals.
- To develop an understanding of the influence of the judiciary in the law-making function both in respect of the interpretation of legislation and in the development of common law remedies for pollution control.
- To develop the skills required in understanding the processes for enforcement of legal controls and in interpreting and applying legislation to problem solving.

**Content**
Constitutional constraints affecting environmental and public health legislation.

**Reading Materials**

**BSL200 Environmental Health Management 2**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: Environmental Health Management 1, and Introductory Law  •  Corequisites: Nil  •  Teaching methods: Lectures/tutorial/class exercises/mock trial  •  Assessment: Assignments; Class presentations; Examinations; Tests

This is a subject in the Bachelor of Applied Science (Environmental Health).

**Aims and objectives**
- To further enhance communication skills with the emphasis on vocational settings.
- To develop an understanding of the processes of administration of legislation relating to public health and environment protection.
- To develop an understanding of civil and criminal proceedings, laws of evidence, appropriateness of courts, powers of courts.

**Content**
A review of the principles of effective communication applicable to the work setting, including risk communication, conflict resolution, stress management. Barriers to good communication including ethnicity and culture, with emphasis on ensuring appropriate message transmission, delivery and receipt.
Development of written skills, report writing requirements of large organisations. Letters and electronic data transfer. Ethical issues.
The rules of evidence, statutory and judicial developments, burden and standards of proof, hearsay, documents, admissions, improperly obtained evidence. Witnesses.
Sampling and entry powers of authorised officers under Health, Food and Environment Protection Acts.
Problems caused by concept of legal personality with corporate defendants.

**Reading Materials**

**CE297 Management**

5 credit points (sems 1 & 2)  •  2 hours per week (sems 1 & 2)  •  Hawthorn  •  Prerequisite: CE198 Communications  •  Teaching Method: lectures, tutorials and field work  •  Assessment: examination 70%; assessed work 30%

This is a second year subject in the Bachelor of Technology (Building Surveying).

**Aims and objectives and objectives**
This subject introduces students to accounting, financial reports and project evaluation. This subject includes introduction to accounting, analysis and interpretation of financial reports, cost accounting, project evaluation, financial analysis techniques applicable to projects.

**Recommended reading**
Swinburne Institute of Technology and Royal Melbourne Institute of Technology. Introductory Accounting and Finance for Management. 1984

**CE502 Fire Technology A**

**Aims and objectives**
- To understand the mechanism of fire and smoke spread;
- To understand the mechanism of smoke movement;
- To study the methods of smoke control and exhaust;
- To study the principle behind fire resistance levels;
- To investigate the role of structural elements and assemblies;
- To investigate the role of barriers, the reliability of barriers, openings and structures;
- To understand the behaviour of materials under fire.
Content
- Tire and smoke development, smoke movement, buoyancy.
- Principles of smoke control in buildings.
- Smoke hazard management subsystems.
- Flame spread, modelling of flame spread and fire growth.
- Barrier system performance.
- Behaviour of materials and assemblies under fire.
- Australian Fire Codes, Fire Tests and their applications.
- Structural fire performance, introduction to the design of steel, concrete masonry and timber under fire.
- External fire spread and radiation.
- Risk assessment, risk to life, fire costs.

Recommended reading
- Fire Code Reform Centre, Fire Engineering Guidelines, Canberra, 1986

CE600 Introduction to Pavements
12.5 Credit Points • Four hours per week for one semester or offered in equivalent short course mode.
- Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Assignments; Examinations

This is a subject in the Graduate Certificate of Engineering in Pavement Technology, Graduate Diploma of Engineering in Pavement Technology, and the Master of Engineering in pavement Technology.

Aims and objectives
To enable the student to identify and qualitatively assess the most important factors affecting the structural behaviour of road pavements
- To qualify the student to select appropriate materials for road pavements under different operating environments
- To enable the student to correctly specify performance requirements for road construction projects
- To enable students to recognise the failure modes of materials and pavement layers treated with cement
- To enable the student to understand the changes to asphalt mix design arising from performance related test procedures
- To enable the student to apply the principles of maintenance management to road infrastructure assets
- To enable the student to apply mechanistic design methods for overlays to existing pavements

Content
This unit provides an introduction to road pavement materials and the design of pavement structures. It has been developed to give someone who does not have a practical or academic background in pavements an appreciation of key issues and an understanding of the "state of the art". However, the unit does aim to impart some basic design skills and to give you skills in the selection of appropriate materials for road pavements.

Textbooks

References
- Lay M G (1990) Handbook of Road Technology, Vol 1, 2nd Edn, Gordon & Beach

CE602 Pavement Construction
12.5 Credit Points • Four hours per week for one semester or offered in equivalent short course mode.
- Hawthorn • Prerequisite: Nil • Assessment: Assignments; Examinations

This is a subject in the Graduate Certificate of Engineering in Pavement Technology, Graduate Diploma of Engineering in Pavement Technology, and the Master of Engineering in pavement Technology.

Aims and objectives
- To enable the student to plan and supervise the implementation of earthworks operations associated with road pavement construction.
- To enable the student to supervise the performance of and interpret data from laboratory and field tests carried out during the construction of a road pavement.
- To enable the student to participate in the selection of appropriate materials, plant and equipment for road construction and to assist in managing these and other resources to help minimise the cost of construction.
- To enable the student to apply the principles of quality assurance to the planning, design and implementation of road construction projects.
- To enable the student to make more effective decisions on road construction projects, based on an in depth knowledge of pavement construction techniques.

Content
This unit presents the construction of road pavements from drainage requirements to surface preparation, with pavement material options, surface applications and work acceptance. Earthworks and formation preparation includes special treatments for soft area excavation and construction testing. A topic on selection and application of granular materials is followed by details of surface preparation prior to wearing surface application. The unit also includes asphalt production and laying as well as spray seal treatments. Specifications for materials and workmanship are covered for all areas of pavement construction. The unit contains typical examples taken from construction practice to give an appreciation of the range of activities associated with road construction.

Textbooks
- Lay M G (1990) Handbook of Road Technology, Vol 1, 2nd Edn, Gordon & Beach

References
CE603 Pavement Wearing Surfaces
12.5 Credit Points • Four hours per week for one semester or offered in equivalent short course mode. • Hawthorn • Prerequisite: CE600 or equivalent experience • Assessment: Assignments; Examinations
This is a subject in the Graduate Certificate of Engineering in Pavement Technology, Graduate Diploma of Engineering in Pavement Technology, and the Master of Engineering in Pavement Technology.

Aims and objectives
• To enable the student to specify the materials and workmanship required for an effective pavement wearing surface
• To enable the student to select the most appropriate wearing surface for a variety of different conditions
• To enable the student to apply basic design principles used by the industry for pavement wearing surfaces
• To enable the student to apply the principles of performance assessment of surfaces with regard to user comfort, safety and cost
• To enable the student to make more effective decisions based on an in-depth knowledge of pavement surfacing materials and techniques

Content
This unit presents information on pavement wearing surfaces currently in use within Australia and New Zealand. The five topics in the unit cover the characteristics of materials required of a surfacing, the types of wearing surface and their construction, the materials used including the preparation of specifications, the philosophy behind the selection of surfacing layers and selection criteria and finally the design of surfacing treatments. A large number of publications by state road authorities, local government and industry are referred to in this unit which presents current best practice in pavement surfacing. New and innovative products and processes are also covered and reference is made to local and overseas research programmes associated with wearing surfaces.

Textbooks
Nil
References
Austroads (1990) Design of Sprayed Shals, Sydney NSW
Austroads (1992) Pavement Design, A guide to the structural design of road pavements Sydney NSW
Cement & Concrete Association of Australia (1994) Road Note 43 C&CA Sydney NSW
Lay M G (1990) Handbook of Road Technology, Vol 1, 2nd Edn, Gordon & Breach

CE604 Asphalt Mix Design
12.5 Credit Points • Four hours per week for one semester or offered in equivalent short course mode. • Hawthorn • Prerequisite: Nil • Assessment: Assignments; Examinations
This is a subject in the Graduate Certificate of Engineering in Pavement Technology, Graduate Diploma of Engineering in Pavement Technology, and the Master of Engineering in Pavement Technology.

Aims and objectives
• To enable the student to specify the material properties required for different asphalt mixes
• To enable the student to apply the traditional and the “new” Austroads mix design procedures
• To enable the student to interpret the link between asphalt mix volumetrics and mix performance
• To enable the student to use data from performance-related testing to derive engineering properties such as stiffness and fatigue resistance
• To enable the student to make a more effective choice when selecting an asphalt mix for specific environmental conditions

Content
This unit presents the theory behind designing a mix to meet performance criteria and the theory of the testing of mixes to match client requirements. Weight-volume relationships and their importance in mix design are supported by details of various mix design methods including the Austroads procedure. The unit also describes the most common types of asphalt mixes including dense graded asphalt, stone mastic asphalt, and fine gap graded asphalt. A topic on testing discusses the measurement of density, moisture sensitivity, modulus, creep and fatigue. The principles of asphalt mix recycling are also outlined in this unit.

Textbooks

References
Austroads(1992) Pavement Design, A guide to the structural design of road pavements Sydney NSW
Lay M G (1990) Handbook of Road Technology, Vol 1, 2nd Edn, Gordon & Breach

CE605 Pavement Maintenance, Rehabilitation
12.5 Credit Points • Four hours per week for one semester or offered in equivalent short course mode. • Hawthorn • Prerequisite: CE600 or equivalent experience • Assessment: Assignments; Examinations
This is a subject in the Graduate Certificate of Engineering in Pavement Technology, Graduate Diploma of Engineering in Pavement Technology, and the Master of Engineering in Pavement Technology.

Aims and objectives
• To enable the student to apply pavement maintenance principles in minimising the cost of operating the road infrastructure
• To enable the student to recognise the mechanisms of pavement distress
• To enable the student to implement pavement evaluation procedures
• To enable the student to select suitable materials and procedures for pavement rehabilitation
• To enable the student to make more effective decisions with regard to the recycling of pavement materials

Content
This unit examines the different ways a pavement shows distress both structural and non-structural. Modes of distress including disintegration, distortion, cracking and fracture are described together with problems relating to safety and damage caused by external factors. Evaluation techniques are presented which can be used to assess the condition of a pavement with respect to serviceability, structural capacity and safety. The unit considers restoration using granular materials, full depth asphalt and concrete. Structural overlays are described along with details of stress absorbing layers. Corrective maintenance treatments are discussed at length and the unit concludes with the economic evaluation of alternative maintenance strategies.

References
Austroads(1992) Pavement Design, A guide to the structural design of road pavements Sydney NSW
Lay M G (1990) Handbook of Road Technology, Vol 1, 2nd Edn, Gordon & Breach

CE606 Industrial and Heavy Duty Pavements
12.5 Credit Points • Prerequisite: Four hours per week for one semester or offered in equivalent short course mode • Assessment: Assignments; Examinations
This is a subject in the Graduate Certificate of Engineering in Pavement Technology, Graduate Diploma of Engineering in Pavement Technology, and the Master of Engineering in Pavement Technology.

Aims and objectives
• To enable the student to contribute to the design of pavements at industrial sites and at heavily loaded areas in ports and airports.
• To enable the student to help select the most appropriate pavement type and materials for a pavement subject to heavy wheel loading.
• To enable the student to assist with the analysis of rigid, segmental and flexible pavements under heavy wheel loads.
• To enable the student to assess the life long performance of a heavy duty pavement.
To enable the student to include environmental issues in decision making with regard to heavy duty pavement design and construction.

**Content**
This unit deals with the design and construction of heavy duty industrial pavements including pavements for ports, container facilities, bulk cargo areas factory and warehouse floors, hardstands and mine haul roads. Pavement types include flexible, rigid and segmental construction.

Specific issues addressed in the unit comprise subsurface investigation, consolidation and control of settlement in port and industrial areas, dynamic consolidation, subgrade improvement, testing and characterisation for design, loads from heavy vehicles, vehicle wheel patterns, pavement analysis and design, specifications for flexible, rigid and segmental pavements and maintenance and rehabilitation using overlays.

**References**

**CE670  Construction Technology**

12.5 Credit Points • Four hours per week for one semester or offered in equivalent short course mode. • Hawthorn • Prerequisite: Nil • Assessment: Assignments; Examinations
This is a subject in the Graduate Certificate of Engineering in Pavement Technology, Graduate Diploma of Engineering in Pavement Technology, and the Master of Engineering in Pavement Technology.

**Aims and objectives**
- To enable the student to contribute to the collection, storage and retrieval of road pavement condition data.
- To enable the student to assist with the prediction of the future performance of a road pavement.
- To enable the student to assess the cost of maintaining a pavement over its life.
- To enable the student to operate a formal management system for a network of road pavements.

**Content**
An outline of the requirements and application of a formalised system for the total management of a road network, from the current situation through to defining the actions required to most effectively manage the network, based on the available financial resources. The unit gives a detailed description of a road network database with present condition, construction and maintenance history and traffic loading. It also contains coverage of topics such as future use prediction, future maintenance requirements, predicted treatment costs, formal management systems and asset management fundamentals.

**Recommended reading**

**CE677  Quantity Surveying A**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
This is a subject in the Graduate Diploma and Masters of Construction Management.

**Aims and objectives**
To enable the student to prepare bills of quantities, to appreciate the various types of bills, to appreciate feasibility studies and costs, to measure Civil Engineering, Engineering and Building and to use the appropriate electronic hardware and software for support.

**Content**
Standard Method of Measurement, measuring and billing of quantities, trade oriented bill of quantities, including elemental specified and operational, principles of elemental cost analysis, reliability of data, measurement of Civil and Building quantities, computer assisted bills of quantities.

**CE690  Civil Engineering Project Control**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil

Teaching methods: Lecture tutorial discussion • Assessment: Assignments
This is a subject in the Graduate Diploma of Engineering (Construction Management) and Master of Engineering (Construction Management) and this is a subject in the Graduate Certificate of Engineering in Pavement Technology, Graduate Diploma of Engineering in Pavement Technology, and the Master of Engineering in Pavement Technology.

**Aims and objectives**
To introduce the techniques for establishing and maintaining control of a project.

**Content**
General conditions of contract; forms of contract; drawings, specifications and quantities; estimating, scheduling and programming; quality control; risk analysis documentation of work progress and costs; progress payment procedures; industrial safety.

**Recommended reading**
Harris, P. and McCaffter, R., Modern Construction and Management. 3rd Edn Oxford, BSP Professional, 1999
Isikawa, K., Guide to Quality Control. 2nd rev. Edn Tokyo, Asian Productivity Organization, 1986

**CE691  Civil Engineering Management**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil

Teaching methods: lecture tutorial discussion • Assessment: Assignments; Oral Presentation
This is a subject in the Graduate Diploma of (Construction Management), the Masters of (Construction Management) and the Master of Business Administration and the Graduate Certificate of Engineering in Pavement Technology, Graduate Diploma of
Engineering in Pavement Technology, and the Master of Engineering in Pavement Technology.

Aims and objectives
To develop an awareness of efficient site management techniques.

Content
Responsibilities of a project manager; responsibility of site engineer; construction site organisation; site office procedures; contractor/principal relations; industrial arbitration; company structures; personnel management; negotiations; arbitration and conciliation. Formulation of goals and objectives, business strategies, technological strategies, operational planning, short range objectives, realising objectives, strategies and plans, planning construction programs, market niche, organisational structure and design, organisational life cycle, coordinating design and site functions, organising capital inputs, work methods, leaders working with people, leadership styles and behaviour, determinants of leadership effectiveness; difference between leading and managing, the effect of innovative leadership, entrepreneurial traits, entrepreneurs in construction, decision making.

Recommended reading
Smith, M., Contracts. 2nd Edn Sydney, Butterworths, 1988
Wan, P.B., Psychology at Work. 3rd Edn Hammondsford, Penguin, 1987
Carriegy, R. and Butlin, M., Managing the Innovative Enterprise, PUBLISHER and YEAR
Friedman, W., Construction Marketing and Strategic Planning, PUBLISHER and YEAR
Hashimoto, Y., Improving Productivity in Construction, PUBLISHER and YEAR
Hedley, G. and Garbett, C., Practical Site Management, 2nd Edn, George Godwin, 1983
Hyman, R., Strikes, 3rd Edn, Fontana, 1984
Parker, H.W., and Oglesby, C.H., Methods Improvements for Construction Managers, PUBLISHER and YEAR

Textbooks

CE692 Communications
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil

Teaching methods: lecture tutorial discussion • Assessment: Oral Presentation; Participation; Report

This is a subject in the Graduate Diploma of Engineering (Construction Management) and the Master of Engineering in Construction Management and the Graduate Certificate of Engineering in Pavement Technology, and the Master of Engineering in Pavement Technology.

Aims and objectives
To develop the students’ understanding and practice of communication, both written and verbal.

Content
The theory and practice of communications. Students take part in a program designed to increase their personal capacities to understand and communicate well at different levels of oral and written communication, particularly as project managers in the construction industry. To this end various techniques are used and evaluated by the group.

The course also includes a brief study of the historical role of the engineer in the development of human communications, placing the profession in its social context. The purpose of the course is to enable the engineer to evaluate professional problems more competently and to communicate ideas more effectively.

Recommended reading
Barnett, M.T., Writing for Technicians. 3rd Edn Albany, N.Y., Delmar, 1987
Robinson, D.M., Writing for Management Decisions. Columbus, Ohio, CE Merrill, 1969

CE693 Introduction to Contract Law
7.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Assignments

This is a subject in the Master of Engineering (Construction Management).

Aims and objectives
This subject is intended to enable students to gain an understanding of the relevant law applicable to the building and construction process and to provide the students with the necessary skills to administer a building project.

Content
Contract types, contract documents, conditions of contract, choice of contract type relating to risk and financial considerations, site documentation, computer applications for site administration of contracts. Legal system in Australia, sources of law, court structure, system of judicial precedence, types of law criminal, civil, consumer, worker protection, law of partnership, law of bankruptcy.

Recommended reading
Brooking, R., Brookings on Building Contracts The Law and Practice Relating to Building and Engineering Agreements. 2nd Edn Sydney, Butterworths, 1980

CE695 Property Management
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil

This is a subject in the Graduate Diploma of Engineering (Construction Management) and the Master of Engineering (Construction Management).

Aims and objectives
• To give students an understanding of the operation of a building in terms of administering and marketing space for profit, and maintaining a building to an established standard within a budget.

• The students will be given an appreciation of the requirements of managing a portfolio of properties.

Content
Maintenance cycles and failure patterns in building components and services, maintenance budgets, performance criteria for building components and services, marketing of space and administration of the occupation of space, managing a portfolio of properties on behalf of clients.

CE696 Building Macroeconomics
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil

This is a subject in the Graduate Diploma of Engineering (Construction Management).

Aims and objectives
To give students an understanding of the elements contributing to the cost of a project.

Content
Project feasibility studies, cost control of the design phase, cost control systems for project construction, forecast of cost and cash flow for a project, project budgeting, total cost for a project, life cycle costing, computer applications for cost analysis recording, analysis and reporting.

CE697 Infrastructure Systems
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil

This is a subject in the Master of Engineering (Construction Management).

Aims and objectives
To develop an understanding of the hardware of the systems which support a high standard of civilisation and the operation of that hardware for the benefit of mankind.

Content
The support systems in modern urban areas, the history of the construction, water supply systems, sewage systems, road networks, rail networks, organisations to plan, construct, manage and maintain the systems, system control, system deterioration and rehabilitation, investment in systems, future costs of such systems, alternative means of providing the service, extending the life of the systems, planning for system replacement.

CE770 Construction Engineering
12.5 Credit Points • One year • Hawthorn • Prerequisite: Nil • Corequisites: Nil

This is a subject in the Graduate Diploma of Engineering (Construction Management).
Content

CE771 Construction Project Control
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil
This is a subject in the Graduate Diploma of Engineering (Construction Management).
Aims and objectives
To develop research and self-educative skills.
Content
Formation of hypothesis and setting of objectives, establishing reference sources, literature review, layout of thesis, incl chapter and sub chapter headings, Experimental Design, Data gathering, Poster papers, Preparation of reports. Students work individually on a project dealing with an aspect of construction management or technology preferably related to their employment or to a data base in a construction firm. A literature survey is required. A state of the art report is prepared.
Recommended reading
Gees, R., Writing the Modern Research Paper, Allyn and Bacon, Boston, 1987
Leedy, F.D., Practical Research: planning and design, Maxwell Macmillan International, NY, 1993

CE772 Construction Technology
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Assessment: Assignments, Tests
This is a subject in the Graduate Diploma of Engineering (Construction Management), Master of Engineering (Construction Management) and the Master of Business Administration.
Aims and objectives
To develop an understanding of Construction Building Systems and their most efficient use.
Content
Construction and building systems; prediction of performance, cost of production, system optimisation; computer based system modelling; maintenance and safety.
Textbooks
Illingworth, J.R., Construction Methods and Planning, Spon, 1993
CIDA, Building Best Practice in the Construction Industry, CIDA, 1994
Neil, C.C., Robotics for Construction, CSIRO, 1991

CE773 Research Project
50 Credit Points • One year • Hawthorn • Prerequisite: Nil • Teaching methods: Practical work and data gathering requiring regular meetings with supervisor, class presentations and seminars • Assessment: Continuous; Oral Presentation; Project Report; Thesis
This is a subject in the Master of Engineering (Construction Management) and the Master of Engineering in Pavement Technology.
Aims and objectives
To develop students’ knowledge, initiative and self-educative skills through work on a research project in an area relevant to the course.
Content
This subject gives students the opportunity to apply subject matter studied in earlier subjects to construction and building related problems. Students will work individually or in small groups on selected projects which, where possible, will be industry-based and sponsored and have direct relevance to the students’ area of employment. Interaction between professional engineers in industry, supervising staff at Swinburne and students will help develop the students’ competence. External supervisors may be appointed in addition to staff supervisors. Projects will usually require a literature survey and a theoretical and/or experimental investigation. Results and conclusions will be presented in oral and written report form.

CE777 Quantity Surveying B
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil
This is a subject in the Graduate Diploma of Engineering (Construction Management) and the Master of Engineering (Construction Management).
Aims and objectives
To enable the student to prepare estimates at various stages of a project to different levels of accuracy incorporating overheads and variations using computer programs.
Content
Estimate preparation at the pre-design, design and tender stages, establishing the accuracy of estimating methods and the associated risks, assessment of overheads and margins and the incorporation into estimates, evaluate the implications of rise and fall clauses, evaluate sub-contract quotations and the implications of appended conditions, estimates of Civil Engineering works, co-ordination of the preparation of a major tender, statistical estimating methods, use of standard computer packages.

CE790 Financial Project Control
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Teaching methods: lecture tutorial discussion • Assessment: Oral Presentation; Participation; Report
This is a subject in the Graduate Diploma of Engineering (Construction Management) and the Graduate Certificate of Engineering in Pavement Technology, Graduate Diploma of Engineering in Pavement Technology, and the Master of Engineering in Pavement Technology.
Content
This subject introduces financial concepts that are important in evaluating projects, in financing projects; in financial control and in determining the profitability of projects. Cost control; financial control; determination of profitability; evaluation of projects; evaluation of sources of finance.

CE791 Human Resource Management
5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Assessment: Seminar
This is a subject in the Master of Engineering (Construction Management).
Aims and objectives
To make the student aware of the technique of human resource management.
Content
Client contractor, sub-contractor relations, safety, personnel administration, individual and group psychology, industrial psychology, structure and role of the trade unions, human resource management.
Recommended reading
Australia to 1 April 1981, 2nd Edn consolidated, North Ryde, N.S.W, CDH Australia 1991
Noise and Hearing Conservation, Mørstedt, W., Safety first in Australia for the Victorian Employers Fedn, 1989
Smith, D.W. and Rawson, D.W., Trade Union Law in Australia The Legal Status of Australian Trade Unions. 2nd Edn Sydney, Butterworths, 1984

CE792 Health and Safety in Construction
5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Assessment: Assignments, Seminars
This is a subject in the Master of Engineering (Construction Management).
Aims and objectives
To make the student aware of the effect of construction work on society and the environment.
Content
Control of pollution, effect of construction work on the environment, noise control, methods of dealing with objections from the public to proposed works, statutory
regulations regarding safety and protection of the public, demolition requirements, hazardous aspects of construction, occupational health and safety, workcare.

**Recommended reading**

**CE793 Construction Law**

10 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Assessment: Assignments; Seminars

This is a subject in the Master of Engineering (Construction Management) and the Master of Business Administration.

**Aims and objectives**
To give the student an appreciation of the legal and contractual responsibilities within construction operations.

**Content**

**Recommended reading**

**CE794 Financial Management**

10 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Assessment: Assignments; Seminar

This is a subject in the Master of Engineering (Construction Management).

**Aims and objectives**
To give the student knowledge of the financial consideration of company operations from site level to financial strategy.

**Content**
- Principles of economics, cost control systems, cash flow forecasting, financing of projects, bidding and negotiation of contracts, computer modelling, bidding models, feasibility of projects, assessment of viability.

**Recommended reading**

**CE795 Infrastructure Asset Management**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil

This is a subject in the Graduate Diploma of Engineering (Construction Management) and the Master of Engineering (Construction Management).

**Aims and objectives**
To enable students to understand the requirements of managing large Civil Engineering systems.

**Content**
- Asset management principles, deterioration models, intervention points for maintenance, maintenance levels, routine maintenance, rehabilitation, reconstruction, assessment of performance of an asset, life prediction, life cycle of an asset, construction costs vs total operating cost, establishment of the accepted operational standard of a system, operational cost and performance.

**CHB101 Chemistry 1**

10 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil

This is a first year subject in the Bachelor of Applied Science (Chemistry, Biochemistry/Chemistry) and Psychology / Biochemistry.

**Aims and objectives**
To introduce the concepts of the nature of chemicals, chemical reactions and chemical equilibria in an aqueous environment.

To develop basic laboratory skills and techniques for the study of chemical reactions and for the analysis of chemicals in various environments.

To develop expertise in the area of general chemistry, with a view to preparation for further studies as well as providing a rounded background in chemistry.

**Content**
- The nature of chemicals
- Stoichiometry and chemical reactions
- Chemical periodicity
- Chemical equilibria
- Mathematical methods in chemistry
- Acids and bases
- Solubility and complex equilibria
- Practical work

**Recommended reading**

**CHB102 Chemistry 2**

10 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil

This is a first year subject in the Bachelor of Applied Science (Chemistry, Biochemistry/Chemistry) and Psychology / Biochemistry.

**Aims and objectives**
To introduce the fundamentals of modern chemistry.

**Content**
- Classes of reactions and reaction mechanisms. Reactions of classes of organic compounds.

**Reference**

**CHB112 Chemistry 2**

10 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil

This is a first year subject in the Bachelor of Applied Science (Chemistry, Biochemistry/Chemistry) and Psychology / Biochemistry.

**Aims and objectives**
- To build on the laboratory skills and techniques introduced in CHB101.
- To conduct experiments that complement the lectures in CHB102.

**Content**
- Physical Chemistry - Conductimetric study of the kinetics of a organic reaction.
- Inorganic Analytical Chemistry - Quantitative analysis using acid-base, potentiometric, complexometric titrations and precipitation titrations.
- Gravimetric analysis. Complex ion and precipitation reactions.

**Reference**
CHB151 Biology 1
10 Credit Points • One Semester • 4 hours per week • Hawthorn • Prerequisites: Nil • Corequisites: Nil
This is a first year subject in the Bachelor of Applied Science, Chemistry, Biochemistry/Chemistry, Biochemistry/Psychology, Environmental Health and Bachelor of Arts

Content
The subject introduces the cell as the basic biological unit, considers tissues as aggregates of cells with specialised functions and then proceeds to treat the following systems in some detail.

Cardiovascular system properties of blood; anatomy and physiology of the heart.
Mechanical and electrical events of the cardiac cycle; cardiac output. Regulation of heart rate and blood pressure, haemostasis.
Respiratory system anatomy of the respiratory system; gas exchange and transport; control of respiration. The properties of haemoglobin.
Renal system and water balance structure of the kidney and urinary system. Basic renal processes. Regulation of extracellular volume and osmolality.
Digestive system the arrangement and functions of the digestive system.
Skeletal system calcium regulation, structure of bone.
Muscular system types of muscle and their roles. Mechanism of contraction. Conduction in the heart.
Immune systems, reticulo endothelial system. Inflammation, phagocytosis; lymphocytes, cell-mediated immunity; antibody-mediated immunity.
Nervous system nerves and excitability; transmission, the synapse, simple reflex arc. Overview of functions and structures in the central nervous system.
Endocrine system functions, major glands, their products and functions.
Reproductive system anatomy, gametogenesis, contraception, pregnancy.
Integration of body systems, responses to stresses such as exercise, shock.
Practical work in the course includes use of the microscope in the examination of cells and tissues, the testing of body parameters and physiological functions using charts, biological models and equipment.

Reference

CHB152 Biology 2
10 Credit Points • One Semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
This is a first year subject in the Bachelor of Applied Science, Chemistry, Biochemistry/Chemistry, Biochemistry/Psychology, Environmental Health and Bachelor of Arts

Aims and objectives
To develop insights into the cell as the basic functional unit of the biological world.
To understand the morphology of the cell and the roles of the various sub-cellular structures and organelles.
To develop an appreciation of the role of enzymes in the functioning of cells, and the role of biochemical pathways in effecting chemical conversions within the cell.
To develop an introductory understanding of the nature of the world of microorganisms.
To develop at introductory level an understanding of the way in which DNA determines the characteristics of organisms.

Content
Chemical basis of nutrition - Basic biochemistry, chemical composition of cells. General structures and function of carbohydrate, protein and fat. Role of enzymes, coenzymes and mineral elements in metabolism. Metabolism of glucose.
Metabolism of fat.
Basic microbiology - Elements of microbial world covering viruses, rickettsia, bacteria, algae, protozoa and fungi. Methods of growing, isolating and handling micro-organisms. Microbes and pathogenicity.
Practical work covering the above topics.

Reference
To be advised by lecturers.

CHB201 Chemistry 3
10 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
This is a second year subject in the Bachelor of Applied Science (Chemistry and Biochemistry/Chemistry).

Aims and objectives
To build upon the analytical chemistry base of CHB101 and CHB102.
To introduce students to the physical principles and the methodologies of the practice of analytical spectroscopy and chromatography.
To extend students’ knowledge of thermodynamics to a mature view.
To commence the systematic exposure of students to the broad realm of organic chemistry.

Content
Chromatography - The separation process, systematic relationships governing the chromatographic process, typical GC and HPLC instrumentation and processes and adaptations to commonplace applications.
Spectroscopy - Basic principles and instrumentation, atomic absorption and emission spectroscopy, infrared spectroscopy and ultraviolet/visible spectroscopy.
Thermodynamics - Revision of enthalpy, heat capacity and the Kirchoff equation, the second law of thermodynamics, entropy, free energy and spontaneity. Projection of spontaneity predictions to alternative temperatures. Calculation of equilibrium constants from tabulated data. Chemical potentials. Available work.

References
Atomic and Molecular Spectroscopy printed notes
Chromatography printed notes

CHB202 Chemistry 4
10 Credit Points • One semester • Hawthorn • Prerequisite: CHB201 • Corequisites: Nil
This is a second year subject in the Bachelor of Applied Science (Chemistry and Biochemistry/Chemistry).

Aims and objectives
To develop an understanding of phase diagrams and to demonstrate the application to commonplace methods of purification.
To interpret trends in inorganic data and apply these principles to main group and transition metal elements and compounds.

Content
Phase Equilibria - Chemical potentials, spontaneous diffusion and stable phases. The Gibb’s Phase Rule, the lever rule, one and two component phase diagrams, fractional and steam distillation, solvent extraction, melting point test for purity, fractional crystallisation and zone refining.
Organic Chemistry - Acidity, basicity, carbanions and application to synthesis.
Trends in Inorganic Data - Periodic trends in atomic properties. Bonding, structure, and physical properties.
Thermodynamic and kinetic principles
Thermochemical cycles. Acid-base and redox data.

Elements and Compounds - This topic applies the principles developed in the previous topic, Main group elements and the transition metals. Main group fluorides, oxides and hydrides. Comparison with corresponding transition metal compounds.

CHB211 Practical Chemistry 3
10 Credit Points • One semester • Hawthorn • Prerequisite: CHB102, CHB112 • Corequisites: Nil
This is a second year subject in the Bachelor of Applied Science (Chemistry) and Bachelor of Applied Science (Biochemistry/Chemistry).

Aims and objectives
To build upon the practical analytical chemistry base of CHB101 and CHB112.
To school students in high precision and accuracy wet bench quantitative analysis.
- To introduce students to the practice of instrumental analytical spectroscopy and chromatography for quantitative analysis.

**Content**
- Quantitative analysis using
- Volumetric titration
- UV-visible spectrophotometry
- Atomic absorption spectroscopy
- Gas chromatography
- High performance liquid chromatography

**References**
Analytical Chemistry (CHB211) Practical Manual
Atomic and Molecular Spectroscopy printed notes
Chromatography printed notes

**CHB212 Practical Chemistry 4**

10 Credit Points • One semester • Hawthorn • Prerequisite: CHB201, CHB112 • Corequisites: Nil
This is a second year subject in the Bachelor of Applied Science (Chemistry and Biochemistry/Chemistry).

**Aims and objectives**
- To build upon the practical chemistry base of CHB201, CHB112.
- To extend skills and techniques in basic organic chemistry and the safe handling of hazardous materials.
- To learn to use appropriate laboratory equipment and instruments.

**Content**
Experiments using organic chemicals which expose students to the following techniques:
- Extraction
- Distillation
- Purification
- Instrumental analysis
- Macroscale and microscale synthesis
- Chromatography

**References**
Organic Chemistry (CHB212) Practical Manual

**CHB221 Professional Skills 1**

10 Credit Points • One semester • Hawthorn • Prerequisite: CHB102, SK190 • Corequisites: Nil
This is a second year subject in the Bachelor of Applied Science (Chemistry) and Bachelor of Applied Science (Chemistry/Chemistry).

**Aims and objectives**
- To be confident and competent using a personal computer with the software packages DOS, Windows, Excel, Word, Access and ChemWindows.
- To quantitatively interpret information in a spreadsheet and on a graph.
- To prepare clear and well-presented documents containing scientific information.
- To be familiar with uses of computers for communications.
- To be competent at using library resources to find and research information.

**Content**
- Computers in Chemistry (3 hours per week) - Common software packages including DOS, Windows, Excel, Word and Access. Applications involving the processing of chemical information using these packages and ChemWindow (for chemical structures). Simulation of chromatographic resolution and kinetics using Excel. Communications via the internet using email, telnet, FTP and the World Wide Web. Writing pages in HTML.
- Scientific Communications (1 hour per week) - Written report on a scientific issue for a lay audience. Small poster resume. Library orientation and assignments.

**Reference**
Computers in Chemistry printed notes

**CHB222 Professional Skills 2**

10 Credit Points • One semester • Hawthorn • Prerequisite: CHB221 • Corequisites: Nil
This is a second year subject in the Bachelor of Applied Science (Chemistry and Biochemistry/Chemistry).

**Aims and objectives**
- To quantitatively interpret information in a spreadsheet and on a graph.
- To understand the geometry of organic molecules.
- To understand the reactions and calculations associated with acid/base chemistry.
- To understand and apply standard statistical methods for the processing of chemical data.
- To be aware of Occupational Health and Safety legislation and issues.
- To be able to communicate clearly in a given written format.
- To prepare students for IBL in the chemical industry.

**Content**
- Computers in Chemistry (3 hours per week) - Creation of organic molecules and structure optimisation using Desktop Molecular Modeller.
- Statistical treatment of chemical data using Excel. Errors, normal distribution, confidence limits, significance tests, lines and curves of best fit and quality control charts.
- Industrial Based Learning (IBL) Orientation (1 hour per week) - Written technical report in a specified journal format. Full resume for IBL employers. Orientation to Occupational Health and Safety (OHS) legislation and issues. Talks on Intellectual Property and Patents and quality issues (TQM, GLP, GMP).

**Reference**
Computers in Chemistry printed notes

**CHB230 Chemicals in the Environment**

10 Credit Points • One semester • Hawthorn • Prerequisite: CHB102, CHB112 • Corequisites: Nil
This is a second year subject in the Bachelor of Applied Science (Chemistry).

**Aims and objectives**
- To study the processes which distribute chemicals in the environment.
- To study methods to classify waste.
- To study the processes which distribute chemicals in the environment.

**Content**
- To understand the reactions and calculations associated with acid/base chemistry.
- To quantitatively interpret information in a spreadsheet and on a graph.
- To be able to communicate clearly in a given written format.
- To understand the geometry of organic molecules.
- To understand the reactions and calculations associated with acid/base chemistry.
- To understand and apply standard statistical methods for the processing of chemical data.
- To be aware of Occupational Health and Safety legislation and issues.
- To be able to communicate clearly in a given written format.
- To prepare students for IBL in the chemical industry.

**Reference**
Computers in Chemistry printed notes

**CHB231 Chemicals in the Environment**

10 Credit Points • One semester • Hawthorn • Prerequisite: CHB102, CHB112 • Corequisites: Nil
This is a second year subject in the Bachelor of Applied Science (Chemistry).

**Aims and objectives**
- To study the processes which distribute chemicals in the environment.
- To study methods to classify waste.
- To study methods of identifying and assessing the environmental impact of chemicals.

**Content**
- To introduce fundamental concepts in manufacturing chemistry with relevant applications.

**Reference**
Computers in Chemistry printed notes

**CHB232 Manufacturing Chemistry**

10 Credit Points • One semester • Hawthorn • Prerequisite: CHB221 • Corequisites: Nil
This is a second year subject in the Bachelor of Applied Science (Chemistry).

**Aims and objectives**
- To prepare students for IBL in the chemical industry in Australia and overseas.
- To introduce fundamental concepts in manufacturing chemistry with relevant applications.

**Content**
- Extraction of Metals and Recycling - Application of thermodynamics to the extraction of metals from their ores and wastes. Selected elements will be studied in detail.

**Reference**
Computers in Chemistry printed notes
CHB251 Microbiology 1

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ES2630 • Corequisites: Nil
This is a first year subject in the Bachelor of Applied Science, Chemistry, Biochemistry/Chemistry, Biochemistry/Psychology, Environmental Health and Bachelor of Arts

Aims and objectives
To provide students with a general introduction to the scope of microbiology and methods of studying and handling microorganisms.
To develop a wide variety of laboratory skills in handling microorganisms.

Content
Basic microbiology and general anatomy of the bacterial cell. Structure and function of bacterial components. Bacterial nutrition and growth. Types and composition of media for growth. Special growth techniques including anaerobic, enrichment. Counting techniques as a method for measuring bacterial growth. These will also include simple field techniques such as millipore filtration and MPN counts. Sterilisation methods. A wide range of physical and chemical methods of sterilisation and disinfection will be taught. The methods will range from heat and radiation methods which are suitable for laboratories to chemicals and chlorine which are suitable for extensive waterways. Practical work will be conducted in conjunction with the above topics.

References

CHB252 Microbiology 2

10 Credit Points • One semester • Hawthorn • Prerequisite: ES2620, ES2630 • Corequisites: Nil
This is a first year subject in the Bachelor of Applied Science, Chemistry, Biochemistry/Chemistry, Biochemistry/Psychology, Environmental Health and Bachelor of Arts

Aims and objectives
• To introduce the role and range of microorganisms in industrial microbiology with particular reference to food microbiology.
• To develop skills in handling, isolating and identifying pathogenic and industrially important organisms.
• To develop skills in handling food and environmental samples.
• To demonstrate the basis of pathogenicity of certain microorganisms.

References

CHB261 Biochemistry 1

10 Credit Points • One semester • Hawthorn • Prerequisite: CHB152, CHB102, CHB112 • Corequisites: Nil
This is a first year subject in the Bachelor of Applied Science, Chemistry, Biochemistry/Chemistry, Biochemistry/Psychology, Environmental Health and Bachelor of Arts

Aims and objectives
• To install knowledge of detailed structures of biomolecules.
• To develop an understanding of enzyme structure, mechanisms, kinetics (including the roles of coenzymes, cofactors, activators, inhibitors).
• To develop a practical abilities in techniques for handling macromolecules such as enzymes.
• To develop a detailed understanding of the main catabolic pathways, especially in relation to energy transformations and inter-relationships of the pathways.

References
Mathews, C.K. and Van Holde, K.E. Biochemistry. 2nd Edn Benjamin-Cummings, California, 1996
Stryer, L. Biochemistry. 4th Edn Freeman, NY, 1995

CHB262 Biochemistry 2

10 Credit Points • One semester • Hawthorn • Prerequisite: ES2620, ES2630 • Corequisites: Nil
This is a second year subject in the Bachelor of Applied Science (Biochemistry) and Psychology (Biochemistry).

Aims and objectives
• To introduce metabolic pathways leading to anaplerotic and anabolic sequences, demonstrate points of intersection of metabolism and illustrate methods of control leading to selective use of pathways.
• To illustrate laboratory skills in biochemistry which are relevant to elucidation of the material taught in theory.

Content
• Anabolic pathways biosynthetic pathways leading to glucose, glycogen, lipid, protein, DNA.
• Hexosemonophosphate pathway
• Gluconogenesis
• Glycolate pathway
• Lipid breakdown and biosynthesis
• Purine biosynthesis
• Pyrimidine biosynthesis
• Synthesis and replication of nucleic acids
• Transcription
• Translation
• Protein and enzyme synthesis
• Regulation and control of metabolism. Control mechanisms operating at the level of the gene and at enzyme level. Examples will be drawn from fermentation pathways.
• Laboratory exercises include protein purification and analysis, and experiments in metabolism and metabolic control.
• Techniques include thin layer chromatography, gel filtration, selective precipitation, ion exchange, gel electrophoresis, spectrophotometric and enzymatic analysis of metabolites and the use of the oxygen electrode.

References
Mathews, C.K. and Van Holde, K.E., Biochemistry. 2nd Edn Benjamin-Cummings, California, 1996
Stryer, L., Biochemistry. 4th Edn Freeman, NY, 1995

CP700 Environmental Systems

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Assignments; Examinations
This is a subject in Graduate Diploma and Masters in Cleaner Production.

Aims and objectives
• To provide an understanding of the philosophy of ecologically sustainable development
• To provide an understanding of eco-cycles and the environmental impacts upon them of industrial systems
• To provide a knowledge of industrial toxicology in air, land and water systems as local and global factors
This subject will provide a basis for understanding natural systems and the detrimental effect of industry on global ecological sustainability. It will show how the various systems are linked in interdependency, and the fragile balance that is necessary for stability.

Content
• Biological cycles: the carbon cycle, the water cycle
• Biological food chains
• Groundwater and soil systems
• Eco-systems and biological inter-relationships
• Case Studies
CP701 Environmental Economics

12.5 Credit Points  One semester  Hawthorn  Prerequisite: Nil  Corequisites: Nil  Assessment: Assignments; Examinations

This is a subject in Graduate Diploma and Masters in Cleaner Production.

Aims and objectives

- To investigate the claim that high environmental performance is not contrary to profit earning.
- To study the introduction of environmental accounting into the business environment.
- To study the ramifications of ISO 14000 and risk assessment on business management.

Environmental issues mentally equate to high costs in industry. This subject will show that correct waste accounting offers potential to save money and reduce risk. It will also show the role of ISO 14000 on management systems to provide assured and consistent finance for the effectual application of Cleaner Production.

Content

- Adding waste costs to cost centres management
- The potential value of the waste steams
- Financial balances on material balances
- Business/factory simulation of production and wastes
- Financial assessments of new/modified technologies/techniques
- Pay-back calculations for environmental projects
- Quick fix (local and global) and effects on economies
- Technology change versus process equipment life
- Risk assessments
- Scope of ISO 14000 series
- Business and economic ramifications of ISO 14000
- Links between cleaner production and ISO 14000
- Value of emissions

Recommended reading


CP702 Eco-Design and Auditing

12.5 Credit Points  One semester  Hawthorn  Prerequisite: Nil  Corequisites: Nil  Assessment: Assignments; Examinations

This is a subject in Graduate Diploma and Masters in Cleaner Production.

Aims and objectives

- To study the effects on the environment of processes, products and consumption from acquisition of raw materials to manufacture, use and post-use, and compare these effects with alternatives
- To study the eco-audit or waste minimisation process in details with examples.

This subject contains some of the key issues of Cleaner Production philosophy and practise and compares past practise in thinking and production with alternative, more environmentally friendly approaches to industrial systems.

Content

- Life Cycle Diagrams
- Life Cycle Assessment: principles, models, mathematics
- Eco-design for processes with examples
- Eco-design for products with examples
- Eco-design for consumption and purchasing power
- Eco-Audit: the ten steps in detail
- Material Balances: examples and computer models
- Audit problems, obstacles, institutional drag

Recommended reading

RMIT Centre for Design
UNEP Network for Sustainable Product Development
Journal of Cleaner Production, UK

CP703 Cleaner Production in Industry - Part 1

12.5 Credit Points  One Semester  Hawthorn  Prerequisite: Nil  Corequisites: Nil  Assessment: Assignments; Examinations

This is a subject in Graduate Diploma and Masters in Cleaner Production.

Aims and objectives

- To study the applications of best practice and changes to cleaner production, in a variety of industries related to metals production, mechanical manufacturing and industry services
- To demonstrate best practice using actual case studies

Content

- Mining, refining and casting of metals
- Metal fabrication and finishing, including heat treatment, pretreatments, electroplating, galvanising, anodising, paint and powder coating, and electronics
- Auto and white goods industries, including repairability and recyclability, rejects and scrap, CAD-CAM design and universal components
- Transport and fuels - air, sea and land travel with oil, diesel, petrol, gas, water, hydrogen etc
- Power generation including hydro, fossil fuel, solar, wind, tidal and nuclear
- Refrigeration and air conditioning
- Electro and magnetic processes, microwave etc
- Building, construction, maintenance and operation
- Hospitality industries
- Monitoring by sensors including infra red, remote techniques, image analysis and interpretation
- Case studies in cleaner production in the water cycle
- Water utilities: industrial and municipal water
- Catchment management systems

Recommended reading

To be advised

CP704 Cleaner Production in Industry - Part 2

12.5 Credit Points  One Semester  Hawthorn  Prerequisite: Nil  Corequisites: Nil  Assessment: Assignments; Examinations

This is a subject in Graduate Diploma and Masters in Cleaner Production.

Aims and objectives

- To study the applications of best practice and changes to Cleaner Production across the broad scope of Chemical Process Industries and Technologies
- To demonstrate best practice using actual case studies

This subject is one of the three that will give practical meaning to the application of Cleaner Production across a broad scope of industrial sectors.

Content

- Plant location, layout, process flow, services
- Reaction energies - heat energy balances, waste heat recovery
- Petrochemicals and plastics
- Oil and solvent use and recovery
- Chemicals manufacture
- High temperature pyrolysis, destruction
- Textiles and tanneries
- Pulp and Paper
- Glass, ceramics and cement
- Printing and photography
- Rubber
- Dry cleaning
- Biotechnology and cleaner production

Swinburne University of Technology | 1999 Higher Education Handbook
Aims and objectives
- To conduct specific case studies to demonstrate best practice using actual case studies
- To study the applications of best practice and changes to Cleaner Production across the broad scope of Primary and packaged Food Industries
- To demonstrate best practice using actual case studies
This subject is one of the three that will give practical meaning to the application of Cleaner Production across a broad scope of industrial sectors.

Content
- Soil - NPK, trace elements, poisons, remediation, additives
- Forest industries - farming, harvesting, timber preservation and substitutes
- Dairy industry and associated products
- Meat industry - abattoirs, rendering, stock, poultry, fisheries and fish farming
- Crops - wheat, rice, vegetables, fruit
- Beverages - water, fruit juice, brewing, wine making
- Food wastes - composting, vermiculture, co-generation, bio-filters, micro-organisms
- Farming chemicals - fertilisers, insecticides, pesticides, herbicides, organic farming
- Package food - preservation, packaging
- Pharmaceuticals

Recommended reading
To be advised

CP705 Cleaner Production in Industry - Part 3
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Assignments; Examinations
This is a subject in Graduate Diploma and Masters in Cleaner Production.

Aims and objectives
- To study the applications of best practice and changes to Cleaner Production across the broad scope of Primary and packaged Food Industries
- To demonstrate best practice using actual case studies
This subject is one of the three that will give practical meaning to the application of Cleaner Production across a broad scope of industrial sectors.

Content
- Soils - NPK, trace elements, poisons, remediation, additives
- Forest industries - farming, harvesting, timber preservation and substitutes
- Dairy industry and associated products
- Meat industry - abattoirs, rendering, stock, poultry, fisheries and fish farming
- Crops - wheat, rice, vegetables, fruit
- Beverages - water, fruit juice, brewing, wine making
- Food wastes - composting, vermiculture, co-generation, bio-filters, micro-organisms
- Farming chemicals - fertilisers, insecticides, pesticides, herbicides, organic farming
- Package food - preservation, packaging
- Pharmaceuticals

Recommended reading
To be advised

CP800 Cleaner Production Research Project
25 Credit Points • Two semesters • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Assignments; Examinations
This is a subject in Masters of Cleaner Production.

Aims and objectives
- To provide students with the opportunity to use the knowledge obtained in the course to undertake an industry based project.
This subject will enable students to put their knowledge of Cleaner Production into practical use in industry and gain valuable experience working in a company.

Content
- Detailed literature and data base survey on the industry
- Effective liaison with management and workforce in a company
- Identification and quantification of wastes in the company
- Develop a number of alternative strategies/technologies to assist the company in waste minimisation and at least one area of the company’s manufacturing facility
- Technical and economic assessment of recommended changes
- Preparation of final report as a proposal to the company for the recommended changes

Recommended reading
Not applicable.

D3D303 3D Studio 2
12.5 Credit Points • 6 hours per week • Semester 2 • Prahran • Prerequisites: D3D302
Teaching methods: Project work will be undertaken in a studio context supplemented by work in tutorial groups, continuous critical review of work in progress, working in small teams and group discussion. The briefs will be supported by presentations of visual and background research in a group tutorial situation by staff and/or students · Assessment: Continuous
A Year 3 subject (elective) in the Bachelor of Design (Graphic Design)

Aims and objectives
- To conduct specific case studies to demonstrate best practice using actual case studies
- To study the applications of best practice and changes to Cleaner Production across the broad scope of Primary and packaged Food Industries
- To demonstrate best practice using actual case studies
This subject is one of the three that will give practical meaning to the application of Cleaner Production across a broad scope of industrial sectors.

Content
- Soil - NPK, trace elements, poisons, remediation, additives
- Forest industries - farming, harvesting, timber preservation and substitutes
- Dairy industry and associated products
- Meat industry - abattoirs, rendering, stock, poultry, fisheries and fish farming
- Crops - wheat, rice, vegetables, fruit
- Beverages - water, fruit juice, brewing, wine making
- Food wastes - composting, vermiculture, co-generation, bio-filters, micro-organisms
- Farming chemicals - fertilisers, insecticides, pesticides, herbicides, organic farming
- Package food - preservation, packaging
- Pharmaceuticals

Recommended reading
To be advised
Discusses specific examples of how companies combine strategic processes to build

Using the external and internal strategic analysis and planning model from Master level Content

an understanding as to how alternative strategic approaches that ‘break the rules’

insights into how successful companies are ‘breaking the rules’ of traditional Business Policy can dramatically change the competitive

implementation; and

brilliance of the strategy formulation, and an understanding of how to achieve such thorough and well-managed implementation of strategy as on the creative


4th Edn, Irwin. 

Aims and objectives

The Practicum is designed to ensure that candidates have the methodological requirements to successfully carry out the demands of the thesis. This means that candidates will be given both group and personal guidance in research question formulation to ensure that the research is sufficiently contained but sufficiently deep to enable the completion of the thesis within manageable time parameters. It will guide participants to an appropriate methodology or methodologies, which may be qualitative or quantitative. No assumption is made in the Practicum that one or other of these basic orientations to research is privileged. Instead, selection of methodology(ies) will be seen in a holistic light of suitability to answer the research question(s).

Texts


Aims and objectives

The thesis of approximately 40,000 words is expected to represent a major advancement in professional practice. A thesis may relate to any of the Advanced Seminars or combination of them. By negotiation, a thesis may be undertaken within any of the functional areas of an organisation, eg information systems, marketing, accounting, organisation behaviour but is not restricted to those areas. For example, there are emerging areas for research which offer exciting possibilities, including small business management and family businesses. The thesis will demonstrate that the candidate can appropriate and then apply the conceptual and methodological material offered in the Advanced Seminars and Practicum of the DBA. This is to emphasise the concept of praxis, specifically, theory in practice.

In particular it will demonstrate the candidate’s capacity to critically evaluate relevant concepts and methods and demonstrate that the candidate has the capacity to describe clearly, argue cogently and communicate appropriately.

The primary task of supervision of a candidate’s thesis will be undertaken by staff from within Swinburne University of Technology. However, joint Swinburne/industry supervision is expected within an environment where the industry supervisor is an expert in the field. But, in all cases, the industry supervisor will be a second supervisor not the coordinating supervisor.

Aims and objectives

Aims and objectives

Aims and objectives

Aims and objectives

Aims and objectives

The Practicum is to emphasise the concept of praxis, specifically, theory in practice. It is intended that the questions of the Thesis Defence Panel will search the candidate’s knowledge of each of the sections of the thesis in a spirit of helpful/supportive inquiry and also provide an avenue for informing teaching, research and thesis examination. It is expected that this process will highlight the connections which the candidate is making between theory and practice. If the oral defence is unsatisfactory, the thesis
will not be sent for examination until a further oral defence provides satisfactory outcomes. 

**B: External Examination**

1. Two examiners, where one is an Academic and the other is, preferably, from industry, with expertise in the chosen field.
2. External Examiners: The rules relating to the PhD apply here although one of the examiners may be from industry as a recognised expert in the field.

**DCP101 Core Program**

25 Credit Points • 6hrs/week • 24 weeks • Prahran • Prerequisites: All year 3 subjects, group leadership, project and production management, preparation of written quotations and creative proposals, taking a brief will be:

**Content**
- To further develop the professional design elements, basic skills and methodologies appropriate to advanced levels of specific programs. To forge strong interdisciplinary links with all program areas within the National School of Design.
- To introduce students to a wide range of staff and their areas of specialisation, creating pathways for continued support and development opportunities for future design work.

**Aims and objectives**
- To introduce fundamental design elements, basic skills and methodologies appropriate to program areas within the National School of Design. To introduce students to a wide range of staff and their areas of specialisation, creating pathways for continued support in advanced levels of specific programs. To forge strong interdisciplinary links with all cohorts of students.

**DCD401 Studio Practice**

50 Credit Points • 12 hours per week • 24 weeks • Prahran • Prerequisites: None • Teaching methods: Projects will be conducted within a studio/workshop environment. Exhibitions/site visits may be required. Students will be expected to continue with project work during non contact weeks. Groups will be derived from a mixture of students from all disciplines. Each project may include input from a number of lecturers.

**Assessment:** Project

A Year 1 Subject in the Bachelor of Design

**Aims and objectives**
- To introduce fundamental design elements, basic skills and methodologies appropriate to program areas within the National School of Design. To introduce students to a wide range of staff and their areas of specialisation, creating pathways for continued support in advanced levels of specific programs. To forge strong interdisciplinary links with all cohorts of students.
- To introduce students to a wide range of staff and their areas of specialisation, creating pathways for continued support in advanced levels of specific programs. To forge strong disciplinary links with all program areas within the National School of Design.

**Content**
- The subject contains 4 areas of activity. Each activity contains 2 projects of equal duration. The areas of activity are:
  - Drawing Studio
  - Visual Language Studio
  - Space and Time Studio
  - Solid Studio

Each studio provides for multiple outcomes in each of the project areas.

**DDC402 Design Practice**

25 Credit Points • 6 hrs/week • 24 weeks • Prahran • Prerequisites: All year 3 subjects, interview and folio presentation • Teaching methods: Projects will be conducted within a professional studio environment. Projects will be introduced via an oral and/or visual presentation of relevant material. On certain projects site visits may be required. Students will be involved in documenting the brief by preparing a return brief. The return brief will outline the aims and specific requirements of the project as determined via communicating with the client. Group work, group discussion, evaluation, research, individual consultation, critique sessions and student presentations (internal and to clients) will be conducted where appropriate. Assessment: Project

A Year 4 subject (Design Centre) in the Bachelor of Design (Graphic Design)

**Aims and objectives**
- To produce a body of graphic design work in the form of a cohesive document that demonstrates a student's advanced understanding of the process and production of graphic design.
- To produce a graphic design project that demonstrates a student's advanced ability to practice visual communication.

**Content**
- A variety of print based projects will be undertaken. The projects fall into the following categories:
  - visual identity programs
  - environmental signage
  - corporate documents
  - promotional posters
  - publication design
  - packaging
  - photographic art direction
  - typographic design

**DDC102 Design Practice 1**

25 Credit Points • 6 hours per week • 24 weeks • Prahran • Prerequisites: Nil • Teaching methods: Group discussion and evaluation, individual consultation and critique sessions will be provided. The assignments will be conducted in a studio environment supplemented by lectures, practical demonstrations and critical review of work in progress. Class exercises with project outcomes will occur regularly. Independent research will be encouraged and evidence presented in the project outcome. Assessment: Continuous.

A Year 1 Subject in the Bachelor of Design (Graphic Design)

**Aims and objectives**
- To develop an understanding of the practice of design in graphic design methods and technology.
- To introduce the fundamental aspects of the content, function and context of visual communication.

**DDG201 Design Studio 2A**

25 Credit Points • 6 hours per week • 24 weeks • Prahran • Prerequisites: DCP101 • Teaching methods: Projects will be conducted in a studio environment, on location, through lectures, student consultation/dissussion, demonstrations and critiques. Assessment: Continuous.

2nd Year Subject in the Bachelor of Design (Graphic Design)

**Aims and objectives**
- To enhance and develop knowledge and experience of visual communication through an understanding of a visual language. To establish and explore specific design projects in words, pictures, and when appropriate or possible sound and motion to convey imaginative and compelling ideas to a particular audience. To further develop aspects of design strategy in graphic design and communication design.
- To produce a body of visual communication in the form of a cohesive document that demonstrates a student's understanding of the process and production of graphic design.

**Content**
- Image generation, research, design methodologies, and synthesis will be included in applied project work. Methods and practice of idea generation will occur. Information and communication design will be explored within structured aspects of production and professional practice. Students will also explore various aspects of three dimensional design. Issues of content, context and meaning will be addressed in most projects. Project outcomes may be further developed in Computer Based Design.
Recommended reading
Stop Stealing Sheep & find out how type works, Spiekerman and Giner-Adobe Press (Prentice Hall) (1993)


DGD202 Design Studio 2B
25 Credit Points • 6 hours per week • 24 weeks • Prahran • Prerequisites: DCP101 • Teaching methods: The subject is conducted in studio practice, lectures, tutorials, student consultation, demonstrations and critiques. Sessions may include presentations by students, tutors or mentors and visiting professional designers in the studio or in industry forums • Assessment: Continuous

2nd Year Subject in the Bachelor of Design (Graphic Design)

Aims and objectives
To further investigate the form and direction of visual communication through projects that explore the potential of creative and communicative visual production. To provide evidence of ideas, design strategy and communication skills, within an emerging theoretical and practical understanding of visual communication. To negotiate and demonstrate a comprehensive studio based project, describing a major directional intent in visual communication.

Content
Design Studio 2B consists of three image making components: drawing related design, photographic related design and a design research project. Each of these components relate conceptually to Design Studio 2A and provide opportunities to develop ideas and skills in the principles, methods and technologies of design. The research project will help to reveal and substantiate a particular direction in visual communication.

All projects provide opportunities to investigate spatial organisation, pictorial representation and theories and methods of representation.

DGD203 Design Practice 2
25 Credit Points • 6 hours per week • 24 weeks • Prahran • Prerequisites: DGD102 • Teaching methods: Group discussion and evaluation, individual consultation and critique sessions will be provided. The assignments will be conducted in a studio environment supplemented by lectures, practical demonstrations and critical review of work in progress. Class exercises with project outcomes will occur regularly. Extensive independent research will be encouraged and evidence presented in the project outcome • Assessment: Continuous; Project

A Year 2 subject in the Bachelor of Design (Graphic Design)

Aims and objectives
To further develop an understanding of the practice of design in graphic design methods and technology.

To develop and refine the conceptual principles, systems and methodologies underlying the practice of graphic design.

DGD301 Design Studio 3
25 Credit Points • 6 hours per week • 24 weeks • Prahran • Prerequisites: DGD201 • Teaching methods: Project work will be undertaken in a studio context supplemented by work in tutorial groups, continuous critical review of work in progress, working in small teams and group discussion. The briefs will be supported by presentations of visual and background research in a group lecture situation by staff and/or students • Assessment: Continuous

A Year 3 subject in the Bachelor of Design (Graphic Design)

Aims and objectives
To provide the opportunity for a comprehensive investigation into the fundamentals of applied graphic design and visual communication through project work.

To utilise imagery and words, and where possible, motion and sound, to convey imaginative and innovative ideas in various media.

To further develop aspects of professional design practice.

Content
Design Studio 3 consists of two study areas: Design 3a and 3b, which are elective programmes. Students will select the elective design component from choices offered within both Design 3a and 3b.

The choices offered will cover areas such as: Design for Multimedia, Communication Design, Graphic Design, and 3D Studios.

DGG302 Design Practice 3
25 Credit Points • 6 hours per week • 24 weeks • Prahran • Prerequisites: DGD201, DGD302 • Teaching methods: lectures, tutorials, presentations, group discussions • Assessment: Continuous

A Year 3 subject in the Bachelor of Design (Graphic Design)

Aims and objectives
To provide the opportunity for the experience and understanding of the systems, methodologies and technologies relevant to contemporary design practice within local industry.

To enhance proficiencies in design project management skills and the understanding of business systems and production.

To prepare an individualised, professionally focussed folio document, this document being integral to the graduate entering the professional environment or pursuing further study.

Content
Design Practice 3 consists of 3 study areas:

Software
Lectures in a) advanced aspects of print based software and b) basic instruction of Multimedia applications for selected students. Also, Design Studio 3 project-related component.

Production Technologies
Examination of various production methodologies. Case study presentation of industry-based design projects.

Design Management
Presentation of the principles and practices involved in being professionally engaged as a design practitioner. Planning, development and design of individual, industrially focussed folio document.

DGD401 Design Studio 4
50 Credit Points • 12 hrs per week • 24 weeks • Prahran • Prerequisites: DGD301 or DBL333 • Teaching methods: Projects will generally be conducted within the studio environment on a work in progress basis. Group discussion, site visits, research, consultation, evaluation, critique sessions and presentations will be conducted where appropriate. Students will integrate design and technology investigating the limits of digital media in traditional graphic design projects • Assessment: Continuous

A Year 4 subject in the Bachelor of Design (Graphic Design)

Aims and objectives
To enhance and develop the knowledge and professional experience gained during the previous year in industry or to enhance and develop the quality of visual communication undertaken in the final year of a bachelor of design program. To explore the relationship between education and practice through specific design projects in advanced areas of visual communication. To combine words, pictures and motion to convey highly imaginative and compelling ideas to a particular audience. To further develop aspects of design leadership in design strategy and visual communication.

DGD402 Design Practice 4
25 Credit Points • 6 hours per week • 24 weeks • Prahran • Prerequisites: DGD301 or DBL333 • Teaching methods: Group discussion and evaluation, individual consultation and critique sessions will be provided. The assignments will be conducted in a studio environment supplemented by lectures, practical demonstrations and critical review of work in progress. Class exercises with project outcomes will occur regularly. Extensive independent research will be encouraged and evidence presented in the project outcome • Assessment: Continuous

A Year 4 subject in the Bachelor of Design (Hons) (Graphic Design)

Aims and objectives
Production of a body of graphic design work in the form of a cohesive document that demonstrates a student’s advanced understanding of the process and production of graphic design. Production in visual design of a specific project application that comprehensively demonstrates a student’s advanced ability to practice and communicate and critique visual communication. To further develop aspects of professional design practice by completion of a series of lectures, seminars or tutorials and a paper that demonstrates an understanding of design strategy in the advanced principles and application of design management. To further develop and apply software understanding in design.
Content

This subject is in three study areas:

Design Management
Completion of a written project that effectively describes a process of design management.

Project documentation
Completion of a sophisticated documentation project in the form of a comprehensive publication of design projects.

Professional project and mentor supervision
Completion of a project that effectively describes a designer’s professional intent through a complex description of a focused design proposal. Designers will describe their critique and communication skills in limited mentor situations.

DHCT 3 Modernism and Mass Culture

12.5 Credit Points  3 hours per week  12 weeks  Prahran  Prerequisites: DHCT12  Teaching methods: Teaching will be focussed around a program of two weekly lectures and a weekly tutorial  Assessment: Continuous; Examinations

A 2nd Year Subject in the Bachelor of Design (Graphic Design), (Industrial Design), (Interior/Exhibition Design)

Aims and objectives
To develop students’ frames of reference for design practice through an exploration of developments in design, art and consumer culture in the post-WWII period. The aim is to introduce students to the symbolic structures of material culture and further stimulate their understanding of how design objects, consumer goods and works of art function as vehicles of social and cultural meaning. The subject seeks to:

- Challenge the conventional nature of students’ historical, visual, social and cultural frames of reference.
- Stimulate thought and discussion around the nature and complex social roles of material culture.
- Consolidate research and writing skills.
- Further develop oral presentation skills and confidence in articulating ideas.
- Facilitate interchange between design and history activities.

Content
The program focuses on developments in design, art and consumer culture from the period immediately after WWII to the present, concentrating on the values and practice of late Modernism, its dissolution into Postmodernism and their relationship to post-war consumer culture, with the aim of enabling students to develop a critical discourse about design and its social role. Special emphasis is placed on contemporary debates about the relationship of elite culture to mass culture and the emergence of design for social responsibility from the 1960s on.

DHCT5 Design and the Production of Culture

12.5 Credit Points  3 hours per week  12 weeks  Prahran  Prerequisites: DHCT 4  Teaching methods: Seminar program based on excursions, set readings and class discussion. The excursions are designed to engage students in the analysis of the contemporary environment. Readings, group work and assignments aim to develop students’ ability to understand and address how perceptions of objects, social spaces and structures and even ourselves are constructed through myth and diverse cultural production, notably design  Assessment: Continuous

A Year 3 subject in the Bachelor of Design (Graphic Design)

Aims and objectives
- To consolidate students’ learning by building on their previous year’s study of Design History and Critical Theory. To engage students in the critical analysis of design as manifest in the contemporary environment and involve them in a critical and topical discourse that informs and supports the professional practice of design.
- To further develop students’ research and academic skills.

Content
The focus is on design as a mode of cultural production, with key issues being the manner in which design gives visual and physical expression to cultural and social myths. Students engage in the critical analysis of the symbolic language of the built environment, museum, retail, institutional and domestic, interior design, product design, packaging and display, graphics and signage, in order to gain an understanding of the motivations behind our production and consumption of design.

DHCT6 Commodity Design and Lifestyles

12.5 Credit Points  3 hours per week  12 weeks  Prahran  Prerequisites: DHCT5  Teaching methods: Seminar program based on excursions, set readings and class discussion. The excursions are designed to engage students in the analysis of the contemporary environment. Readings, group work and assignments aim to develop students’ ability to understand and address how perceptions of objects, social spaces and structures and even ourselves are constructed through myth and diverse cultural production, notably design  Assessment: Continuous

A Year 3 subject in the Bachelor of Design (Graphic Design)

Aims and objectives
To engage students in the critical analysis of design as manifest in the contemporary environment and involve them in a critical and topical discourse that informs and supports the professional practice of design. To develop students’ research and academic skills.

Content
The focus is commodity culture and the role of design in the construction of individual subjectivities and lifestyle narratives. This role of design in the construction of taste, and its relationship to the rise of leisure and luxury industries, and the gentrification of the inner city, are explored. Issues pertaining to social responsibility and professional ethics are also addressed.

DHCT12 Design History and Critical Theory

26 Credit Points  4 hours per week  24 weeks  Prahran  Prerequisites: Nil  Teaching methods: Weekly lectures, screenings and tutorials  Assessment: Continuous; Examinations

A 1st Year Subject in the Bachelor of Design (Graphic Design), (Industrial Design), (Interior/Exhibition Design)

Aims and objectives
To establish terms of reference that is a broad base for students by exploring developments in design and art within the context of changes in society and culture from the Industrial Revolution until World War II. The course is intended to promote an understanding of the role design and the media have played in Australian society, their relation to other cultural forms and their contribution to national identity.
Four assignments that are designed to:
- Introduce ways of viewing, analysing and discussing images, objects + ideas;
- Develop research skills and academic rigor;
- Develop written and oral language skills;
- Stimulate debate, thought, and experimentation;
- Encourage and build confidence in the individual and her/his abilities.

Content
This course covers developments in design and art; it begins with the Industrial Revolution and Neo-Classicism in the late 18th Century and charts the development of modernism in design to Streamline and Classicism in the 1920s and 30s. In addition to considering major stylistic movements in design, cultural themes such as gender, class, imperialism and nationalism will be discussed. The course incorporates the analysis of the media with an emphasis on how ideas and values are encoded and disseminated, and how audiences might respond to them.

DHCT12A Ideas, Culture and Communication
25 Credit Points • 6 hrs/week • 24 weeks • Prahran • Prerequisites: Nil • Teaching methods: Lectures, tutorials, writing workshops, excursions and class presentations. Content from Design History and Critical Theory 1 is used to develop advanced reading, research and essay-writing skills • Assessment: Continuous
1st Year Subject in all Design Programs for International Students only

Aims and objectives
- To introduce international students to different cultural modes of learning.
- To develop a framework of learning that allows for cross-cultural differences.
- To assist the international student in their transition into an Australian University environment by providing an integrated learning experience.

DIBL333 IBL Placement
75 Credit Points • 4 days per week • 48 weeks • Prahran • Prerequisites: All year 2 subjects • Teaching methods: To experience through contact, observation and practice the disciplines of the design industry while under the supervision and guidance of professional practitioners • Assessment: Participation
Year 3 IBL in the Bachelor of Design (Graphic Design)

Aims and objectives
Generally, to provide the opportunities for selected students to further their practical design education while working in industry.
Specifically, to develop practical design and production skills, to help clarify career paths, to develop interpersonal skills and to promote professional and business awareness.

Content
Students are placed in an appropriate industrial situation organised by the National School of Design in co-operation with employers.

DID103 Technology 1A
12.5 Credit Points • 6 hrs/week • 12 weeks • Prahran • Prerequisites: None • Assessment: Continuous
A Year 1 subject in the Bachelor of Design (Hons) (multimedia) and the Bachelor of Design (Industrial Design)

Aims and objectives
- To develop an understanding of the basic engineering design principles and strength of materials
- To provide awareness of commonly used engineering terminology and mechanical components
- To demonstrate proficiency in safe work practice of an engineering machineshop.

Content
This subject consists of two study areas Engineering Design and Machineshop Technology

Engineering Design
Topics covered will include:
- Introduction of the basics of engineering statics of forces, loads and strength of materials
- Analysis of the gravitation, motion, friction, free body diagrams, levers, deflection of beams and pulleys
- Principles of quantifying material characteristics and testing methods
- The application of commonly used mechanical devices ie. gears, cams etc.

Machineshop Technology
This subject introduces students to the machinery and equipment used in an engineering machineshop and explores the processes required to produce metal components and models.

Students are instructed on the safe machine working practices and Occupational Health and Safety regulations.

DID104 Technology 1B
12.5 Credit Points • 6hrs/week • 12 weeks • Prahran • Prerequisites: DID103 • Assessment: Continuous; Examinations; Project
A Year 1 subject in the Bachelor of Design (Industrial Design)

Aims and objectives
- To develop an understanding of the materials and manufacturing processes
- To gain a broad understanding of the design principles of the commonly used manufacturing processes
- To demonstrate the theory and safe work practice of modelmaking techniques used by Industrial Designers.

Content
This subject consists of two study areas Manufacturing Technology and Modelmaking Technology

Manufacturing Technology
Topics covered will include:
- Identification and categorisation of commonly used materials
- Analysis of the material and process selection
- Principles for the manufacturing and assembly of timber, ferrous and non-ferrous metals and polymers.
- Design principles for commonly used materials and processes

Modelmaking Technology
This subject explores the materials techniques and machinery used in the production of studio development models, visual models and prototypes.

Students are instructed on the safe machine working practices and Occupational Health and Safety regulations.

DID201 Design Studio 2A
25 Credit Points • 6 hrs per week • 24 weeks • Prahran • Prerequisites: DCP101 • Teaching methods: Studio tutorials and discussion sessions; Class exercises and presentations. Set assignments which allow the student to research and apply new knowledge • Assessment: Continuous
A Year 2 subject in the Bachelor of Design (Industrial Design)

Aims and objectives
To build upon and further explore the principles of design and design methodology. Students will refine their abilities to identify the key points in a design brief, and to research and explore imaginative concepts which culminate in a comprehensive design proposal.

Content
In all activities emphasis on the understanding of Design Process will be reinforced. Creative problem solving, utilising knowledge gained in all areas of study will be expected. Appreciation of 3 dimensional form and aesthetic will be developed as well as the identification of issues involved in a design brief.

Communication of ideas by 2 and 3 dimensional means, understanding of the task and comprehension of appropriate technological requirements are expected.

DID202 Design Studio 2B
25 Credit Points • 6 hrs/week • 12 weeks • Prahran • Prerequisites: DCP101 • Teaching methods: Lectures, tutorials and studio demonstrations. Appropriate involvement with external consultants will take place at various stages. Class presentations and completion of set practical exercises will be undertaken • Assessment: Continuous
A Year 2 subject in the Bachelor of Design (Industrial Design)
Aims and objectives
To provide the knowledge and skills required for the student to communicate effectively in the studio environment using oral, written, visual and digital mediums.

Content
This subject consists of two study areas:

1. Business Presentation
   - Principles and practice of technical, formal and informal presentation skills, both written and verbal.
   - Visual Presentation
   - Instruction in the use of line, color, form and graphic to effectively communicate ones ideas in various presentations.
   - Studio Design Communication

2. Design for the Market
   - Development of the skills of orthogonal, 3rd angle projections and assembly.
   - Design for the Market
   - Resource Management for successful manufacture.

DID 203 Technology 2A
12.5 Credit Points  4 hrs/week  12 weeks  Prahran  Prerequisites: DID104
Teaching methods: Weekly tutorials and studio demonstration  Assessment: Continuous

A subject in the Bachelor of Design (Industrial Design)

Aims and objectives
To develop an understanding of engineering drawing communication skills to Australian Standard AS1100.

Introduce the fundamentals of Computer Aided Drafting and Computer Aided Design (CAD)

Content
This subject consists of two areas of study:

- Engineering Drawing
- 2D CAD Drawing

Topics covered include:

- Development of the skills of orthogonal, 3rd angle projections and assembly drawings.
- Explore engineering drawing specifications of sections, dimensions, tolerancing, surface finishing and welding symbols.
- Construction of intersecting surfaces and development of surfaces.
- 2D CAD Drawing - Application of Computer Aided Drafting techniques.
- Understanding of basic commands including the use of layers, data storage and retrieval dimensioning.

Recommended reading
Student reference notes.
Engineering drawing handbook: i.e. Aust standards 1993

DID 204 Technology 2B
12.5 Credit Points  4 hrs/week  12 weeks  Prahran  Prerequisites: DID203
Assessment: Continuous; Examinations

A subject in the Bachelor of Design (Industrial Design)

Aims and objectives
To develop a further understanding of Computer Aided Design and Computer Aided Manufacture. To investigate the use of 3D Computer Aided Design as a product design tool.

Content
This subject consists of 2 areas of study:

- 3D CAD -
  - Introduction to 3D modelling, and wireframe modelling Parametric design in 3D
  - Application of 3D modelling in prototyping and machining
- 3D Studio Software
- Investigation of 3D illustration software as applicable to designers.

DID301 Design Studio 3A
25 Credit Points  5 hrs/week  24 weeks  Prahran  Prerequisites: DID201, DID202
Teaching methods: Studio tutorials, assigned project work, guest consultants, and in class presentation and feedback  Assessment: Continuous

A Year 3 subject in the Bachelor of Design (Industrial Design)

Aims and objectives
To develop independent decision making and a holistic approach to design, time/project management, and research. Appropriate work ethic, research and design skills and professional attitudes will be adopted to allow a realistic transferral into industry, or further study.

Content
Projects will introduce complex issues to challenge the student to investigate beyond the literal translation of the brief. A strong research base leading into design solutions and final outcome will be addressed through the project work to acceptable industry standard.

Recommended reading
References to printed texts, exhibitions and related gallery showings will be tabled as appropriate. Electronic mediums such as the Internet will also be utilised as a research tool.

DID302 Design Studio 3B
25 Credit Points  6 hrs/week  24 weeks  Prahran  Prerequisites: DID201, DID202
Teaching methods: Studio tutorials, assigned project work, guest consultants, in-class exercises  Assessment: Continuous; Examinations

A Year 3 subject in the Bachelor of Design (Industrial Design)

Aims and objectives
To build on issues encountered in Design Studio 3B with the emphasis on professional detailing, research presentations and further design development. Focus will also be placed on an understanding of business-related skills and creative and professional development.

Content
- Design Studio (4 hrs/per week)
  - An extension of projects developed in Design Studio 3B, with complementary exercises and research presentation.
- Professional Studies (2 hours /per week)

The following topics will be focussed on and addressed in this area. Time management, project management, briefing, design proposals, finance, written communication, personal presentation techniques and setting up a consultancy.

Recommended reading
References to printed texts, exhibitions and related gallery showings will be tabled as appropriate. Electronic mediums such as the Internet will also be utilised as a research tool. “Design Management Three” lecture notes by Robyn Robins required for Professional Studies area.

DID304 Technology 3
25 Credit Points  4hrs/week  24 weeks  Prahran  Prerequisites: DID201, DID202, DID204
Teaching methods: Weekly tutorials and regular contact with members of the design industry will assist the students to develop a greater understanding of the design and manufacturing process and allow integration of this knowledge into studio projects  Assessment: Continuous

A Year 3 subject in the Bachelor of Design (Industrial Design)

Aims and objectives
To provide an introduction to advanced manufacturing techniques and new technologies as relevant to design studio projects. In groups students will design, construct, and manage a major project encompassing all facets of engineering and industrial design.

Content
In groups students will undertake a major design and research project using advanced technologies, manufacturing techniques, ergonomic data, and prototyping/fabrication. Students will also complete and present a research paper based on an assigned technology/process individually.
AY516  Counselling Applications
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil
• Assessment: Assignments
A subject in the Master of Arts in Counselling Psychology

Aims and objectives
This subject follows on from Counselling Theory and Skills. It aims to introduce students, in a workshop context, to important topics in counselling psychology practice in preparation for students’ supervised practice and subsequent independent practice.

Content
Topics include:
• application of counselling techniques to selected client-problems e.g. depression, anxiety, anger, interpersonal-skill deficits, decision-making, crisis counselling, substance abuse, post-traumatic stress, rehabilitation, marital and family conflict, child abuse.

Other issues that may be covered include:
• cross cultural issues in counselling;
• special issues in client Assessment: level of risk of suicidal or violent behaviour, physical illness; DSM-IV;
• record-keeping and referral;
• supervision models of supervision, supervision skills;
• consultation;
• community based interventions.

Recommended reading
Sue, D.W., (1990) Counselling the Culturally Different 2nd edn, New York, Wiley

AY518  Foundations of Health Psychology
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil
• Assessment: Assignments
A subject in the Master of Arts in Health Psychology.

Aims and objectives
The aim of this subject is to provide students with an overview of research and practice in health psychology. The contributions of psychology to the promotion and maintenance of health; the prevention and treatment of illness; the identification of etiologic and diagnostic correlates of health, illness and related dysfunction; the analysis and improvement of the health care system; and the role of a health psychologist will be addressed.

Content
Topics include:
• Conceptual Models of Health and Illness
• Biological Foundations of Health and Illness
• Psychological Foundations of Health and Illness
• Social Foundations of Health
• The Role of Stress
• Promoting Health, Preventing Illness
• Biopsychosocial Approaches to Prevention and Treatment of Health Problems.

Recommended reading

AY519  Culture, Gender and Health
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil
• Assessment: Assignments
A subject in the Master of Arts in Health Psychology.

Aims and objectives
The aim of this subject is to highlight health issues which are specific to certain gender and culture groups. Social and psychological factors, as well as physical factors, play an important role in men’s and women’s reproductive and sexual health. Likewise, a mix of biopsychosocial factors influences the health of specific cultural groups within Australian society. This course will examine the special needs of these groups and highlight areas where psychologists can provide expertise to help tackle specific health problems.

Content
Topics include:
• Gender issues in Health
• Men’s and Women’s Sexual Health
• Women’s and Men’s Reproductive Health
• Gay and Lesbian Health
• Cross-Cultural Issues in Health
• Ethnicity and Health Care
• Immigrant Health
• Aboriginal Health

Recommended reading

AY520  Supervised Health Placements
AY521  A1, A2, B1 and B2
AY522
AY523
12.5 Credit Points per subject • one semester per subject • Hawthorn • Prerequisite: • Corequisites: Nil • Assessment: Continuous
Subjects in the Master of Arts in Health Psychology.

Aims and objectives
Placements are designed to provide supervised professional training in the practice of health psychology. As the practice of health psychology is diverse, placements may be undertaken in a variety of clinical and/or research agencies involved in health maintenance and promotion, disease prevention and treatment, health and lifestyle counselling, or public health policy.

Content
Placements are arranged in accordance with each student’s skill, experience level, and professional interests. Students will be expected to consult with a range of clients including individuals, families, groups, and organisations.

At least one placement may be undertaken at the Centre for Psychological Services where students will gain experience in the provision of client services using various counselling and stress management, and biofeedback therapies and techniques.

AY520  Supervised Health Placements
AY521  A1, A2, B1 and B2
AY522
AY523

AY606  Supervised Practicum Internship A1
AY607  Supervised Practicum Internship A2
12.5 Credit Points per subject • 60 work days • Hawthorn • Prerequisite: AY512 Counselling Theory and Skills • Corequisites: Nil • Assessment: Continuous
Subjects in the Master of Arts in Counselling Psychology.

Aims and objectives
These practica are concerned primarily with helping students to make the transition from the counselling laboratory to the counselling practice setting. Initially, new students will be allocated clients at the Swinburne Centre for Psychological Services. In addition, students will participate in the administration of the Centre and in dealing with...
AY610  Professional, Ethical & Legal Issues

12.5 Credit Points  • 3 hours per week  • Hawthorn  • Prerequisite: Nil  • Corequisites: Nil  • Assessment: Study Plan, Report

A subject in the Master of Arts in Counselling Psychology.

Aims and objectives
This course is designed to ensure that students understand the ethical and legal responsibilities of psychologists working in the human services. Through study of the ethical standards of the profession, and legal issues related to the practice of psychology, students will learn about the process of ethical and professional decision making.

Content
Topics covered will include the regulation of psychological practice through professional associations and registration boards, the influence of values on ethical practice, limitations on confidentiality, who is the client, report writing, dual role relationships, psychology and the law.

Recommended reading

AY611  Psychology of the Family

12.5 Credit Points  • 3 hours per week  • Hawthorn  • Prerequisite: Nil  • Assessment: Seminar presentation 40%; videotaped interview 60%

A subject in the Master of Arts in Counselling Psychology.

Aims and objectives
The subject is designed to:

• examine contemporary theory concerning the role and function of the Australian family and its interaction with the wider society;
• introduce students to theory and practice of systems approaches to family therapy;

Content
Topics include:

• introduction to the study of the family. Definitions of family, variations in Australian family structures;
• family formation, functions;
• the family life-cycle;
• family therapy and the major schools: structural, strategic, systemic;
• contributions of significant family therapists;
• generational and cross-cultural issues in family therapy. Measurement of family interactions;
• experiential exercises will be conducted to demonstrate intervention strategies with couples and families.

Recommended reading

AY613  Psychology of Work

12.5 Credit Points  • 3 hours per week  • Hawthorn  • Prerequisite: Nil  • Corequisites: Nil  • Assessment: Project

A subject in the Master of Arts in Counselling Psychology.

Aims and objectives
This course is designed to develop an understanding of counselling practice related to the person/organisation interface and workplace settings.

Content
Specific topics will include:

• Models of counselling in the workplace;
• Employee Assistance Programs;
• Work/family balance;
• Dealing with stress;
• Conflict management;
• Alcohol-related problems;
• Critical incident debriefing;
• Bullying/harassment in the workplace;
• Effects of downsizing;
• Outsplacement counselling.

Recommended reading

AY614  Aspects of Professional Practice

12.5 Credit Points  • 3 hours per week  • Hawthorn  • Prerequisite: AY608/AY609 Supervised Practicum Internship B  • Corequisites: AY608/AY609 Supervised Practicum Internship B  • Assessment: Reports

A subject in the Master of Arts in Counselling Psychology.

Aims and objectives
The aim of the subject is to consolidate the knowledge and skills gained by students during their supervised practice in order to assist the transfer of this knowledge and skill to psychological practice after graduation.
Content
A series of topics will be covered in seminar format. They will cover areas such as:

- assessment and containment of risk;
- managing therapeutic impasses and dealing with client resistance;
- termination and relapse prevention;
- working in multidisciplinary teams, appreciating other professions;
- supervising and being supervised;
- consultation skills;
- ongoing professional development;
- communication and public relations;
- psychology and contemporary social issues;
- intercultural and minority group issues.

Recommended reading

AY616 Research Project A
AY617 Research Project B

AY616 12.5 Credit Points  •  AY617 25 Credit Points  •  one semester per subject  •  Hawthorn  •  Prerequisite: AY513 Research Colloquium  •  Corequisites: Nil  •  Assessment: Research Paper

Subjects in the Master of Arts in Counselling Psychology and the Master of Arts in Health Psychology.

Aims and objectives
These subjects are designed to:

(a) enhance students’ awareness of the importance of a scientific research-base for counselling psychology, (b) to consolidate students’ practical understanding of research methodology related to counselling psychology, and (c) to contribute to the research program of the School.

Students will be assigned a supervisor in the second year of their enrolment. Each student must submit a written, detailed research proposal before they can begin their empirical research project.

At the end of the second year of enrolment students must submit a 4,000 word review of the relevant background literature. This must be in a form similar to that of a review article appearing in one of the major journals which publishes review articles related to topics in counselling psychology (e.g. Journal of Counseling Psychology, Counsellor Education and Supervision, British Journal of Guidance and Counselling).

At the end of the fourth year of enrolment each student must submit a thesis of about 10,000 words. This thesis must be accompanied by a technical supplement containing detailed results, raw data, and copies of measures used.

Recommended reading

BB702 Management and Innovation

12.5 credit points  •  one semester  •  Hawthorn  •  Prerequisite Subjects: nil  •  Teaching Methods: lecture-discussion and syndicate presentations, appropriate guest speakers from business and a combination of conventional and experiential learning  •  Assessment Method: individual assignment, syndicate assignment

A subject in the Master of Business Administration.

Aims and objectives
To provide a framework for managers to be creative and to innovate to gain sustainable competitive advantage; to examine methods for generating high value-added products; to develop the skills for managers to respond positively to changes in the operating environment; to provide an understanding of individual creativity drawing upon research findings of the last three decades.

Content
- Management of innovation
- The human brain
- Concepts of creativity
- Techniques for idea generation
- New product development and research and development
- Seeking opportunities in a changing environment
- Adapting management styles and organisation to fit change and encourage innovation
- Entrepreneurship and intrapreneurship: new ventures and risk-taking

References
Evans, J.R., Creative Thinking in the Decision and Management Sciences, South Western, 1991.  

BB804 Management and Society

12.5 credit points  •  one semester  •  Hawthorn  •  Prerequisite Subjects: nil  •  Teaching Methods: lecture-discussion and syndicate presentations, appropriate guest speakers from business and government  •  Assessment Method: case study, syndicate presentation, major essay (based on case studies), class exercises.

A subject in the Master of Business Administration.

Aims and objectives
To encourage successful and socially responsible management; to develop an understanding of the broader social and environmental context of management; to raise awareness of the importance of social legislation and the values and philosophy underlying it; to be critically aware of the traditional assumptions underlying organisational values; to develop sensitivity to other value systems including those of other cultures; to understand how value systems affect organisational decision-making; and to be aware of the moral and ethical dilemmas confronting practising managers.

Content
Identifying and clarifying values: personal and organisational, rationality, ends and means, conflict of interests, theories of ethics, corporate values.

- Environmental values.
- Justice equality and power.
- Cross-cultural values.
- Business law.
- Freedom and power.
- The meaning of work.
- Integrity and business life.
- The cultural dimension: the limits of your language are the limits of your world.

Text

Selected case studies and a reading guide will be issued.

BC110 Accounting 1

12.5 Credit Points  •  3 hours per week over 1 semester  •  Hawthorn  •  Prerequisites: Nil  •  Teaching Method: Lecture and tutorial  •  Assessment: Assignment 10%, Mid semester test 20%, Examination 70%

A subject in the Bachelor of Business.

Aims and objectives
A basic introduction to accounting concepts, financial accounting, management accounting and finance.

Content
Accounting theory and practice are examined in an historical cost accounting system. This subject includes the following topics: an introduction to accounting and financial statements; revenue and expenses; cost classification; cost, flow, profit analysis; planning and evaluating merchandising activities; internal performance evaluation; working capital management; capital structure and leverage; cash flow statements. Where appropriate, ethical considerations will be addressed.
BC220 Accounting 2
12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite: BC110 Accounting 1 or BS513 Accounting • Teaching Method: Lecture and tutorial • Assessment: Computed practice set 10%, Tests 20%, Examination 70%
A subject in the Bachelor of Business.

Aims and objectives
This subject traces the development of the accounting process as an information flow to provide the basis from which management control and decision making stems. The computerised processing of information is examined and an accounting package for microcomputers is used to facilitate it.

Content
The accounting equation is re-examined in order to prepare the balance sheet and profit and loss statement. The control of cash, debtors, stock and fixed assets are included, as are balance day adjustments and bank reconciliation statements. The internal control implications of aspects of accounting systems are also assessed.

References
Bell, A., Introductory Accounting and Finance, Thomas Nelson, Melbourne, 1990

BC221 Corporate Accounting
12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BC220 Accounting 2 • Teaching Method: Lecture and tutorial • Assessment: Assignment 5%, Test 15%, Examination 80%
A subject in the Bachelor of Business.

Aims and objectives
The overall objective of the subject is to develop in students an ability to think through corporate accounting issues and specifically:
- To develop in students an awareness of the financial accounting function within a company
- To develop students’ problem solving abilities in the application of the principles of corporate accounting to the solution of practical problems
- To develop student awareness of contemporary issues in the practice of financial accounting by reference to actual situations where appropriate
- To develop students’ independent research skills by the assignment of research areas within the course
- To develop student awareness of the interrelationship between corporate accounting and corporate law

Content
The subject covers the following areas:
- Share capital and other forms of finance
- Business combinations, including amalgamations, mergers and takeovers
- Group accounting.
Particular emphasis is placed on this topic. It includes the preparation of consolidated accounts, equity accounting and joint ventures
- Availability of profits for distribution
- Presentation of financial reports
- Reorganisation and company liquidation

References
Australian Corporations Legislation, 1999
Corporate Accounting Student Manual, Swinburne, 1999

BC222 Management Accounting 1
12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BC110 Accounting 1 • Teaching Method: Lecture and tutorial • Assessment: Tutorial participation 5%, Assignment 20%, Test 25%, Examination 50%
A subject in the Bachelor of Business.

Aims and objectives
To introduce students to the role of accounting in the planning and decision-making functions of the management process.

Content
Topics covered include basic cost concepts, cost-volume-profit analysis, cost allocation issues, budgeting, profitability analysis, and the analysis of costs for decision making. Throughout the subject students will be encouraged to:
- Utilise micro-computer based techniques for solving problems
- Focus on the relevance of accounting information to management information needs
- Critically evaluate traditional management accounting theory and practice against the contemporary literature on activity-based costing and the new technologies

References
Hansen, D.R., and Mower, M.M., Cost Management, South Western, Cincinnati, Ohio, 1995
Shillinglaw, G., Managerial Cost Accounting, 5th Edn, Irwin, Homewood, Illinois, 1982

BC223 Management Accounting 2
12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BC110 Accounting 1 and BC222 Management Accounting 1 • Teaching Method: Lecture and tutorial • Assessment: Tutorial participation 5%, Assignment 20%, Test 25%, Examination 50%
A subject in the Bachelor of Business.

Aims and objectives
To understand the characteristics and purposes of the main types of cost systems and how they provide information for costing products and services, for measuring the performance of managers and business segments and for making strategic decisions.

Content
Topics covered include job order costing, process costing, costing in the service industries, standard costing, product costing and performance measurement in the modern manufacturing environment, performance evaluation of business units, profit variance analysis.

References
Hansen, D.R., and Mower, M., Cost Management, South-Western, Cincinnati, Ohio, 1995

BC224 Financial Management 1
12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: Completion of all core subjects • Teaching Method: Lecture and tutorial • Assessment: Test 20%, Examination 80%
A subject in the Bachelor of Business.

Aims and objectives
The objectives of this subject are:
- To provide students with an understanding of the concepts of corporate finance;
- To develop in students the skills of analysis and evaluation needed to apply the concepts of corporate finance to financial management.

Content
The course is structured from the point of view of orientating the student to the concepts of corporate finance to financial management.
fundamentals of managing the financing and investment aspects of a business and covers the following specific topics:

- Concepts of valuation
- Evaluation and selection of investment projects
- Cost of capital
- Sources of finance and financial intermediaries
- Dividend policy
- Financing methods and impact on capital structure

References

A subject in the Bachelor of Business.

Aims and objectives
The broad objective of this subject is to familiarise students with the underlying concepts, objectives and reporting function of the auditor. The subject deals with both theoretical and practical aspects of auditing. The aim is to integrate the concepts of auditing with practical approaches taken by the auditor to ensure students gain a complete picture of the audit process.

Content
Theoretical topics studied include auditing methodology and the formulation of auditing standards; audit independence; the rights, duties and legal liability of auditors; ethical considerations; the audit report and the concept of risk, materiality and audit evidence, encompassing a review of internal control structures and the attendant control risk. Consideration is given to the impact of auditing in a CIS environment and different sampling methodologies. Students are given a hands-on appreciation of the use of generalised audit software in a case study assignment. Students are also introduced to the area of public sector auditing.

References
Auditing Student Manual, Swinburne University of Technology, 1999
Auditing Handbook, ICAA / ASCPS, Prentice Hall, 1999

A subject in the Bachelor of Business.

Aims and objectives
The subject examines the nature of risk in the context of financial decisions and the techniques used by management to identify and manage the risks.

Content
Specific topics include project risk analysis, options, futures and forwards, credit risk in financial institutions, swaps. Managing interest rate risk, foreign exchange risk, and portfolio risk.

References

A subject in the Bachelor of Business.

Aims and objectives
To examine the development of accounting theory and the methodology used by accounting theorists.
To describe and critically analyse a framework of accounting concepts including assets, liabilities and income.
To use the methodology and the framework developed in the subject to study specific issues in financial accounting including the development of accounting standards, agency theory, ethics and accounting for income tax, intangibles, mining and foreign currency translation.

Although the subject is concerned with theory, considerable use is made of practical problems in parts of the course to illustrate the application of theory.

Content
Topics include:
- The nature and development of accounting
- The standard setting process
- The current Conceptual Framework project
- Income theory and measurement issues
- Several specific standards are also discussed such as intangible assets, those relating to extractive industries and tax effect accounting.

Where appropriate, ethical considerations will be addressed.

Textbook

References
Bekesou, A.F. and Jones, S., Accounting Theory, Harcourt Brace, Sydney, 1996

A subject in the Bachelor of Business.

Aims and objectives
The overall course objective is to develop in students an understanding of the Income Tax Assessment Act, together with those acts which are complementary to the Assessment Act.

Specifically, the course will:
- Familiarise students with recent court and Administrative Appeals Tribunal decisions in the area of income taxation
- Develop research skills in students in relation to current and landmark taxation cases
- Introduce students to the complexities of taxation in relation to various taxable entities
- With the aid of income tax rulings and the aforementioned tax cases, develop in students an understanding of the basic concepts of income, capital, and the rules governing deductions.

It is recommended students also complete BC336 Advanced Taxation.

Content
Topics covered include the nature of assessable income, specific income types, source residency and derivation, eligible termination payments, capital gains tax, fringe benefits tax, allowable deductions and the provisions relating to companies, partnerships, and individuals.

References
Australian Tax Reporter, CCH Australia Ltd, North Ryde, N.S.W (Current Edn.)
Australian Federal Tax Reporter, CCH Australia Ltd, North Ryde, N.S.W (Current Edn.)
Australian National Tax Guide, CCH Australia Ltd, North Ryde, N.S.W. (Current Edn.)
Australian Federal Tax Reporter, CCH Australia Ltd, North Ryde, N.S.W. (Current Edn.)
Australian Tax Handbook, Butterworths, Sydney (Current Edn.)

Swinburne University of Technology | 1999 Higher Education Handbook
Subjects: BC221 Corporate Accounting and BC330 Accounting Theory  Teaching Method: Seminar  Assessment: Assignments 70%, Examination 30%

BC333 Advanced Auditing
12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite Subjects: BC225 Auditing  Teaching Method: Lecture and tutorial  Assessment: Assignments 40%, Examination 60%
A subject in the Bachelor of Business.

Aims and objectives
This subject presumes familiarity with the subject matter of BC225 Auditing. It should be most useful for those students planning to enter the profession.
The objective of the subject is to provide students with an understanding of the principles of auditing computerised accounting information systems and applying statistical and analytical techniques in the audit context.

Content
The topics to be studied include:
- The study of auditing principles with specific reference to computerised accounting information systems
- Audit techniques in a CIS environment
- Statistical sampling techniques
- Analytical review techniques
- Audit related causes for company failures

The subject makes extensive use of audit oriented software packages.

References
Audit Handbook, ICAA/ASCPA, Prentice Hall, 1999

BC334 Financial Accounting
12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite Subjects: BC221 Corporate Accounting and BC330 Accounting Theory  Teaching Method: Seminar  Assessment: Assignments 70%, Examination 30%
A subject in the Bachelor of Business.

Aims and objectives
This subject is most relevant to students planning to enter (or already in) the employment fields of chartered accounting or financial accounting in industry.

The aims of Financial Accounting are:
- To study in depth some of the more advanced issues and problems from areas introduced in Corporate Accounting and Accounting Theory;
- To make students aware of a selection of contemporary financial accounting issues and to study these issues from both theoretical and practical viewpoints;
- To apply the conceptual framework studied in Accounting Theory in evaluation of the abovementioned contemporary financial accounting issues.

Content
The conceptual framework; environmental and social accounting; aspects of group accounting; accounting for government enterprises; financial forecasts; employee entitlements; accounting and ethics; international accounting standards; regulation; and contemporary financial accounting issues.
The syllabus is flexible to allow new financial accounting issues which emerge to replace topics of less relevance.

References
Various current Exposure Drafts and Standards issued by the Australian Accounting Research Foundation and the Australian Accounting Standards Board

BC336 Advanced Taxation
12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite Subjects: BC331 Taxation  Teaching Method: Lecture and tutorial  Assessment: Assignments 60%, Examination 40%
A subject in the Bachelor of Business.

Aims and objectives
This is a final year subject designed for students who require additional experience of taxation issues. The objective of the subject is to acquaint students with the areas of taxation of practical utility by concentrating on the taxation implications of various taxable entities, and/or taxpayers, in particular, companies, unincorporated entities, trusts and superannuation funds. In addition the subject will address in detail the taxation of capital gains and fringe benefits tax as well as giving students an introduction to the area of indirect taxation.

Content
Students will be expected to develop a research oriented problem solving approach to the subject, which includes the following specific topics:
- Unincorporated entities
- Primary producers
- Trusts, beneficiaries
- Superannuation funds
- Companies and dividend imputation
- Capital gains tax
- Fringe benefits tax
- Administrative provisions
- Current developments in taxation
- Tax planning
- Part IVA tax avoidance and ethical issues where relevant
- International taxation
- Sales tax

References
Australian Master Tax Guide, CCH Australia Ltd., North Ryde (Current Edn.)
Australian Federal Tax Reporter, CCH Australia Ltd., North Ryde (Current Edn.)
Australian Tax Handbook, Law Book Co. Ltd., North Ryde (Current Edn.)
Australian Tax Cases, CCH Australia Ltd., North Ryde (Current Edn.)
Income Tax Assessment Act (as amended) (Current Edn.)
Lehman, G., and Coleman, C., Taxation Law in Australia. 5th Edn., Butterworths, Sydney, 1988

BC338 Personal Investment
12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite Subjects: None but strongly recommended that students should have completed or be concurrently enrolled in BC224 Financial Management 1  Teaching Method: Lecture and tutorial  Assessment: Assignments 20%, Examination 80%
A subject in the Bachelor of Business.

Aims and objectives
The purpose of this subject is to help participants learn how to manage their money and develop skills to be better able to advise others in managing their investments. To achieve this purpose it is necessary to learn about the investment alternatives available today and more importantly, to develop a way of thinking about investments that will remain in the years ahead when new investment opportunities arise as a result of the inevitable changes to our financial system.

More specifically, the course objectives are:
- To acquaint participants with the various avenues for the investment of funds, including shares, fixed-interest securities and property
- To review the impact of taxation on investment planning
- To consider the fundamental principles of modern portfolio theory
- To consider the process of portfolio selection and ongoing investment strategies
- To review the characteristics of financial futures and options and how they may be used to modify the risk-return profile of investment portfolios

Content
- Taxation and the investor
- Portfolio theory
- Efficient markets
- Fundamental and technical analysis
- Interest bearing investments
- Managed investments and performance evaluations
- Real estate
- Warrants, rights and convertible securities
- Options and futures
- Superannuation
- Financial planning and investment advice

References

BC4X1 Export Strategy - Major Determinants

Aims and objectives
This subject introduces students to the notion of an ‘export culture’. The importance of exports to Australia both historically, at present, and in the future. The core of the subject develops basic accounting and financial calculations and interpretations. The skills developed in this subject are partly generic, but they are applied to export businesses. Students are required to analyse financial information from a selected business. The importance of capital budgeting for an exporter is developed and applied in a case study developed by students.

Recommended reading
Handouts and reading list will be provided by lecturers.

BC4X2 Export Strategy - Applications

Aims and objectives
This subject develops two major topic areas. The first is developing improved awareness and sensitivity of cultural differences when communicating or consolidating arrangements in offshore business. Current exporters and consultants are useful in developing improved skills in cross-cultural communication and negotiating skills. The second major topic is ensuring that strategies available to exporters are understood and exploited. These include the role of Government assistance, and accessing import components of exports at internationally competitive prices. The use of the internet by a practising exporter gives a realistic example of the potential of this technology.

Recommended reading
Handouts and reading list provided by lecturers.

BC4X3 Export Administration

Aims and objectives
This subject is the “nuts and bolts” subject of the course. It offers students a practical guide on how to put the financial, transport and insurance arrangements of export in place. Practitioners are the main presenters in this subject.

Recommended reading
Handouts and reading list provided by lecturers.

BC4X4 Exporting in Practice

Aims and objectives
The main two areas of this subject are the legal issues for international business, and incorporating a plan for export in the business’ overall business strategy and plan. The main legal issues covered in this course are those of a contractual nature, differences in the bases of legal systems, international transfer, and some of the legal dangers identified by practitioners of international business.

Developing a strategic plan in an exporting business is presented by a current exporter who is responsible for contributing to the strategic plan, and who develops the methodology used. Students are required to apply this methodology to a business of their choice.

Recommended reading
Handouts and reading list provided by lecturers.

BC400 Accounting Honours Dissertation

Aims and objectives
The student’s independent research work will be supervised by a suitably qualified member of Swinburne academic staff. The topic of the dissertations, whilst being set by the student, must be one consistent with:
- The broad content of the discipline within which the research has been taken
- The capacity of the student to realistically complete research into the topic in the prescribed time

Content
Normally, a student will produce a written, minor dissertation of between 10,000 and 15,000 words. The structure of the dissertation will be consistent with both the proposal developed in BC401 Advanced Reading Unit and with the quality expectations that are carried with a work of this kind.

The dissertation will include:
1. A statement of the issue
2. Hypothesis or problem
3. Current literature review
4. Cogent argument
5. Clear conclusions and if necessary, appropriate recommendations
6. Additional recommendations

Recommended reading
Handouts and reading list provided by lecturers.

BC401 Accounting Advanced Reading Unit

Aims and objectives
To explore the breadth and depth of the area of study chosen by the student in a structured environment. To allow the student to use this exploratory approach as a means of arriving at a viable topic for their dissertation.
Content
A common core of prescribed reading in the area of study of both text and journal articles, and seminars on current business and social topics. The purpose of the readings, which will be allocated to individual students, is to engage the student in a critical appraisal of the material, and to develop further their research instincts. All students will be required to both contribute in discussion and to lead discussion through the occasional presentation of their analysis of prescribed reading.

References
References will be discipline specific.

BC450  Accounting Principles and Systems
12.5 Credit Points • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures and class discussion of issues and problems • Assessment: Assignments; Examinations
A subject in the Graduate Certificate of Business in Accounting and Finance.

Aims and objectives
To introduce participants to the fundamentals of accounting and financial information. To introduce participants to computerised processing of accounting information through the use of an accounting software package. To provide participants with the skills and knowledge to effectively use accounting and financial information.

Content
Introduction to accounting and financial statements; Revenues and expenses; Cost of sales and inventory valuation; Non-current assets and depreciation; Assets, liabilities and equity; Performance evaluation; Analysis and interpretation; Cash flow statements; Control of cash, debtors, stock and fixed assets through the use of a computerised accounting package; Balance day adjustments; Internal control implications of the accounting system.

Text and references
Atill, P. and McLaney, E., Accounting and Finance for Non Specialists, 1996
Insight Accounting: Software and accompanying notes. Longman, Melbourne, Australia, 1995

BC451  Corporate Financial Management
12.5 Credit Points • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures and class discussion of issues and problems • Assessment: Assignments; Examinations
A subject in the Graduate Certificate of Business in Accounting and Finance.

Aims and objectives
To provide participants with an understanding of the concepts of corporate finance and to develop in participants the skills of analysis and evaluation needed to apply the concepts of corporate finance to financial management.

Content
The subject is structured from the point of view of orientating the student to the fundamentals of managing the financial aspects of a business and covers the following specific topics:
• Financial mathematics
• Concepts of valuation
• Evaluation and selection of investment projects
• Cost of capital
• Sources of finance and financial intermediaries
• Dividend policy
• Financing methods and impact on capital structure
• Modern portfolio theory
• Current developments in finance

Text and references

BC452  Managerial Accounting
12.5 Credit Points • Hawthorn • Prerequisite: BC450 Accounting Principles and Systems • Teaching methods: Lectures and class discussion of issues and problems • Assessment: Assignments; Examinations
A subject in the Graduate Certificate of Business in Accounting and Finance.

Aims and objectives
To introduce participants to the role of accounting in the planning and decision making functions of the management process. To understand the characteristics and purposes of the main types of cost systems and how they provide information for costing products and services, for measuring the performance of managers and business segments and for making strategic decisions.

Content
Cost volume profit analysis; Costing products and services; Short term decision analysis; Budgeting: objectives; preparation of master budget; designing budgeting systems; behavioural aspects of budgeting; Internal performance measurement.

Texts and references
Hansen, D.R. and Mowen, M.M., Cost Management, Cincinnati,Ohio, South Western, 1995

BC453  Financial Reporting
12.5 Credit Points • Hawthorn • Prerequisite: BC450 Accounting Principles and Systems • Teaching methods: Lectures and class discussion of issues and problems • Assessment: Assignments; Examinations
A subject in the Graduate Certificate of Business in Accounting and Finance.

Aims and objectives
The overall objective of this subject is to develop in participants an ability to think through corporate accounting issues, to develop an awareness of the financial accounting function within a company and the contemporary issues in the practise of financial accounting.

Content
The subject covers the following areas:
• Share capital and other forms of finance
• Business combinations, including amalgamations, mergers and takeovers
• Group accounting - particular emphasis on this topic. It includes the preparation of consolidated accounts, equity accounting and joint ventures
• Availability of profits for distribution
• Reconstruction and company liquidation

Text and references
Australian Corporations and Securities Legislation, 1989
Australian Accounting Standards Handbook, ASICPA/ICAA, Prentice Hall, 1999
Leo, K.J. and Hoggett, J.R., Company Accounting in Australia. 5th Edn, Brisbane, Wiley, 1999

BC490  Accounting for Managers
12.5 credit points (One semester) • Hawthorn • Prerequisites: Nil • Assessment: Group case studies, final examination
This subject is part of the core of the Master of Business Administration and is required to complete the Graduate Certificate and Graduate Diploma in Business Administration.

Aims and objectives
To develop an understanding of how business performance is measured and evaluated; to develop an understanding of the information system which provides data for corporate financial statements and for internal decision making and control; to develop an ability to understand, interpret and use corporate financial statements as an information source; and to develop an understanding of the accounting information system which exists within an organisation for the purpose of supplying relevant and timely information for management decision making on matters such as costing, pricing, marketing strategy, product management, productivity control etc.

Content
• Understanding the Balance Sheet and Profit Loss Statement and Cash Flow Statement;
- financial statement analysis;
- measures of liquidity;
- Cost behaviour;
- Cost/Volume/Profit;
- Costs for decision making;
- Budgeting;
- Introduction to working capital management;
- Introduction to financing the business;
- Investment decision making.

Textbook

Recommended reading
Hey-Cunningham, D., Financial Statements Demystified, Allen & Unwin

BC520 Income Tax Law
12.5 Credit Points • Hawthorn • Prerequisite: BC453 Financial Reporting • Teaching methods: Lectures and class discussion of issues and problems • Assessment: Assignments; Examinations
A subject in the Graduate Diploma in Business in Accounting and Finance.

Aims and objectives
The overall objective is to develop in students an understanding of the Income Tax Assessment Act 1936, as amended, together with those acts which are complementary to the Assessment Act.

Content
Topics studied include: the nature of assessable income; specific income types; source residency and derivation; eligible termination payments; capital gains tax; fringe benefits tax; allowable deductions; provisions relating to companies, partnerships and individuals.

Text and references
Australian Federal Tax Reporter, CCH Australia Ltd
Australian Income Tax Assessment, CCH Australia Ltd.
Australian Master Tax Guide, CCH Australia Ltd
Australian Tax Handbook, Butterworths, Sydney
Barkoczy, S., Australian Tax Casebook, CCH Australia Ltd, N.S.W, 1998
Topical Tax Cases for Australians, CCH Australia Ltd

BC521 Australian Company Law
12.5 Credit Points • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures and class discussion of issues and problems • Assessment: Assignments; Examinations
A subject in the Graduate Diploma in Business in Accounting and Finance.

Aims and objectives
The objective of this course is to introduce students to basic legal concepts. In particular, students will be introduced to important areas of business law including company and contract law. Students will develop an understanding of the relationship between law, business and society. Students will be introduced to comparative and international aspects of business law.

Content
Topics studied include: concepts, techniques and institutions of common law; introduction to contract law; introduction to company law.

Text and references
Khoury, D. and Yamouni, Y.S., Understanding Contract Law, 4th Edn, Butterworths, Sydney, 1995
The Corporations Law, CCH, Sydney, 1998
Burnett, B., Australian Corporations Law, CCH, Sydney, 1998

BC522 Company Auditing
12.5 Credit Points • Hawthorn • Prerequisite: BC453 Financial Reporting • Teaching methods: Lectures and class discussion of issues and problems • Assessment: Assignments; Examinations
A subject in the Graduate Diploma in Business in Accounting and Finance.

Aims and objectives
The broad objective of this unit is to familiarise participants with the underlying concepts, objectives and reporting function of the auditor. The unit deals with both theoretical and practical aspects of auditing. The aim is to integrate the concepts of auditing with practical approaches taken by the auditor to ensure participants gain a complete picture of the audit process.

Content
Theoretical topics studied include auditing methodology and the formulation of auditing standards; audit independence; the rights, duties and legal liability of auditors; ethical considerations; the audit report and the concept of risk, materiality and audit evidence, encompassing a review of internal control structures and the attendant control risk. Consideration is given to the impact of auditing in a GIS environment and different sampling methodologies. Students are given a hands on appreciation of the use of generalised audit software in a case study assignment. Students are also introduced to the area of public sector auditing.

Text and references
Auditing Student Manual, Swinburne University, 1999
Auditing Handbook ISAAA/AICPA, Prentice Hall, 1999

BC523 Financial Accounting Theory
12.5 Credit Points • Hawthorn • Prerequisite: BC453 Financial Reporting • Teaching methods: Lectures and class discussion of issues and problems • Assessment: Assignments; Examinations
A subject in the Graduate Diploma in Business in Accounting and Finance.

Aims and objectives
The objectives of this subject are:
- To examine the development of accounting theory and the methodology used by accounting theorists;
- To describe and critically analyse a framework of accounting concepts including assets, liabilities and income;
- To use the methodology and the framework developed in the subject to study specific issues in financial accounting including the development of accounting standards, agency theory, current cost accounting, ethics and accounting for income tax, intangibles, mining and foreign currency translation.

Although the subject is concerned with theory, considerable use is made of practical problems in parts of the course to illustrate the application of theory.

Content
Topics studied include:
- Conceptual framework;
- Development of accounting theory;
- Development of accounting standards;
- Positive accounting theory;
- Accounting for:
  - foreign exchange, taxation
  - extractive industries, intangible assets;
- Income theory and measurement.

Text and references
Godfrey, J., et al., Accounting Theory, 2nd ed, Wiley, Brisbane
BC524 Capital Markets

12.5 Credit Points • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures and class discussion of issues and problems • Assessment: Assignments;Examinations

A subject in the Graduate Diploma of Business in Accounting and Finance and the Master of Business Administration.

Aims and objectives
To provide students with an understanding of the workings of international and domestic capital markets and the various participants in them, together with the range of financial instruments which are created and traded within these markets.

Content
Topics studied include: global flows of funds and international financial markets; role of the Stock Exchange and the raising of equity capital; portfolio theory; theory of efficient capital markets; valuation of financial instruments; domestic capital markets; institutions and instruments; internationalisation of equities markets; financial institutions and corporate funding; financial derivatives.

Text and references

BC525 Investment and Portfolio Management

12.5 Credit Points • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures and class discussion of issues and problems • Assessment: Assignments;Examinations

A subject in the Graduate Diploma of Business in Accounting and Finance.

Aims and objectives
To develop an understanding of the pricing of derivative assets such as options, futures and swaps; to explain the operations of markets in these assets; to provide an understanding of the use of derivative assets in portfolio management and corporate financial policy.

Content
This subject focuses on: project risk analysis; options as a risk management tool for interest rates and foreign exchange; credit risk analysis; swaps - commodity, currency, interest rates; managing interest rate risk; portfolio management using derivatives; corporate hedging policies.

Text and references

BC526 Personal Investment

12.5 Credit Points • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures and class discussion of issues and problems • Assessment: Assignments;Examinations

A subject in the Graduate Diploma of Business in Accounting and Finance.

Aims and objectives
The purpose of this subject is to help participants learn how to manage their money and develop skills to be better able to advise others in managing their investments. To achieve this purpose it is necessary to learn about the investment alternatives available today and more importantly, to develop a way of thinking about investments that will remain in the years ahead when new investment opportunities arise as a result of the inevitable changes to our financial system.

Content
Topics studied include: to acquaint participants with the various avenues for the investment of funds, including shares, fixed-interest securities and property; to review the impact of taxation on investment planning; to consider the fundamental principles of modern portfolio theory; to consider the process of portfolio selection and ongoing investment strategies; to review the characteristics of financial futures and options and how they may be used to modify the risk-return profile of investment portfolios.

Text and references

BC527 International Financial Management

12.5 Credit Points • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures and class discussion of issues and problems • Assessment: Assignments;Class presentations;Examinations

A subject in the Graduate Diploma of Business in Accounting and Finance.

Aims and objectives
To provide an appreciation of the financial management problems facing companies operating in an international environment; to gain an understanding of the financial analysis techniques appropriate in solving international financial problems and the application of such techniques.

Content
This subject focuses on: corporate strategy and foreign investment; foreign exchange risk exposures; international monetary system; measuring and managing international trade risk; financial foreign trade; international portfolio investment; managing funds in international trade; taxation aspects of multi-national operations; international partnerships and joint ventures.

Text and references

BC590 Financial Management

12.5 credits • Hawthorn • Prerequisites: BC490 Accounting for Managers • Assessment: Major assignment, Individual assignment, Share market assignment, Class presentations

This is a subject in the Master of Business Administration and is required to complete the Graduate Diploma in Business Administration.

Aims and objectives
To develop an understanding of finance theory necessary to evaluate a firm’s investment, financial and dividend decisions; and to consider the application of analytical techniques to a variety of problems in financial management within the Australian institutional environment.

Content
• Financial markets and investment opportunities
• Sources of finance
• Understanding company reports
• Financial statement analysis
• Predicting corporate failure
• Working capital management
• Valuation concepts
• Cost of capital
• Financial structures
• Business combinations

Recommended reading

BC703 Investment Management (BC525)

12.5 Credit Points, two hours per week • Hawthorn • Prerequisites: completion of MBA core subjects • Assessment: major assignment, class presentations, final examination

This is a subject in the Master of Business Administration.

Aims and objectives
To develop an understanding of the pricing of derivative assets such as options, futures and swaps; to explain the operations of markets in these assets; to provide an understanding of the use of derivative assets in portfolio management and corporate financial policy.
Content
- Project risk analysis (analyzing and managing risks)
- Options as a risk management tool for: interest rates, and foreign exchange
- Credit risk analysis
- Swaps - commodity, currency, interest rate
- Managing interest rate risk
- Portfolio management using derivatives
- Corporate hedging policies
- Financing acquisitions and capital restructuring
- Transfer of risk from public to private sector

Recommended reading

**BC704 Personal Investment (BC526)**

12.5 Credit Points, two hours per week • Hawthorn • Prerequisites: all MBA core units
- Assessment: major assignment, class presentations, final examination

This is a subject in the Master of Business Administration

Aims and objectives
To provide an appreciation of the various avenues for the investment of funds, including shares, fixed interest securities and property; to consider the fundamental principles of modern portfolio theory; and to consider the process of portfolio selection and ongoing investment strategies.

Content
- Investments in companies
- Financial markets and investment opportunities
- Investing in shares
- Investing in fixed interest securities
- Investing in real estate
- Managed investments: portfolio management and performance management
- Taxation and the investor
- Financial planning

Recommended reading

**BC705 International Financial Management (BC527)**

12.5 Credit Points, two hours per week • Hawthorn • Prerequisites: BC702 Corporate Financial Management • Assessment: major assignment, class presentations, final examination

This is a subject in the Master of Business Administration

Aims and objectives
To provide an appreciation of the financial management problems facing companies operation in an international environment; and to gain an understanding of financial analysis techniques appropriate in solving international financial problems and how to apply them.

Content
- Corporate strategy and foreign investment
- Foreign exchange risk exposure
- International monetary system
- Measuring and managing international trade risk
- Financial foreign trade
- International portfolio investment
- Managing funds in international trade
- Taxation aspects of multi-national operations
- International partnerships and joint ventures

Recommended reading

**BE110 Microeconomics**

12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: Nil • Teaching Method: Lecture and tutorial • Assessment: Assignment 20%, Test 20%, Final examination 60%

A subject in the Bachelor of Business.

Aims and objectives
To introduce key microeconomic concepts and to encourage and assist students to apply economic reasoning to issues facing business, government and consumers.

Content
This subject introduces students to microeconomic concepts and their application within the framework of the Australian economy. The course commences with an examination of the role played by markets in allocating resources and distributing output. This is followed by an examination of the firm’s price and output decisions in a variety of market structures. The significance of microeconomic concepts for both business and government policy is emphasized throughout.

References

**BE220 Macroeconomics**

12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BE110 Microeconomics • Teaching Method: Lecture and tutorial • Assessment: Multiple choice test 20%, Tutorial workshop 10%, Essay 20%, Final examination 60%

A subject in the Bachelor of Business.

Aims and objectives
To provide business students with an understanding and appreciation of macroeconomic concepts, issues and policies pertaining to the Australian and global economies.

Content
This subject introduces students to key macroeconomic concepts, issues and policies. Emphasis is on current issues and policies. A basic macroeconomic model is developed and applied to issues such as inflation, unemployment and external imbalance and is used to demonstrate the impact of government macroeconomic policies (wages, fiscal and monetary) on Australian business and the economy. Within the course students are introduced to the financial markets, financial deregulation and Australia’s international business environment.

References

**BE221 Managerial Economics and Strategy**

12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BE110 Microeconomics and MB110 Quantitative Analysis A or MB111 Quantitative Analysis B • Teaching Method: Lecture and tutorial • Assessment: Assignment 10%, Class presentation 10%, Test 30%, Final examination 50%

A subject in the Bachelor of Business.
Aims and objectives
To show that the application of economic concepts can be a source of strategic advantage in the decision making processes of business and government.

Content
This subject commences with an introduction to microeconomics and then proceeds to show how the principles of demand and supply analysis are applied to various economic markets. Subsequent topics include: price determination in imperfectly competitive markets; market structure and the concept of market power; the role of monopoly power in the determination of price and output; market failure and the role of government in the provision of public goods and services; and the role of government in the allocation of resources through taxation and transfer payments.

References
Jackson, B., Poverty and the Planet, Penguin, London, 1994

BE222 Industry and Government
12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite Subjects: BE110 Microeconomics  Teaching Method: Lecture and tutorial  Assessment: Assignment 25%, Tutorial presentation and participation 15%, Final examination 60%
A subject in the Bachelor of Business.

Aims and objectives
To increase understanding of the rationale, nature and consequences of Australian Government involvement with industry.

Content
The subject deals with the performance of industry in contemporary capitalist economies with special reference to Australia. In particular the subject considers the relationship between government and industry in such areas as industry regulation, competition policy and industry policy.

References

BE223 Industrial Relations
12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite Subjects: BE110 Microeconomics  Teaching Method: Lecture and tutorial  Assessment: Tutorial attendance, preparation and participation 20%, Test (mid-semester) 20%, Final examination 60%
A subject in the Bachelor of Business.

Aims and objectives
This subject aims to equip students with an understanding of the Australian industrial relations systems, with particular emphasis on the Federal and Victorian jurisdictions.

Content
As well as providing a theoretical framework within which the industrial relations systems operate, the subject will address a range of contemporary issues including current federal and state legislative provisions, labour market reforms, trade union issues and the role of management in industrial relations.

Topics to be studied within the subject include:
- Industrial conflict
- The role of the parties - unions, employers, government
- Federal and state arbitral systems
- Wage determination
- Management and industrial relations

References

BE226 Macroeconomic Policy
12.5 Credit Points  3 hours per week over 1 semester  Hawthorn  Prerequisite Subjects: BE220 Macroeconomics  Teaching Method: Lecture and tutorial  Assessment: Test 20%, Assignment 20%, Final examination 60%
A subject in the Bachelor of Business.

Aims and objectives
The main objectives of the subject are to:
- Broaden students' understanding and appreciation of macroeconomic principles, policy and current issues
- Provide students with the necessary skills to evaluate macroeconomic policies and related debate

Content
This subject is intended to broaden the student's familiarity with the nature, scope and methods of research in business and government. It is also intended to provide students with the experience of conducting an investigation under conditions approximating the working environment where a graduate employee may be expected to produce succinct, thorough and comprehensive reports to a strict time schedule. The subject is conducted in seminars and on a consulting basis.

Topics to be studied within the subject include:
- Industrial conflict
- The role of the parties - unions, employers, government
- Federal and state arbitral systems
- Wage determination
- Management and industrial relations

References
BE333 Financial Institutions and Monetary Policy

12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BE110 Microeconomics and BE220 Macroeconomics • Teaching Method: Lecture and tutorial • Assessment: Essay 20%, Test 20%, Final examination 60%
A subject in the Bachelor of Business

Aims and objectives
To provide students with:
- An up-to-date view of Australian financial intermediaries; their nature and operation in a changing business environment.
- An appreciation and understanding of the application of monetary policy; its origins and current controversies.

Content
This course includes:
- A study of Australian financial intermediaries.
- The process of deregulation and its impacts on financial intermediaries and Reserve Bank policies.
- The role of the Reserve Bank as a prudential supervisor and as a regulator of economic instability.
- The development of monetary policy, current monetary policy controversies and the application and operation of monetary policy.

References
Bruce, R., Handbook of Australian Corporate Finance. 4th Edn., Butterworths, Sydney, 1991

BE334 International Trade

12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BE110 Microeconomics and BE220 Macroeconomics • Teaching Method: Lecture and tutorial • Assessment: Progressive assessment (tests) 40%, Final examination 60%
A subject in the Bachelor of Business.

Aims and objectives
To encourage students to recognise the nature and significance of international trade to the Australian economy and to value the options for improving Australia’s trade performance.

Content
This subject combines an examination of the nature of economic theory relating to international trade, trade restrictions and trade liberalisation, with discussion of key international trade issues of importance to the Australian business community and government.

Topics covered include:
International trade and the Australian economy
- Composition and direction of trade
- Australia’s place in world trade
The economics of trade and trade restrictions
- Basis of trade and gains from trade
- Explanations of trade patterns
- Trade restrictions - nature, reasons, and effects
- Regional trading blocs and regional trade
Australia’s trade environment
- Trade liberalisation and the role of GATT and WTO
- Globalisation of world trade and foreign investment
- Strategic trade policy and Australian competitiveness
- Australia in the Asia Pacific region
- Internationalisation of Australian industry

References

BE335 International Finance

12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BE110 Microeconomics and BE220 Macroeconomics • Teaching Method: Lecture and tutorial • Assessment: Assignment 20%, Multiple choice test 20%, Final examination 60%
A subject in the Bachelor of Business.

Aims and objectives
The intention in this subject is to provide students with the theoretical and analytical skills necessary for the understanding and evaluating international financial issues of importance to the Australian business community and government.

Content
Topics covered include:
- The international financial environment
- Exchange rate theories and systems
- The operation of foreign exchange markets
- International borrowing and lending systems
- International banking
- International bonds
- Risk management in international financial transactions

References

BE336 Economics of Social Issues

12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BE110 Microeconomics, or AP100 Australian Politics, or AP117 International Politics • Teaching Method: Lecture and tutorial • Assessment: Assignment 25%, Examination or essays 75%
A subject in the Bachelor of Business.

Aims and objectives
This subject endeavours to teach students the theory and principles needed to be able to analyse social issues from an economic perspective.

Content
This subject examines both the uses and limitations of orthodox economic theory in understanding many of the important social, economic and political issues that are current in Australia today. In so doing the subject will improve students’ understanding of the roles of both business and government in furthering society’s objectives.

Issues considered will be drawn from the distribution of income, wealth and poverty, the incidence of unemployment, and the roles of private enterprise and government in the provision of health-care, education, transport, energy and urban reform.

The subject will consider, inter alia, argument for and against reliance on the user pays principle.

References
Rees, S., Beyond the Market, Pluto Press, Sydney, 1993

BE340 International Business

12.5 Credit Points • 3 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BE110 Microeconomics and BE220 Macroeconomics • Teaching Method: Lecture and tutorial • Assessment: Test 10%, Case study assignment 40%, Final examination 50%
A subject in the Bachelor of Business.

Aims and objectives
Through the use of a case study assignment, to guide student to draw together the

References

principles of various business-oriented disciplines in order to prepare an international business strategy plan.

**Content**

- A broad review of the theory and practice of International Business
- An analytical and strategic approach to international business issues, in particular
- The strategies which are required to produce internationally competitive goods and services
- The competitive and cooperative strategies which are required to market goods and services in international market

**References**


**BE400 Economics Honours Dissertation**

60 Credit Points • Hawthorn • Prerequisite subjects: None • Teaching Method: Supervision

A subject in the Bachelor of Business (Honours).

**Aims and objectives**

The student’s independent research work will be supervised by a suitably qualified member of Swinburne academic staff. The topic of the dissertation, whilst being set by the student, must be one consistent with:

- The broad content of the discipline within which the research has been taken
- The capacity of the student to realistically complete research into the topic in the prescribed time

**Content**

Normally, a student will produce a written, minor dissertation of between 10,000 and 15,000 words. The structure of the dissertation will be consistent with both the proposal developed in BE401 Advanced Reading Unit and with the quality expectations that are carried with a work of this kind.

The dissertation will include:

1. A statement of the issue
2. Hypothesis or problem
3. Current literature review
4. Cogent arguments
5. Clear conclusions and if necessary, appropriate recommendations if necessary, appropriate recommendations

**BE401 Economics Advanced Reading Unit**

20 Credit Points • Hawthorn • Prerequisite subjects: None • Teaching Method: Supervision

A subject in the Bachelor of Business (Honours).

**Aims and objectives**

To explore the breadth and depth of the area of study chosen by the student in a structured environment. To allow the student to use this exploratory approach as a means of arriving at a viable topic for their dissertation.

**Content**

A common core of prescribed reading in the area of study of both text and journal articles, and seminars on current business and social topics.

The purpose of the readings, which will be allocated to individual students, is to engage the student in a critical appraisal of the material, and to develop further their research instincts.

All students will be required to both contribute in discussion and to lead discussion through the occasional presentation of their analysis of prescribed reading.

**References**

References will be discipline specific.

**BF400 Finance Honours Dissertation**

60 Credit Points • Hawthorn • Prerequisite subjects: None • Teaching Method: Supervision

A subject in the Bachelor of Business (Honours).

**Aims and objectives**

The student’s independent research work will be supervised by a suitably qualified member of Swinburne academic staff. The topic of the dissertation, whilst being set by the student, must be one consistent with:

- The broad content of the discipline within which the research has been taken
- The capacity of the student to realistically complete research into the topic in the prescribed time

**Content**

Normally, a student will produce a written, minor dissertation of between 10,000 and 15,000 words. The structure of the dissertation will be consistent with both the proposal developed in BF401 Advanced Reading Unit and with the quality expectations that are carried with a work of this kind.

The dissertation will include:

1. A statement of the issue
2. Hypothesis or problem
3. Current literature review
4. Cogent argument
5. Clear conclusions and if necessary, appropriate recommendations if necessary, appropriate recommendations

**BF401 Finance Advanced Reading Unit**

20 Credit Points • 3 x 4 hour seminars over 1 semester • Hawthorn • Prerequisite Subjects: None • Teaching Method: Seminars • Assessment: Seminar presentations of prescribed reading and of the Honours dissertation proposal, Written Honours Dissertation Proposal

A subject in the Bachelor of Business (Honours).

**Aims and objectives**

To explore the breadth and depth of the area of study chosen by the student in a structured environment. To allow the student to use this exploratory approach as a means of arriving at a viable topic for their dissertation.

**Content**

A common core of prescribed reading in the area of study of both text and journal articles, and seminars on current business and social topics.

The purpose of the readings, which will be allocated to individual students, is to engage the student in a critical appraisal of the material, and to develop further their research instincts.

All students will be required to both contribute in discussion and to lead discussion through the occasional presentation of their analysis of prescribed reading.

**References**

References will be discipline specific.

**BG100 Business Communication**

12.5 Credit points • 3 hours per week over 1 semester • Hawthorn • Prerequisite subject: None • Teaching Method: Academic teaching, workshops and participating subject specialists • Assessment: Academic journal 20%, Student-run mid-course meeting 10%, Project presentation - oral 20%, - academic poster 20%, Project and class participation 10%, Written proposal 20%

A subject in the Bachelor of Business

**Aims and objectives**

- To introduce students to the concept of a discourse community and their voice within that community
- To provide second language speakers with an opportunity to increase their skills, motivation, independence and confidence in using English by participating in a student-centred developmental program. The central focus will be a project where they will be encouraged to gain control of the English speaking environment around them in order to produce an authentic product
- To make strategic use of critical thinking activities, communicative language tasks and student-organised meetings to build decision-making confidence
Aims and objectives

To guide students to recognise and aim for culturally-based practices and standards that they have decided they need to fulfill both their short-term and long-term goals.
To lead the students to develop appropriate criteria for evaluating themselves in the project and the subject as a whole.

Content

Students are required to work in syndicates to design a project which showcases the richness of the cultural mix and the talents of the students in the School of Business at Swinburne University. The project will be based on an authentic business or social problem and will be presented in the form of a proposal.

References

Readings taken from core subject texts.

BH221 Human Resource Management 1

12.5 Credit Points • 2 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BH110 Organisations and Management • Teaching Method: experiential exercises, cognitive input, discussion of individuals' experiences, audio-visual resources, and some specialist guest speakers in the Human Resources Management field where possible • Assessment: Research project - current HRM practices (individual) 30%, Group discussion based on research (group) 20%, Journals (two) (individual) 30%

A subject in the Bachelor of Business

Aims and objectives

• To introduce students to a model of human resource management
• To provide students with an understanding about what is involved in the management of human resources through the application of appropriate techniques, functions, and management approaches
• To promote an understanding of appropriate ways of working with and managing one of the organisation's most important assets - its human resources

Content

Strategic context- understanding the nature and importance of human resources, and the link to the achievement of the organisation's business objectives
Theories, techniques and skills- to manage and deal with people related problems and issues specifically through the use of situation analysis and experiential learning
Specific skill development- interviewing and performance management

Text


References

Clark, R., Australian Human Resources Management: Framework and Practice, 2nd Edn, McGraw Hill, Australia, 1992
Aims and objectives

- To enhance student's sensitivity to and awareness of the issues involved
- Sharpen student's observation skills and deepen their understanding of the behavioural and HRM issues studied in other HRM/OB subjects
- To pay attention to issues of implementation at the system level

Content

Key concepts such as culture, the dynamics of diversity and implications for business will be addressed.

Text

There is no set text. Source material is available in the library. Essential materials that are not available in the library will be distributed in class. Students are expected to seek out additional materials.

References


Journals

Asia Pacific HRM
Business Review Weekly
Harvard Business Review
HR Monthly

BH223 Dynamics of Diversity in the Workplace

12.5 Credit Points • 2 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BH220 Organisational Behaviour • Teaching Method: Presentation of theoretical material and discussion in class. Readings, Experiential work, Observation and reflection, Presentations, Videos and guest speakers where possible. Self-directed learning will be an important part of the method. • Assessment: Case study 25%, Group presentation 20%, Individual reflective essay 55%

A subject in the Bachelor of Business.

Aims and objectives

- To enhance student's sensitivity to and awareness of the issues involved
- Sharpen student's observation skills and deepen their understanding of the behavioural and HRM issues studied in other HRM/OB subjects
- To pay attention to issues of implementation at the system level

Content

Key concepts such as culture, the dynamics of diversity and implications for business will be addressed.

Text

There is no set text. Source material is available in the library. Essential materials that are not available in the library will be distributed in class. Students are expected to seek out additional materials.

References


Journals

Asia Pacific HRM
Business Review Weekly
Harvard Business Review
HR Monthly

BH224 Legal Aspects of Human Resource Management

12.5 Credit Points • 2 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BH110 Organisations and Management (Students should not undertake this subject if they have completed BL332 Employment Law) • Teaching Method: Presentation of theoretical material and class discussion, Experiential work, case studies, videos and guest speakers where possible, Group presentation/discussion • Assessment: Mid-semester test 40%, Group presentation/discussion 10%, Individual report 50%

A subject in the Bachelor of Business.

Aims and objectives

Considers the impact of legislation on contemporary human resource issues and practices at the workplace level: planning, recruitment and selection, career development, performance management, wages and compensation and termination. Analyses the relationship of employer and employee, contract of employment, arbitration systems, equal opportunity, and occupational health and safety.

Content

To interpret and analyse legislation at the workplace level

- Privacy Act, Disability Act
- State and Federal Equal Opportunity and anti-discrimination legislation, Equal Opportunity Act
- Occupational Health and Safety Act links to Law of Torts (Negligence)
- Work Cover Act
- Workplace Relations Act 1996
- Understanding the rights and obligations of the different parties involved in the employment relationship, employers, employees & their associations, 3rd party conciliation and arbitration (tribunals and commissions, courts) in handling complaints such as: EEO, Workcover, OH&S, Industrial Disputes, unfair dismissals etc.
- Conflict resolution and grievance handling

Text

To be advised

References


BH323 International Human Resource Management

12.5 Credit Points • 2 hours per week over 1 semester and 13 hours development time • Hawthorn • Prerequisite Subjects: BH221 Human Resource Management 1, BH223 Dynamics of Diversity in the Workplace highly recommended • Teaching Method: Presentation of theoretical material from a number of sources such as textbook and articles, case studies and experiential activities drawing on students' practical and workplace experiences, class discussion, reflection, and consultation with workplace projects • Assessment: Individual current issues essay 55%, Syndicate report - organisational case study 25%, Syndicate Presentation 10%

A subject in the Bachelor of Business.

Aims and objectives

- To develop an understanding of national, corporate and regional cultures as they impact on cross-cultural management
- To consider some of the challenges associated with managing people across cultures from a human resource management perspective
- To explore some of the challenges in cross cultural management
- To investigate some of the above issues through experiential activities and workplace projects

Content

National and Corporate Culture - the meaning of culture, national culture and corporate culture; understanding and valuing diversity, the group and the individual; rules, relationships and feelings; and the importance of status.

International Human Resources Management - planning, recruiting and selecting, training and development, career planning, performance appraisal, rewarding and compensating, industrial relations, separation, expatriate problems and repatriation - selected topics from the above list will be presented.

Cross Cultural Management - organisational structure, leadership and vision, power and influence, ethics, communication and negotiation - selected topics from the above list will be presented.

Text

To be advised

References

BH324 Managing Workplace Relations

2 hours per week over 1 semester • Hawthorn • Prerequisite Subjects: BH224 Legal Aspects of Human Resource Management (Students should not undertake this subject if they have completed BE223 Industrial Relations) • Teaching Method: presentation of theoretical material through text books, articles, case studies, experiential exercises, student group presentations on industry research findings. Experiential learning through negotiation exercises & conflict resolution techniques • Assessment: Individual Research on a workplace industrial dispute 30%, Group Research Report analysis of a certified agreement 40%, Class Presentation 10%, Journal/Reflective Essay - Negotiating an Agreement 10%, Class Participation 10%

A subject in the Bachelor of Business.

Aims and objectives

• Overview current Australian developments in workplace reform and identify the current workplace relations framework. To provide students with an understanding of the relationship between the nature and organisation of work, industrial regulation and workplace reform.

• Comparison employee relations theory and human resource practice.

• Develops an understanding of the importance of “best practice” in employee relations to both productivity levels and competitive position of an organisation.

• To enable students to gain a better understanding of the enterprise bargaining process from the initial concept phase through to the final ratification of the agreement (and the consultative and negotiating processes required to reach the point where an agreement can be certified).

• At the end of this course students should be able to analyse an organisation and propose measures to improve efficiency and equity at the workplace level.

• Equip students with sufficient skills required for managing workplace relations issues, including negotiation skills and conflict resolution techniques required to formulate workplace agreements.

Content


Theories and analytical skills: understand the major theoretical approaches to the study of employee relations, develop analytical skills in researching key policy issues and workplace practices such as Australian Workplace Agreements and Certified Agreements. Effective negotiation & conflict resolution techniques.

Text

To be advised

References


Dabscheck B and others, Contemporary Australian industrial relations: Readings, Longman Cheshire, South Melbourne, 1992

Fox C.B., and others, Industrial Relations in Australia: Development Law and operation, Longman Cheshire, Melbourne, 1995


Relevant Journals

Australian Bulletin of Labour

Australian Journal of Labour Law

Journal of Industrial Relations
Specific skill development: training and development; coaching and mentoring and problem solving

Text

References
Clark, R., Australian Human Resources Management: Framework and Practice, McGraw Hill, Australia, 1992
Tovey, M., Training in Australia, Prentice Hall, Sydney, 1998

BH341 Strategic Human Resource Management

12.5 Credit Points • 2 hours per week over 1 semester • Prerequisite Subject: BH221 Human Resource Management I • Teaching Method: Presentation of theoretical material from a number of sources such as textbooks and articles, case studies and experiential activities drawing on students’ practical and workplace experience, class discussion, reflection, and consultation on workplace projects • Assessment: Workplace project report 70%, Individual: Academic Essay 30%

Aims and objectives
The aim of this subject is to:

- Develop an understanding of the critical links between strategic change, people and performance in achieving organisational success
- Identify the importance of the integration of business, HRM and functional strategies
- Consider the impact of strategic business decisions such as outsourcing, telecommuting etc. on HRM strategy and individual performance
- Consider the HRM strategic choices available to an organisation in meeting its performance objectives
- Study the traditional HRM activities from a strategic perspective
- Explore some of the above issues through a workplace project which focuses on the issues of maintaining competitive advantage through people whilst meeting organisational requirements for continuous improvement.

Content

Strategic Context
Understanding internal and external environments, Managing Change from a strategic perspective, Business, HRM and functional strategies, current strategic issues such as globalisation, outsourcing, telecommuting, social responsibility and ethics.

Managing the HRM Activity - Strategic Choices
Attraction and placement of human resources, Maximising HR productivity and continuous improvement, Maintaining human resources, Strategic separation.

Developing Capability and Performance
Aligning employee expectations with strategy, enabling and evaluating performance, Skill Development

Managing individual performance.

References
Bate, P., Strategies for Cultural Change, Butterworth-Heinemann, UK, 1994

BH400 Human Resource Management/ Organisation Behaviour Honours Dissertation

80 Credit Points • Hawthorn • Prerequisite subjects: None • Teaching Method: Supervision

A subject in the Bachelor of Business (Honours).

Aims and objectives
The student’s independent research work will be supervised by a suitably qualified member of Swinburne academic staff. The topic of the dissertation, whilst being set by the student, must be one consistent with:

- The broad content of the discipline within which the research has been taken
- The capacity of the student to realistically complete research into the topic in the prescribed time

Content

Normally, a student will produce a written, minor dissertation of between 10,000 and 15,000 words. The structure of the dissertation will be consistent with both the proposal developed in BH401 Advanced Reading Unit and with the quality expectations that are carried with a work of this kind.

The dissertation will include:
1. A statement of the issue
2. Hypothesis or problem
3. Current literature review
4. Cogent argument
5. Clear conclusions and if necessary, appropriate recommendations if necessary, appropriate recommendations.

BH401 Human Resource Management/ Organisation Behaviour Advanced Reading Unit

20 Credit Points • 3 x 4 hour seminars over 1 semester • Hawthorn • Prerequisite Subjects: None • Teaching Method: Seminar • Assessment: Seminar presentations of prescribed reading and of the Honours dissertation proposal, Written Honours Dissertation Proposal

A subject in the Bachelor of Business (Honours).

Aims and objectives
To explore the breadth and depth of the area of study chosen by the student in a structured environment. To allow the student to use this exploratory approach as a means of arriving at a viable topic for their dissertation.

Content

A common core of prescribed reading in the area of study of both text and journal articles, and seminars on current business and social topics.

The purpose of the readings, which will be allocated to individual students, is to engage the student in a critical appraisal of the material, and to develop further their research instincts.

All students will be required to both contribute in discussion and to lead discussion through the occasional presentation of their analysis of prescribed reading.

References
References will be discipline specific.

BH404 The Social Structure of Organisation Dynamics

12.5 credit points • 26 hours over one semester • Hawthorn • Prerequisite: not applicable • Assessment: Individual: Workplace Project-Personal Case Analysis, Group: Class Presentation and Report

A subject in the Graduate Certificate in Organisation Dynamics.

Aims and objectives

- To develop an understanding of the theories of organising;
- To identify student’s preferred ways of ‘seeing’ and understanding organisation activities and the implications for approaches to managing;
- To practice using different frames for analysing and understanding organisation dynamics particularly in student’s workplaces;
- To develop skills in communicating verbally and in writing, analysis and interpretation of organisational activities.

Content

The purpose of the subject is to introduce students to a multi-frame approach to organisational analysis and to develop an understanding of their own preferred approaches to managing. Various aspects of organisation dynamics will be considered including mechanistic, organic, political, cultural and ethical approaches to understanding organisations. The emphasis in this subject on organisation level analysis, complements that of the concurrent subject: Leading, Following and Group Dynamics.

Textbooks


**BH405 Leading, Following and Group Dynamics**

12.5 Credit Points  26 hours over one semester  Hawthorn  Prerequisite: Leading, Following and Group Dynamics or equivalent  Assessment: Individual: Case study of work group dynamics, Group: Class presentation, using multi-framed analysis of class dynamics

A subject in the Graduate Certificate in Organisation Dynamics.

**Aims and objectives**

- Increased awareness and understanding in five interrelated conceptual areas: group development, interpersonal communication, leadership/followership, decision-making and problem-solving.
- Improved process observation and intervention skills in leading, following, delegating, managing conflict (negotiating and mediating), and team building.
- Awareness of the importance of unconscious as well as conscious motivating forces and their influence on work group processes and outcomes.
- The ability to use a range of verbal, graphic, symbolic and metaphoric approaches to the analysis of work groups and the contexts in which they are set.

**Content**

- The subject is work place focused, student centered and experiential.
- Provides students with a theoretical foundation for understanding interpersonal, group and intergroup dynamics.
- Experiential aspects create opportunities for students to consider conscious and unconscious dynamics as they seek to take up roles appropriate to task performance.
- Critical discussion of selected theories/models of group dynamics.
- Experiential exploration of students' capacities in the 'here and now', for leading and following.
- Reflective discussion and written analysis of the relationship between concept and experience in managing group dynamics.

**Recommended reading**


**BH406 Dynamics of Culture and Diversity in Work Organisations**

12.5 credit points  26 hours over one semester  Hawthorn  Prerequisite: BH405 Leading, Following and Group Dynamics  Assessment: Individual: Experienced-based and theoretically informed paper on dynamics related to culture and diversity in the workplace, Group: Class Presentation on culture and diversity in the classroom.

A subject in the Graduate Certificate in Organisation Dynamics.

**Aims and objectives**

- To develop a greater appreciation of intra and inter-personal, and group and inter-group dynamics associated with diversity in the workplace.
- To develop a capacity to identify and work with dynamics related to diversity within classroom groups.
- To develop conceptual frameworks for reflecting upon culture and diversity.
- To develop an appreciation of relations between self and other as external expressions of internal conflicts and struggles.

These objectives will be achieved through considering culture and diversity among students in the class, at work, and in the wider society, and by discussing relevant literature.

**Content**

Dimensions of diversity to be examined include: race, ethnicity, gender, sexual orientation and religion. Individual and collective meanings attributed to the experience of being Australian will also be explored. Investigation of dynamics associated with diversity will include a consideration of both conscious and unconscious processes, from sociological and psychoanalytic perspectives.

**Recommended reading**

Allport, G.W., (1954) The Nature of Prejudice, Addison-Wesley, US.


**BH407 Consulting Processes for Organisations**

12.5 credit points  26 hours over one semester  Hawthorn  Prerequisite: Leading, Following and Group Dynamics or equivalent  Assessment: Individual: Action Learning Project Report, Group: Report of Consultancy Design and Intervention

A subject in the Graduate Certificate in Organisation Dynamics.

**Aims and objectives**

- To enable students to explore and understand varying assumptions and possibilities of the role of consultant whether internal or external to the organisation.

**Content**

- explored consulting processes as an aspect of the manager's role and as an independent role.
- distinguished between various styles and types of consultancy.
- appreciated the complex dynamics of the client/consultant relationship.
- developed skills in consulting to organisational change processes.
- examined values and ethical issues for consultants.

**Recommended reading**


**BH490 The Learning Organisation 1: Interpersonal, Leadership and Team Skills**

12.5 credit points, One semester  Hawthorn  Prerequisites: Nil  Assessment: Individual: Action Learning Project, Syndicate Team Process Learning Project, Syndicate Presentation

This subject is part of the core of the Master of Business Administration and is required to complete the Graduate Certificate and Graduate Diploma in Business Administration.

**Aims and objectives**

- to develop team building, interpersonal skills and leadership skills in course participants to maximise their effectiveness and ensure continuous improvement and quality outcomes in current turbulent environments.
- to develop skills of reflective observation, making sense of, and generalising from, personal experience and theory, and applying knowledge to practical work problems of managing people at work.
- to develop students' awareness of themselves and their impact upon others so they will be better able to analyse their own processes of managing and leading small groups in the new team environment and to facilitate the development of syndicate groups.

**Content**

**Leadership**

Understanding your leadership orientation, differences between managing and leading, understanding the new team as leader, taking the learning role, balancing empowerment with collaboration.

**Team Skills**

Creating team structure: vision, strategy, objectives, philosophy, teams roles and selection.

Facilitating the team process: communication and feedback skills, process observation skills, consulting skills, understanding how groups get stuck, strategies to handle flight/fight groups, flight/conformist groups and dependency groups.

**Interpersonal Skills**

Managing the individual: assessing and developing capabilities, appraising performance, counselling skills, ethics, personal style and team and work preferences.

Swinburne University of Technology | 1999 Higher Education Handbook
Recommended reading

BH512 Advanced Group Dynamics
12.5 credit points • 26 hours of class time • Hawthorn • Prerequisite: Leading, Following and Group Dynamics • Assessment: tba
A subject in the Graduate Diploma in Organisation Dynamics.

Aims and objectives
- To assist students to explore and to understand the dynamics of ‘relatedness’ between the individual, the group and the institution, and the implications of this connection for work
- To deepen their understanding of group, inter-group and institutional dynamics.
- To examine the nature of organisations as a psycho-social process that gives rise to ‘mind’ at individual, group and institutional levels.
- To study and research in a context whereby students come to appreciate, value and respect the importance of the emotional life of groups, organisations and institutions to the workplace.
- To be enabled to use the integration of thinking, feeling, desiring and acting on themselves (ie. their direct experience) toward their understanding.

Content
The course will include directly experiential work in groups and seminar/reading sessions.

Seminars
Will cover work by leading theorists, practitioners and action researchers in the psycho-analytic and psycho-social tradition of group analysis.

The Study Group
Will allow for students to learn from their own experience within a face to face group.

The Project
Will engage students (in small peer learning groups) in examining relations between themselves and a major institution (eg. education, the law, the media) via a particular organisation (eg., Swinburne, their workplace, a newspaper, the conference). There will be opportunities for this exploration to occur through a variety of avenues or methods. The central issue will be their working with experience to formulate an hypothesis about relatedness - that in turn, affects and effects action.

The Group Relations Conference
Will further the opportunity to learn about groups, organisation and institutions.

Recommended reading
Bion, W (1961) Experiences in Groups. Tavistock Publications. London:

BH513 Innovation, Change and Power in Organisations
12.5 credit points • 26 hours of class time • Hawthorn • Prerequisite: The Dynamics of Culture and Diversity in Organisations • Assessment: Individual: Assignment, Group: Assignment
A subject in the Graduate Diploma in Organisation Dynamics.

Aims and objectives
- To make clear the distinction between apparent and fundamental change in the organisational setting.
- To create an appreciation of the variety of forces which variously impel or impede change taking into account the organisation culture.
- To gain an appreciation of theories of power in organisations together with processes for managing innovation and change, including conflict.
- To demonstrate a well developed capacity to appreciate morphostatic and morphogenic change.
- To articulate the major forces in the workplace which impel or impede innovation and change including conflict.
- To articulate a theory of power and map its operation in workplace innovation and change given the culture of an organisation.
- To articulate an appreciation of change management processes.
- To articulate the impact of change in terms of narrative identity.

Content
This subject will build on the knowledge of organisation dynamics which participants will have gained in the first year of the course. In particular, emphasis will be given to forces for change which encompass, for example, technological, ideological and economic aspects. These will be viewed in turn through the lens of power, who has it and how it is used. This will give rise to consideration of processes for the management of innovation and change particularly in the light of organisation culture. Emphasis will be given to understanding conflict which so regularly haunts the change process. Change impacts in individual identities and consideration will be given to narrative and identity. The subject will be underpinned by narrative and social theory.

Recommended reading
Kerby, A.P., Narrative and the Self. Indiana University Press, USA, 1993

BH514 Work Teams in Action: Observation and Reflection
12.5 Credit Points • 28 hours of class time • Prerequisite: Leading, Following and Group Dynamics, or equivalent Advanced Group Dynamics • Assessment: Assignment (including individual and dyadic analysis)
A subject in the Graduate Diploma in Organisation Dynamics.

Aims and objectives
- To foster a greater appreciation of organisation and team dynamics through familiarity with advanced psycho-dynamic theory, experiential learning as researchers and the development of observation skills.
- To demonstrate a well developed capacity for form hypotheses regarding work team dynamics, and supply evidence for these;
- An ability to use self as a research instrument and link evidence thus gained to other incidents in the observed work team;
- To demonstrate advanced skills in writing process notes following observations and competence in applying thematic analyses to this data;
- Competence in applying advanced psycho-dynamic theories to explore and elaborate upon observed workplace dynamics; a capacity to apply organisational analyses to work problems as a prelude to intervention

Content
Seminar format to include reading discussion groups and reflection groups; Fieldwork

Recommended reading

BH515 Strategy, Judgement and Institutional Management
12.5 Credit Points • 26 hours of class time • Hawthorn • Prerequisites: The Social Structure of Organisation Dynamics Advanced Group Dynamics • Assessment: Individual: Essay, Group: Fieldwork Report
A subject in the Graduate Diploma in Organisation Dynamics.

Aims and objectives
To assist students in testing the working hypothesis that “the activity of managing ultimately requires the exercise of judgement in the face of uncertainty”.

Content
At the completion of this subject, students will have:
examined rigorously, the conceptual assumptions of strategic planning and institutional purpose.

identified ways in which managers may work defensively or creatively with uncertainty

explored the relationship between organisational dynamics and strategic manoeuvres.

clarified their own expectations of senior management responsibility.

**Recommended reading**


**BH520 The HRM as Internal Consultant**

12.5 Credit Points. 32.5 hours over 1 semester. Hawthorn. Prerequisite Subjects: Nil.

**Teaching Method**: Presentation of theoretical material from a number of sources such as textbooks and case studies, class discussion and interpretation of organisational activities.

**Aims and Objectives**

- To assess our values as practitioners
- To develop an understanding of group and intergroup dynamics
- To develop an understanding of the consulting process, and gain some skills in consulting and facilitation
- To consider issues in developing consultant/client relationships, and the negotiation of roles
- To develop intervention skills in dealing with group and organisational task processes including organisational change and resistance
- To gain an appreciation of the changing nature of consulting, i.e., from consulting to change agent and/or business partner
- To apply learning to students’ ‘real’ world situations.

**Content**

- Group dynamics - task and process
- Consulting cycle - contact and entry, diagnosis, planning and decision making, implementing and evaluation
- Consulting process - roles, power, influence, values and ethics
- Consulting interventions - managing change and resistance
- Case studies

**References**


Dick, B., Helping Groups to be effective - skills, processes and concepts for group facilitation, Interchange, Chapel Hill, Qld., 1987


Schein, E., Process Consultation, Volume 1, Addison-Wesley OD Series, Mass., USA, 1987

Schein, E., Process Consultation, Volume 1, Editions 1 and 2, Addison-Wesley OD Series, Mass., USA, 1989, 1988

**BH521 Introduction to Organisational Dynamics**

12.5 Credit Points. 32.5 hours over 1 semester. Hawthorn. Prerequisite Subjects: Nil.

**Teaching Method**: Presentation of theoretical material from a number of sources such as textbooks, articles, experiential activities, class discussion, reflection, workplace project - case analysis. Assessment: Individual/Workplace Project - Personal Case Analysis, Two submissions. Analysis of a workplace issues using various frames presented in the subject, presentation of the case to the class, 20%; Report on analysis of the group’s process in preparing and delivering the presentation using the same frame, 20%

**A subject in the Graduate Diploma of Business (Human Resource Management).**

**Aims and Objectives**

- To develop an understanding of the theories of organising
- To identify students’ preferred ways of ‘seeing’ and understanding organisational activities and the implications for approaches to managing the HRM function
- To practice using different frames for analysing and understanding organisational dynamics particularly in students’ workplaces
- To develop skill in communicating verbally and in writing, analysis and interpretation of organisational activities.

**Content**

The purpose of the subject is to introduce students to a metaphorical approach to organisational analysis and to develop an understanding of their own preferred approaches to managing and to understand the context in which the HRM function operates. Various aspects of organisational dynamics will be considered including mechanistic, organic, political, cultural and ethical approaches to understanding organisation.

This subject encourages students to understand their approaches to managing human resources in relation to dynamics created within the organisation as a whole.

**References**


Bulman, L. & Deal, T., Reframing Organisations, Jossey Bass, California, USA, 1991

Hames, R., The Management Myth, BPP, Sydney, Australia, 1994

Hirschhorn, L., The Workplace Within, MIT Press, Massachusetts, USA, 1988


**BH522 Managing People Across Cultures**

12.5 Credit Points. 32.5 hours over 1 semester. Hawthorn. Prerequisite Subjects: Nil.

**Teaching Method**: Presentation of theoretical material from a number of sources such as textbooks and articles, class studies and experiential activities drawing on students’ practical and workplace experience, class discussion, reflection, and consultation on workplace projects. Assessment: Individual - Organisational Case Study 50%, Individual - Presentation of Case Study 10%, Individual - Reflective Essay 40%.

**A subject in the Graduate Diploma of Business (Human Resource Management).**

**Aims and Objectives**

- To develop an understanding of national, corporate and regional cultures as they impact on cross-cultural management
- To consider some of the challenges associated with managing people across cultures from a human resource management perspective
- To explore some of the challenges in cross cultural management
- To investigate some of the above issues through experiential activities and workplace projects.

**Content**

National and Corporate Culture

The meaning of culture; national culture and corporate culture; understanding and valuing diversity; the group and the individual; rules, relationships and feelings; and the importance of status.

International Human Resources Management

Planning, recruiting and selecting; training and development; career planning, performance appraisal, rewarding and compensating, industrial relations, separation, expatriate problems and repatriation.

Cross Cultural Management

Organisational structure, leadership and vision, power and influence, ethics, communication and negotiation.

**References**


BH523  Strategy, People and Performances

12.5 Credit Points · 37.5 hours over 1 semester · Hawthorn · Pre-Requisite Subjects: Nil
- Teaching Method: Presentation of theoretical material from a number of sources such as textbooks and articles, case studies and experiential activities drawing on students’ practical and workplace experience, class discussion, reflection, and consultation on workplace projects
- Assessment: Individual - Workplace Project 60%, Syndicate Report - Organisational Case Study 30%, Syndicate Presentation - 10%

A subject in the Graduate Diploma of Business (Human Resource Management).

Aims and objectives
- To develop an understanding of the critical links between strategic change, people and performance in achieving organisational success
- To identify the importance of the integration of business, HRM and functional strategies
- To consider the impact of strategic business decisions such as outsourcing, telecommuting etc. on HRM strategy and individual performance
- To consider the HRM strategic choices available to an organisation in meeting its performance objectives
- To explore some of the above issues through a workplace project which focuses on the issues of maintaining competitive advantage through people whilst meeting organisational requirements for continuous improvement.

Content
Strategic Context
Understanding internal and external environments, managing change from a strategic perspective, Business, HRM and functional strategies, current strategic issues such as globalisation, outsourcing, telecommuting, social responsibility and ethics.
Managing the HRM Activity-Strategic Choices
Attraction and placement of human resources, maximising HR productivity and continuous improvement, maintaining human resources, strategic separation.
Developing Capability and Performance
Aligning employee expectations with strategy, enabling and evaluating performance.

References
Bate, P., Strategies for Cultural Change, Butterworth-Heinemann, UK, 1994

BH691  Managing People Across Cultures

12.5 Credit Points · one semester, 2 hours per week; or in block or Saturday mode · Hawthorn · Pre-requisites: completion of MBA core subjects · Assessment: Individual - Current Issues Essay, Syndicate Report - Organisational Case Study, Syndicate Presentation

A subject in the Master of Business Administration

Aims and objectives
To develop an understanding of national, corporate and regional cultures as they impact on cross-cultural management; to consider some of the challenges associated with managing people across cultures from a human resource management perspective; to explore some of the challenges in cross cultural management, and to investigate some of the above issues through experiential activities and workplace projects.

Content
National and Corporate Culture
The meaning of culture; national culture and corporate culture; understanding and valuing diversity; the group and the individual; rules, relationships and feelings; and the importance of status.
International Human Resources Management
Planning, recruiting and selecting, training and development, career planning, performance appraisal, rewarding and compensating, industrial relations, separation, expatriate problems and repatriation.

Cross Cultural Management
Organisational structure, leadership and vision, power and influence, ethics, communication and negotiation.

Recommended reading
Postgraduate Courses
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### Business / Management

#### Graduate Certificates

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#### Graduate Diplomas

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#### Higher Degrees (by coursework)

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#### Higher Degrees (by research)

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## Computing & Information Technology

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### Higher Degrees (by coursework)

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## Design

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### Graduate Diplomas

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## Engineering & Technology

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<td>M060</td>
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<td>H</td>
<td>.5 yr</td>
<td>NA</td>
<td>192</td>
</tr>
<tr>
<td>CE98</td>
<td>Graduate Certificate of Engineering (Pavement Technology)</td>
<td>H</td>
<td>.5 yr</td>
<td>1 yr</td>
<td>192</td>
</tr>
<tr>
<td>C085</td>
<td>Graduate Certificate of Engineering (Performance Building Surveying)</td>
<td>H</td>
<td>NA</td>
<td>1 yr</td>
<td>188</td>
</tr>
<tr>
<td>M091</td>
<td>Graduate Certificate of Engineering (Robotics and Automation)</td>
<td>H</td>
<td>.5 yr</td>
<td>1 yr</td>
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<tr>
<td>E076</td>
<td>Graduate Certificate of Engineering (Telecommunications)</td>
<td>H</td>
<td>.5 yr</td>
<td>NA</td>
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</tr>
<tr>
<td>M077</td>
<td>Graduate Certificate of Risk Management</td>
<td>H</td>
<td>NA</td>
<td>1 yr</td>
<td>193</td>
</tr>
<tr>
<td>M099</td>
<td>Graduate Certificate of Technology (Air Transportation Management)</td>
<td>D</td>
<td>1 yr</td>
<td>2 yrs</td>
<td>187</td>
</tr>
<tr>
<td>C086</td>
<td>Graduate Certificate of Technology (Logistics)</td>
<td>H</td>
<td>.5 yr</td>
<td>1 yr</td>
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### Graduate Diplomas

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Campus</th>
<th>Duration Full-time</th>
<th>Duration Part-time</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>M095</td>
<td>Graduate Diploma in Aviation Human Factors</td>
<td>D</td>
<td>1 yr</td>
<td>2 yrs</td>
<td>188</td>
</tr>
<tr>
<td>P083</td>
<td>Graduate Diploma in Chemical Engineering</td>
<td>H</td>
<td>1 yr</td>
<td>2 yrs</td>
<td>189</td>
</tr>
<tr>
<td>M088</td>
<td>Graduate Diploma in Maintenance Engineering</td>
<td>H</td>
<td>NA</td>
<td>2 yrs</td>
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<tr>
<td>M087</td>
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<td>H</td>
<td>NA</td>
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<td>CHC50</td>
<td>Graduate Diploma of Engineering (Cleaner Production)</td>
<td>H</td>
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<tr>
<td>M095</td>
<td>Graduate Diploma of Engineering (Computer Integrated Manufacture) (CIM)</td>
<td>H</td>
<td>1 yr</td>
<td>2 yrs</td>
<td>182</td>
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<tr>
<td>C092</td>
<td>Graduate Diploma of Engineering (Construction Management)</td>
<td>H</td>
<td>1 yr</td>
<td>2 yrs</td>
<td>190</td>
</tr>
<tr>
<td>M074</td>
<td>Graduate Diploma of Engineering (Industrial Engineering)</td>
<td>H</td>
<td>1 yr</td>
<td>2 yrs</td>
<td>191</td>
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<tr>
<td>M061</td>
<td>Graduate Diploma of Engineering (Industrial Information Technology)</td>
<td>H</td>
<td>1 yr</td>
<td>2 yrs</td>
<td>183</td>
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<td>CE70</td>
<td>Graduate Diploma of Engineering (Pavement Technology)</td>
<td>H</td>
<td>1 yr</td>
<td>2 yrs</td>
<td>192</td>
</tr>
<tr>
<td>M092</td>
<td>Graduate Diploma of Engineering (Robotics and Automation)</td>
<td>H</td>
<td>1 yr</td>
<td>2 yrs</td>
<td>193</td>
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<tr>
<td>E096</td>
<td>Graduate Diploma of Engineering (Telecommunications)</td>
<td>H</td>
<td>1 yr</td>
<td>2 yrs</td>
<td>194</td>
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<tr>
<td>M099</td>
<td>Graduate Diploma of Technology (Air Transportation Management)</td>
<td>D</td>
<td>2 yrs</td>
<td>4 yrs</td>
<td>187</td>
</tr>
<tr>
<td>C076</td>
<td>Graduate Diploma of Technology (Logistics)</td>
<td>H</td>
<td>1 yr</td>
<td>2 yrs</td>
<td>191</td>
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### Higher Degrees (by coursework)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Campus</th>
<th>Duration Full-time</th>
<th>Duration Part-time</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
<td>CHC52</td>
<td>Master of Engineering (Cleaner Production)</td>
<td>H</td>
<td>1.5 yrs</td>
<td>3 yrs</td>
<td>189</td>
</tr>
<tr>
<td>M086</td>
<td>Master of Engineering (Computer Integrated Manufacture)</td>
<td>H</td>
<td>1.5 yrs</td>
<td>3 yrs</td>
<td>182</td>
</tr>
<tr>
<td>C092</td>
<td>Master of Engineering (Construction Management)</td>
<td>H</td>
<td>1.5 yrs</td>
<td>3 yrs</td>
<td>190</td>
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<tr>
<td>M075</td>
<td>Master of Engineering (Industrial Engineering)</td>
<td>H</td>
<td>1.5 yrs</td>
<td>3 yrs</td>
<td>191</td>
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<tr>
<td>M062</td>
<td>Master of Engineering (Industrial Information Technology)</td>
<td>H</td>
<td>1.5 yrs</td>
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<tr>
<td>CE80</td>
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<td>H</td>
<td>1.5 yrs</td>
<td>3 yrs</td>
<td>192</td>
</tr>
<tr>
<td>M093</td>
<td>Master of Engineering (Robotics and Automation)</td>
<td>H</td>
<td>1.5 yrs</td>
<td>3 yrs</td>
<td>193</td>
</tr>
<tr>
<td>E096</td>
<td>Master of Engineering (Telecommunications)</td>
<td>H</td>
<td>1.5 yrs</td>
<td>3 yrs</td>
<td>194</td>
</tr>
<tr>
<td>M099</td>
<td>Master of Technology (Air Transportation Management)</td>
<td>D</td>
<td>3 yrs</td>
<td>6 yrs</td>
<td>187</td>
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<td>M096</td>
<td>Master of Technology (Aviation Human Factors)</td>
<td>D</td>
<td>1.5 yrs</td>
<td>3 yrs</td>
<td>188</td>
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<tr>
<td>C086</td>
<td>Master of Technology (Logistics)</td>
<td>H</td>
<td>1.5 yrs</td>
<td>3 yrs</td>
<td>191</td>
</tr>
<tr>
<td>M097</td>
<td>Master of Technology (Risk Management)</td>
<td>H</td>
<td>NA</td>
<td>3 yrs</td>
<td>193</td>
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### Higher Degrees (by research)

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Campus</th>
<th>Duration Full-time</th>
<th>Duration Part-time</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y096</td>
<td>Master of Engineering (Civil Engineering)</td>
<td>H</td>
<td>2 yrs</td>
<td>4 yrs</td>
<td>194</td>
</tr>
<tr>
<td>Y097</td>
<td>Master of Engineering (Electrical Engineering)</td>
<td>H</td>
<td>2 yrs</td>
<td>4 yrs</td>
<td>194</td>
</tr>
<tr>
<td>Y099</td>
<td>Master of Engineering (Manufacturing Engineering)</td>
<td>H</td>
<td>2 yrs</td>
<td>4 yrs</td>
<td>194</td>
</tr>
<tr>
<td>Y098</td>
<td>Master of Engineering (Mechanical Engineering)</td>
<td>H</td>
<td>2 yrs</td>
<td>4 yrs</td>
<td>194</td>
</tr>
<tr>
<td>Y086</td>
<td>Doctor of Philosophy in Civil Engineering</td>
<td>H</td>
<td>3 yrs</td>
<td>6 yrs</td>
<td>194</td>
</tr>
<tr>
<td>Y007</td>
<td>Doctor of Philosophy in Electrical Engineering</td>
<td>H</td>
<td>3 yrs</td>
<td>6 yrs</td>
<td>194</td>
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<tr>
<td>Y008</td>
<td>Doctor of Philosophy in Mechanical and Manufacturing Engineering</td>
<td>H</td>
<td>3 yrs</td>
<td>6 yrs</td>
<td>194</td>
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Abbreviations of Postgraduate Awards

Applied Science

Graduate Certificates
Graduate Certificate of Applied Science
Astronomy GradCertAppSc
Health Statistics GradCertAppSc
Social Statistics GradCertAppSc

Graduate Certificate in
Integrative Medicine GradCertAppSc(IntegMed)
Nutritional and Environmental Medicine GradCertAppSc(Nutr&EnvMed)

Graduate Diplomas
Graduate Diploma of Applied Science
Cleaner Production GradDipAppSci
Health Statistics GradDipAppSci
Industrial Chemistry/Biochemistry GradDipAppSci
Social Statistics GradDipAppSci

Graduate Diploma in
Integrative Medicine GradCertAppSc(IntegMed)
Nutritional & Environmental Medicine GradCertAppSc(Nutr&EnvMed)

Degree of Master
Master of Applied Science (by research or coursework)
Cleaner Production MAppSc
Computational Chemistry/Biomolecular Design MAppSc
Social Statistics MAppSc

Arts and Social Science

Graduate Certificates
Graduate Certificate of Arts
Applied Media GradCert(AppMedia)

Graduate Certificate of Social Science
Housing Management and Policy GradCertSocSc(HseMgtandPol)

Graduate Diplomas
Graduate Diploma of Arts
Applied Media GradDip(AppMedia)
Commercial Radio GradDip(Commercial Radio)

Graduate Diploma of Social Science
Psychology GradDipSocSc(Psychology)
Family Therapy GradDipSocSc(FamTher)
Housing Management and Policy GradDipSocSc(HseMgtandPol)
Human Services - Counselling

Graduate Diploma in
Japanese GradDipJapanese
Japanese for Professionals GradDipJapanese(Prof)
Korean GradDipKorean
Korean for Professionals GradDipKorean(Prof)

Degree of Master
Master of Arts
Communication MA(Comms)
Counselling Psychology MA(CounsPsych)
Health Psychology MA(HealthPsychology)
Japanese MA(Japanese)
Korean MA(Korean)

Master of Social Science
Housing Management and Policy MSocSc(HseMgtandPol)

Degree of PhD

Professional Doctorate
Psychology PhD

Business / Management

Graduate Certificates
Graduate Certificate of Business
Accounting and Finance GradCertAccFin
Graduate Certificate in
Business Administration GradCertBA
Enterprise Management GradCertEntMgt
Enterprise Management (Family Business) GradCertEntMgt(FamBus)
Export GradCertExport
International Business GradCertEnt
Management GradCertMgt
Organisation Dynamics GradCertOrgDyn
Training Management GradCertTrgMgt

Graduate Diplomas
Graduate Diploma of Business
Accounting and Finance GradDipAccFin
Human Resources Management GradDipHRM

Graduate Diploma in
Business Administration GradDipBusAdmin
Entrepreneurship and Innovation GradDipEnt&Innov
International Business GradDipEnt
Management GradDipMgt
Organisation Dynamics GradDipOrgDyn

Degree of Master
Master of
Business (by research) MBus
Management MMgt
Master of Business Administration MBA
Master of Enterprise Innovation MEI
Master of International Business MIntBus
Master of Management MMgt
Master of Business Organisation Behaviour MBus(OrgBeh)

Degree of PhD
PhD

Professional Doctorate
Business Innovation and Enterprise

Design

Graduate Certificate of Design
Multimedia Design GradCertDes(Multimedia Design)

Graduate Diploma of Design
Multimedia Design GradDipDes(Multimedia Design)

Master of Design
Multimedia Design MDes(Multimedia Design)

Degree of Master (by research)
Master of Design MDes

Degree of PhD
Doctor of Philosophy in Design PhD
### Engineering & Technology

#### Graduate Certificates
- Aviation Human Factors
- Maintenance Engineering

#### Graduate Certificate of Engineering
- CAD/CAM
- Industrial Engineering
- Industrial Information Technology
- Performance Building Surveying
- Pavement Technology
- Robotics and Automation
- Telecommunications

#### Graduate Certificate of Technology
- Air Transportation Management
- Logistics

#### Graduate Diplomas
- Aviation Human Factors
- Chemical Engineering
- Maintenance Engineering
- Risk Management

#### Graduate Diploma of Engineering
- Cleaner Production
- Computer Integrated Manufacture (CIM)
- Construction Management
- Industrial Engineering
- Industrial Information Technology
- Pavement Technology
- Robotics and Automation
- Telecommunications

#### Graduate Diploma of Technology
- Air Transportation Management
- Logistics

#### Degree of Master
- Master of Engineering (by coursework) MEng
- Master of Technology M Tech

### Information Technology

#### Graduate Certificates
- Information Systems GradCertInfSys

#### Graduate Diplomas
- Graduate Diploma in Information Technology GradCertEng
- Information Systems Development GradCertEng
- Multimedia Software Development GradCertEng

#### Degree of Master
- Master of Information Systems (Management) MinSys
- Master of Information Technology MinTech

**Note:** Not all these courses will be offered to students in 1999

At time of printing, policies and procedures of the Higher Education Division were under review. Students will be notified of any changes as soon as they are finalised.
Postgraduate General Information

Application procedure
All applications for enrolment in postgraduate courses other than Master degree by research and by publication or PhD must be made to the Admissions Officer from whom application forms are available, (03) 9214 8386.
Information on application for admission to postgraduate courses can be gained from the relevant Schools:
- School of Biophysical Sciences and Electrical Engineering (03) 9214 8585
- School of Business (03) 9214 5046
- School of Design (03) 9214 6755
- School of Engineering and Science (03) 9214 8372
- School of Information Technology (03) 9214 8180
- School of Mathematical Sciences (03) 9214 8448
- School of Social and Behavioural Sciences (03) 9214 5209
- Swinburne Graduate School of Integrative Medicine (03) 9214 5463
- Swinburne Graduate School of Management (03) 9214 8512
- Industrial Research Institute Swinburne (IRIS) (03) 9214 8860

Closing dates for 1999 entry
- Round 1 (timely applications) Closing date: 10 November 1998.
- Round 2 (late applications) Closing date: 19 January 1999.

Entrance requirements
Applicants for admission to postgraduate courses are normally expected to have completed a degree or diploma. The specific requirements vary from course to course: some are open to those with any tertiary qualification, others may require a qualification in a specific discipline or range of disciplines.

Provision is made for admission of applicants who have qualifications other than or less than the normal requirements outlined above but whose employment positions or experience indicate an ability to benefit from the course.

Requirements for specified courses are set out in the relevant sections. Requirements for admission to higher degrees by research are set out in a separate Policies and Procedures handbook.

Fees
Fees apply to all postgraduate courses; contact the relevant school for details.

Higher Degrees by research
All initial enquiries regarding higher degrees by research (Masters, PhD or professional doctorates) should be directed to the School or discipline area in which the applicant is interested in undertaking the degree, or to the Swinburne Graduate Research School.

Enquiries about the Professional Doctorates in Organisation Dynamics, Risk Management and Telecommunications are directed to the School or discipline area in which the applicant is interested or to the Swinburne Graduate Research School.

Nested suite of programs
A number of disciplines offer suites of programs (Graduate Certificate, Graduate Diploma and Masters) which enable students the flexibility of entry and exit points. Suites are available in a number of disciplines including business administration, information systems, innovation, management, open systems, organisation dynamics, risk management and telecommunications.

Graduate Certificate
This is usually an entry level postgraduate qualification for applicants with several years experience and is an alternative for those without any formal undergraduate qualifications and is normally completed in one year of part-time study.

Graduate Diploma
Generally a one year full-time course or a two year part-time course. Applicants must normally have an undergraduate degree, though not necessarily in the proposed areas of study. Applicants without a degree, but with substantial appropriate experience, may also be eligible for entry.

Admission with Advanced Standing
Graduates with good results in a relevant Graduate Certificate course are eligible to apply for a Graduate Diploma. Students may receive credits for some or all subjects already studied, thereby reducing time taken to complete the Graduate Diploma.

Masters degree by coursework
The duration of the course varies by subject but it is generally from one to two years full-time (or equivalent part-time). Applicants must normally have an undergraduate degree.

Admission with Advanced Standing
Graduates with good results in a relevant Graduate Diploma course are eligible to apply for a Masters by coursework. Students may receive credits for some or all subjects already studied, thereby reducing time taken to complete the Masters.

PAGE (Professional and Graduate Education)
PAGE offers university accredited and industry recognised qualifications (Graduate Certificate, Graduate Diploma and Masters) with well defined pathways that span initial training to advanced professional levels. The courses are designed to provide practitioners with relevant, convenient, flexible and cost-effective professional development opportunities.

PAGE programs can be accessed in both Australia and New Zealand. Travel time is minimised, study can be organised to fit with busy work and home schedules and learners can choose topics that directly relate to work needs. Participants who relocate during the course of their studies have the surety of continuing their study through PAGE providing the convenience of professional education at “your time, your place”.

PAGE courses are:
- developed to reflect industry and professional requirements,
- self paced and modular in style, and
- utilise technology to provide learners with real choice over the location and time of study.

All courses are offered for distance delivery. Delivery is through print based subject materials, on line services, video cassettes and CD-ROM. Arrangements between the members ensure participants have ready access to learning support services such as library and computer support facilities.

The course schedule is being continually expanded as the member universities respond to the needs of a growing range of practitioners for high quality educational opportunities to update skills, acquire new knowledge and maintain professional competencies.

The majority of the programs offered by PAGE are accredited and lead directly to, or articulate with, a recognised postgraduate award. Candidates normally hold a Bachelor degree together with relevant work experience. Frequently candidates holding other acceptable academic or professional qualifications and relevant work experience are admitted at the graduate entry level.

PAGE also provides a range of non-award courses aimed at updating professional knowledge. These are included in the section on Professional Courses. It is often possible for individual subjects in award courses to be taken for non-award study. Non-award subjects have no formal entry requirements and lead to a Certificate of Attainment.

Each subject consists of packaged resource materials (on-line or in printed format).
Student Administration Enquiries Office

The Student Administration Office provides information and procedural advice on admissions, examinations and awards. Other functions include processing identity cards, production of passport photos, providing enrolment processing forms (e.g. amendment to enrolment form), result certificates, academic statements, enrolment status letters, authorising travel concession forms and international student card forms, certifying University documents, maintenance of students' result records, hire of lockers and academic gowns.

Location and office hours

Hawthorn campus
Enquiries (03) 9214 8088, (03) 9214 8039
The Student Administration Enquiries Office is located in Room AD121, Administration Building (AD), John Street, opposite the Business and Arts Building (BA) and the Library (see map on page 10).
Office hours are as follows:
During teaching weeks pre census date:
8:30am - 6:00pm Monday to Thursday
8:30am - 5:00pm Friday
During teaching weeks post census date and non-teaching weeks:
8:30am - 5:00pm Monday to Friday
Note: The office is closed on public holidays.

Prahran campus
Enquiries (03) 9214 6744
The Student Administration Enquiries Office is located in Room F107, Building F, 142 High Street, Prahran
Office hours are as follows:
8:30am - 5:00pm Monday to Friday
Note: The office is closed on public holidays.

Swinburne at Lilydale campus
Enquiries (03) 9215 7000
Office hours are as follows:
8:30am - 5:30pm Monday to Friday
Note: The office is closed on public holidays.

Research Scholarships

A number of different research scholarships are available. Contact the Swinburne Graduate Research School for details. Telephone (03) 9214 5412.

Swinburne Graduate Research School (SGRS)

General Manager, Research and Graduate Studies
R. Dawe
Swinburne Graduate Research School exists to provide a University-wide point of contact and communication for all postgraduate research students, to coordinate research services, and to ensure quality in research training.

The Office runs regular seminars and workshops to assist staff and students to develop their research skills. It also offers induction programs for new researchers and postgraduates, offers advice on resources and provides a focus for interaction and development. The School is managed by the Office of Research and Graduate Studies.

Doctoral study and scholarships

The SGRS is responsible for the administration of PhD and Masters by Research degrees and coordination of other research studies. It provides prospective students with a variety of information on research, masters and doctoral study including: details about admissions to candidate, expected duration of candidature, progress report requirements, HECS exemption, scholarships, guidelines for thesis presentation, guidelines for supervision, and University policies on research. The School also provides information, application forms and guidelines for a number of Australian scholarships for doctoral and research Masters degrees. Information is also available on other scholarships offered by non-profit organisations, and on overseas scholarship opportunities.

For further information about doctoral study and scholarships, telephone (03) 9214 5224.

Office of Research and Graduate Studies

The Office of Research and Graduate Studies provides advice on University policies for the conduct of research and the implementation of Swinburne’s Research Management Plan. It also publishes Swinburne’s annual Research Report, which provides an overview of the University’s major research centres, research interests of staff, and details of current research projects.

The Office administers research grants and contracts across the University, ethics committee approvals and intellectual property issues.

External organisations seeking advice on Swinburne’s research capabilities should contact the Office on (03) 9214 5225.

The Office provides information on research grants and other opportunities for research funding, as well as details of programs where graduates are employed specifically by an organisation to conduct research. A weekly up-date detailing current opportunities is distributed widely around the University.

Swinburne Graduate School of Integrative Medicine

Foundation Head and Director of Research
Professor Avni Sali, MBBS, PhD, FRACS, FACS, FACNEM
The Swinburne Graduate School of Integrative Medicine is designed to provide medical professionals with educational programs and research opportunities in complementary therapies. The part-time courses, currently delivered at Hawthorn campus and also to be available through correspondence, combine the scientific principles of conventional medical training with scientifically proven complementary therapies.

The establishment of the School in 1998 was a joint initiative of the University, the Australasian College of Nutritional and Environmental Medicine (ACNEM) and the Australian Integrative Medicine Association (AIMA) and is a reflection of the growing number of medical practitioners who are combining complementary medicines and therapies with conventional medical practice.

Structure

All the component subjects in the Graduate Diploma and Graduate Certificate programs of the School can be taken as single subjects, or as a combination of single subjects. Subjects run for either 4 weeks (10 credit points) or 8 weeks (20 credit points) with 5 contact hours per week. The completion of each subject accumulates credit towards a qualification. All subjects have been allocated CME points in the QA&CE Program by the RACGP.

Research

Professor Avni Sali will lead research into disease prevention and health promotion with an emphasis on nutritional and environmental medicine, exercise and mind/body medicine. The Graduate School of Integrative Medicine will benefit from partnerships with existing research activities at the University, particularly in the areas of applied neuroscience, biophysics and biomedical instrumentation.
Opportunities will be available for students to conduct research projects within a masters course or at PhD level. The selection of complementary therapy research will be based on intensive examination of the scientific evidence in each area in order to identify promising lines of inquiry. The guarantee of scientific validity of the Graduate School’s research comes from a commitment to follow rigorous scientific methods at all times.

**Swinburne Graduate Society of Business**

The Graduate Society of Business is the oldest of the Swinburne alumni chapters, having been formed in 1977 from the original graduating students of the first course of the Postgraduate Diploma in Business Administration.

Now in its twenty first year, the Society has a network of over one thousand past students, and encompasses and supports all current and past students in the Graduate Certificate, Postgraduate Diploma and Masters programs.

The Society operates as an independent official body, represented by a committee, and relies on members’ cooperative efforts to assist the cause of industry relevant and supported further education, extension of qualifications and industry networking both internally and externally to the University.

Current activities include regular newsletters, seminars, meetings and speakers, an extensive personal network, working business lunches, library membership and other benefits as part of the wider Alumni of the University.

For information contact: Brian Golland, PO Box 145, Camberwell 3124. Telephone: (03) 9672 3548 BH or (03) 9435 6614 AH or fax (03) 9432 2500 or Swinburne Alumni Office on (03) 9214 8705.
Swinburne at Lilydale Division

APPLIED SCIENCE

L062  Bachelor of Applied Science

1999 VTAC course codes: 39001 (P/T), 39211 (P/T)
35003 (Q/S Fee)

1998 ENTER: New course in 1999

The Bachelor of Applied Science course is a three year full-time degree, which offers a choice from three core Majors (Computing, Interactive Multimedia, Psychology). Studies in a second Major or Minor/s may be taken from any discipline at Swinburne at Lilydale.

The Bachelor of Applied Science courses allow students to participate in studies from a variety of disciplines at the Lilydale campus, which permits non-traditional and diverse combinations of subjects and studies. The liberal nature of the general Applied Science course enables students to undertake studies suited to individual requirements. Students are encouraged to gain a thorough understanding of science method, critical and creative thinking, information technology and statistics.

Location
Lilydale campus.

Career opportunities
A computing major qualifies students for most entry level positions in the programming and Information Technology fields. Psychology graduates may seek employment in the areas of human resources, social work, marketing, administration and research. Psychology graduates can also do further study in areas of professional psychology such as clinical, counselling, organisational and health and sports psychology.

An Interactive multimedia major qualifies students for most entry level positions in multimedia development, web page development, on line publishing for small businesses, and desktop publishing.

Professional recognition
The computing component of this course is recognised by the Australian Computer Society as a Professional Level course (provisional). The psychology major has provisional accreditation from the Australian Psychological Society.

Course duration
The course will require three years of full-time study or six years of part-time study. An additional period of Industry Based Learning may be undertaken by full-time students after the completion of second year.

Course structure
Students will be required to undertake a total of 24 subjects, consisting of core subjects, majors and minors. Students are required to complete at least 4 subjects at Stage 3 and no more than 10 subjects at Stage 1. Satisfactory completion of the course will require the inclusion of either:

- one major and two minors; or
- one major and one minor; or
- two majors.

Students will be required to complete at least one of the following majors: Computing, Interactive Multimedia, or Psychology. In addition, students will be able to undertake a combination of all of the majors and minors offered by the Division.

A major comprises six subjects post Stage 1 in at least 2 subjects at Stage 3, and a minor comprises four subjects post Stage 1 with at least one subject at Stage 3 (except in the case of psychology), in addition to the required Stage 1 prerequisite subjects.

Course subjects

Swinburne at Lilydale Core Subjects

LCT101  Information Methods
LCL100  Learning and Communication Behaviour
LCR100  Statistics and Research Methods
LCT100  Science Technology and Society

Computing major

Stage 1
LAST100  Software Engineering Concepts
LAC100  Computing Fundamentals

Stage 2
LAC200  Programming
LAC210  Systems Programming and Architecture
LAS200  Systems Analysis and Requirements Determination
PLUS one other stage 2 Information Technology subject.

Stage 3
LAC310  Advanced Programming and Systems Project
PLUS one other stage 3 Information Technology subject.

Interactive Multimedia major

Stage 1
LAI100  Information Systems Fundamentals
LSM100  Texts and Contexts

Stage 2
LAI260  Human-Computer Interaction
LSM200  Popular Culture
LAC270  Interactive Multimedia Technologies Development

Stage 3
LSM301  Electronic Writing
LAC300  Readings in Interactive Multimedia
LSM303  Media Project

Psychology major

Stage 1
LSY100  Psychology 100
LSY101  Psychology 101

Stage 2
LSY200  Cognition and Human Performance
LSY201  Developmental Psychology
LSY202  Social Psychology
LSQ200  Design and Measurement 2

Stage 3
Two of (providing prerequisites/co-requisites are met):

LSY300  The Psychology of Personality
LSY301  Psychological Measurement
LSY304  Abnormal Psychology
LSQ300  Design and Measurement 3

For professional recognition students will be required to complete all stage three subjects.

Entry requirements
For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Year 12 qualification or its equivalent.

Students not holding an appropriate Year 12 or equivalent qualification may be selected after consideration of their employment and educational background.

Credit transfer
Apart from established local and international pathways where block credit arrangements exist, particularly for TAFE students, students admitted to the degree may be granted advanced standing for previous studies on a case-by-case basis. All applications for subject exemptions should be submitted on the appropriate form at the time of enrolment.

Further information

Contact the Swinburne at Lilydale Divisional Office (03) 9215 7000.
BUSINESS

L055 Bachelor of Business

1999 VTAC course codes: 35101 (F/T), 35251 (P/T)
35103 (O/S Fee)
1998 ENTER: 59.65 (F/T) Individual offer (P/T)

The Bachelor of Business provides students with skills and abilities pertinent to a variety of professional careers in the private and public sectors of employment. Students are encouraged to develop a theoretical understanding of their chosen disciplines to enable them to understand not only current developments in society and the workplace, but to adapt and respond appropriately to future developments as they occur. In addition, the course is designed to enhance a number of generic skills highly valued by employers and important for the development of the individual such as self-awareness, presentation and communication skills and skills for the maintenance of learning and knowledge.

The course offers a combination of breadth and specialisation: breadth as a foundation for lifelong learning and specialisation as a preparation for future professional and vocational pursuits. In the implementation of these principles attention is given to the process of learning and thinking involved as well as the content. A student's choice of subject combinations may be expanded by allowing significant selections from other degree streams. The Bachelor of Business is planned to enable students to:

- develop learning skills in an interdisciplinary environment;
- communicate effectively in writing, orally and electronically;
- experience breadth of disciplinary studies and intellectual processes;
- specialise in the field of their chosen profession;
- study combinations of subjects leading to professional accreditation;
- use technology in a way that supports learning and vocational aspirations;
- develop a regional and international outlook in relation to learning;
- understand the cross-cultural issues of interdisciplinary study and teams;
- articulate easily from previous tertiary study to complete a degree program;
- develop the personal qualities and attitudes needed for professional success.

**Location**

Lilydale campus.

**Career opportunities**

Professional recognition

**Course duration**

The Bachelor of Business course is a three year full-time degree program.

Students may undertake the Bachelor of Business on a part-time basis, taking six years to complete the course.

**Course structure**

Students undertake a total of twenty-four subjects, consisting of core subjects, majors and minors. Students are required to complete at least four subjects at Stage 3 and no more than ten subjects at Stage 1.

Satisfactory completion of the course will require the inclusion of either:

- one major and two minors; or
- one major and one minor; or
- two majors.

At least one major must be taken from the business streams of Accounting, Marketing, Economics, Human Resource Management, and Management. In addition, students may select majors and minors in interactive multimedia, media, psychology, computing, information technology, economics, human resource management, enterprise management, management, social statistics, business law, sociology, or tourism. Some combinations, for example both psychology and accounting with professional recognition, will not be possible within the twenty-four subject structure.

A major consists of six subjects post Stage 1, with at least two subjects at Stage 3. For professional recognition in Accounting or Psychology, students must take subjects as specified. A minor comprises four subjects post Stage 1 with at least one subject at Stage 3, except in the case of Psychology.

**BUSINESS SPECIALISATIONS**

**Accounting**

Accounting is the basic language of business. The accounting subjects offered cover the many different aspects that accounting embraces in today's business activities. The overall emphasis is on providing information and analytical tools which improve the decision-making process throughout the organisation.

Stage 1 accounting gives students an overview of accounting from a user's perspective: how to read and analyse accounting reports. Accounting information is an important basis on which many decisions in all areas of business are made.

Stage 2 subjects introduce both the process of creating accounting reports and developing other accounting information for decision-making. Students learn to use a variety of analytical tools and recording processes. Subjects cover a range of areas from accounting as a business computer information system to developing information to assist the marketing, purchasing, production and administrative functions, through to financial management of the firm.

In Stage 3, subjects can be taken which provide students with additional analytical tools used in decision-making in a wide variety of business problems. In addition, further specialist subjects in tax, auditing, financial reporting and personal investment can be studied.

Some accounting subjects can be counted towards an accounting major or minor, or towards a finance major or minor (but not both at the same time). This illustrates the broad range of studies which come under the accounting umbrella. Students with accounting majors or minors find rewarding work in industry, commerce, the public sector, the finance industry or business consulting.

**Business Computing**

In today's world, information has pervaded every aspect of business organisations. As such, the study of information systems and the supporting technology is vital for any business student.

The Business Computing minor would be taken by students who see themselves as users of information systems. The emphasis is on the effective use of information technology within an organisation and the development of skills for solving problems. Selecting this option in combination with other relevant business studies enables the graduate to effectively apply information technologies in the solving of business problems.

**Business Law**

The Business Law minor will provide students with the knowledge necessary to appreciate the impact that law has on the business environment. With the increasing legal regulation of society it is essential that students are aware of the factors which either encourage or inhibit business activities. Law subjects emphasise skills such as the ability to understand arguments, to manipulate abstract concepts and to communicate verbally and in writing. These skills highlight the vocational value of law subjects to students. While not leading to a legal qualification, a business law minor can lead to a range of careers and positions in insurance, banking, finance and the public sector. Legal knowledge would be valuable to a property officer, accountant, trust officer/administrator, company legal officer, company secretary or local government administrator.

**Economics**

Understanding economic principles is an important requirement for a career in business. An economic approach to important practical social and business problems is the focus of the economics discipline. Economics is the study of what, how and for whom to produce - in essence, how society can achieve the maximum benefit from available resources. It emphasises the importance of sound decision-making, at the level of the individual, the firm, and the society as a whole. Economics examines problem areas such as unemployment, inflation, foreign debt and environmental degradation. It also provides guidance to decision-makers on appropriate strategies for successful operation in both local and international markets.

Within the economics major or minor, students also develop skills in interpreting and evaluating economic commentaries and reports and in applying economic principles to real issues facing business and government. Students completing an economics major or minor find employment in a wide range of challenging fields in both the public and private sectors. These include administration, management consulting, economic policy evaluation, financial analysis, banking and market analysis.
Finance

Finance is a field of study which is concerned with financial and capital markets, government influences on those markets and the role of the organisation within this framework. Finance theory is a relatively recent development, and draws on the disciplines of both economics and accounting. A finance minor will equip graduates with a knowledge of financial instruments which are available; investment options available for both personal and enterprise investment; how different forms of financial markets function; the relationship between risk and reward; and the relationship between the business enterprise and financial markets, both domestic and international. It will lead to knowledge which assists in making financial decisions for an organisation. Finance is one of the fastest growing employment areas. Finance graduates who undertake some further study also qualify as Certified Financial Planners.

Human Resource Management

Human Resource Management involves managing and coordinating the productive use of people to achieve the strategic business objectives of the organisation. Most HRM departments are responsible for planning, coordinating and advising on legal aspects of employment; determining, attracting and selecting employees; developing, rewarding and managing human resources. It serves as a catalyst for implementing and managing change and development and takes a ‘line management’ perspective to contribute to corporate profit margins.

Management

Management addresses the principles and processes of management strategies, structures and practices. In the context of a competitive globalised economy, students study how to develop expertise in professional management. The course recognises the diverse relationships accompanying increasingly rapid change in organisations, development processes and the nature of work. It also examines the challenge that organisations face to incorporate ebusiness and ecommerce into their operations. Students are challenged to become pro-active and self-managing and are encouraged to develop creative decision making skills. The discipline incorporates a work integrated learning project where students may investigate, on an individual level or in groups, a specific area of management.

Marketing

Successful companies take the path of ‘market focus’, that is, their strategies are customer driven. Marketing deals with the building and implementation of customer focus.

The meaning of marketing is often misunderstood. One need not look no further than the many advertisements without any real substance as to customer benefits and/or the delivery of these benefits. Frequently no distinction is made between selling and marketing. Unfortunately marketing has been introduced into many organisations as the ‘in word’, a kind of cosmetic change, the solution to the company’s problems, without changing the focus and the attitudes prevailing in the organisation. It has not worked, resulting in companies becoming disillusioned with marketing. These companies did not understand the meaning of marketing. What does it mean? The answer is relatively simple: put yourself inside the skin of your customers and forget yourself for a while. That in itself is difficult to do, but that is exactly the difference between cosmetic and real marketing. To make this transition involves a rethink on your part. Instead of thinking on behalf of your customers you have to learn to listen to your clients, accept what they say at face value and execute what they want.

At Swinburne we explain the components of a business plan and marketing’s central role in strategy. Students are introduced to topics such as consumer behaviour, demand determinants, customer focus, market research, market planning, marketing channels, product and services management, advertising and promotion, international marketing and business to business marketing.

Students are encouraged to think through problems and to find their own answers. They are introduced to frameworks, models and thinking processes to ensure that they make the most of their abilities. Topics like focus, vision, understanding, creativity, the power to influence the future are the outcomes of the marketing curriculum.

Course subjects

Students are required to complete four core subjects in first year. These are:

- LCI100 Information Methods
- LCL100 Learning and Communication Behaviour
- LCT100 Science, Technology and Society
- LCR100 Statistics and Research Methods

There are also core business subjects required for this course. Students are required to complete four of the following five core business subjects:

- LBC100 Accounting 1
- LBE100 Microeconomics
- LBM100 The Marketing Concept
- LBL100 Introduction to Commercial Law
- LTE200 Organisations and Management*

* To be taken in second year

In addition students must complete prerequisite subjects for chosen majors and minors.

Details of majors

These combinations are recommended. Other combinations or subject choices may be negotiated.

Accounting

Stage 1

- LBC100 Accounting 1

Stage 2

Any four of:

- LBC200 Computer Accounting Systems
- LBC201 Corporate Accounting
- LBC202 Management Accounting 1
- LBC203 Computer Cost Accounting Systems
- LBC204 Financial Management 1

Stage 3

At least two of:

- LBC200 Accounting Theory
- LBC201 Taxation
- LBC202 Auditing
- LBC203 Strategic Cost Management
- LBC204 Financial Management 2

Economics

Stage 1

- LBE100 Microeconomics

Stage 2

- LBE200 Macroeconomics
- LBE201 Managerial Economics
- LBE203 Environmental Economics

Stage 3

- LBE300 Economic Policy in Society
- LBE301 International Trade and Finance
- LBE302 Economic Development

Human Resource Management

Stage 2

- LTE200 Organisations & Management
- LTE201 Human Resource Management
- LTE202 Organisational Behaviour

Stage 3

- LSS300 Organisations and Society
- Plus any two of:
  - LTE300 Organisational Change and Development
  - LTE301 Strategic Planning & Project Management
  - LZZ301 Work Integrated Learning Project (Management)
### Management

**Stage 2**
- LTE200 Organisations & Management
- LTE201 Human Resource Management
- LTE202 Organisational Behaviour

**Stage 3**
- Plus any three of:
  - LTE300 Organisational Change and Development
  - LTE301 Strategic Planning & Project Management
  - LTE302 Leadership and Management
  - LSM202 Information Society: Promises and Policies
  - LZ201 Work Integrated Learning Project (Management)

### Marketing

**Stage 1**
- LBM100 Marketing Concepts

**Stage 2**
- LB200 Market Behaviour
- LB201 Marketing Planning
- LB202 Marketing Communications
- LB200 Survey Research Methods

**Stage 3**
- LB200 Product Management
- LB201 Services Marketing and Management

### Details of minors

These combinations are recommended. Other combinations or subject choices may be negotiated.

### Accounting

**Stage 1**
- LBC100 Accounting 1

**Stage 2**
- LBC202 Management Accounting 1
- LBC203 Computer Cost Accounting Systems
- LBC204 Financial Management 1

**Stage 3**
- LBC303 Strategic Cost Management

### Business Computing & eBusiness minor

**Stage 1**
- LAI100 Information Systems Fundamentals

**Stage 2**
- LAI230 Management Support Systems
- plus two of:
  - LAI210 Database Concepts and Modelling
  - LAI260 Human Computer Interaction
  - LAI270 Interactive Multimedia Technologies Development

**Stage 3**
- LAI250 eCommerce and Business Computing Applications

### Economics/Finance

**Stage 1**
- LBC100 Accounting 1
- LBE100 Microeconomics

**Stage 2**
- LBE200 Macroeconomics
- LBE204 Financial Management 1

**Stage 3**
- LBE304 Financial Management 2
- LBE301 International Trade and Finance

### Law

**Stage 1**
- LBL100 Introduction to Commercial Law

**Stage 2**
- LBL200 Company Law
- LBL201 Marketing Law

**Stage 3**
- LBE301 Taxation
- LBE305 Advanced Taxation

### Human Resource Management

**Stage 2**
- LTE200 Organisations & Management
- LTE201 Human Resource Management
- LTE202 Organisational Behaviour

**Stage 3**
- LTE200 Organisations & Management
- LTE200 Organisational Behaviour
- LTE201 Human Resource Management
- LTE202 Organisational Behaviour
- LSS200 Organisations and Society Management

**Marketing**

(for students who do not major in Marketing)

**Stage 1**
- LBM100 Marketing Concepts

**Stage 2**
- LB200 Market Behaviour
- LB201 Marketing Planning

**Stage 3**
- LB200 Market Behaviour
- LB201 Marketing Planning
- LB200 Product Management
- LB201 Services Marketing and Management

### Entry requirements

The normal entry requirement for the Bachelor of Business degree program is successful completion of an appropriate Victorian Year 12 or its equivalent, such as an interstate or international Year 12 qualification. Students must have passes in year 12 English with a grade average of D or equivalent. Consideration will be given to the full range of an applicant’s VCE studies and results, to the level of performance in CATs, and to the student profile.

### Special entry

Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational background. Applicants must sit a Special Tertiary Admissions Test (STAT) after negotiating with VTAC.

### Credit transfer

Apart from established local and international pathways where block credit arrangements exist, particularly for TAFE students, students admitted to the degree may be granted advanced standing for previous studies on a case-by-case
Swinburne at Lilydale Core Subjects

Business core subjects as follows:
required to complete four Swinburne at Lilydale core subjects, and at least four
The degree comprises 24 subjects, each of 12.5 credit points. Students are
course on a part-time basis, taking six years to complete
the Bachelor of Business (Accounting) is a three year full-time program. Students
The degree comprises 24 subjects, each of 12.5 credit points. Students are
Swinburne at Lilydale Core Subjects
LCT101 Information Methods
LCR100 Statistics and Research Methods
LCL100 Learning and Communication Behaviour
LCT100 Science Technology and Society
Business Core Subjects
LBC100 Accounting 1
LBE100 Microeconomics
LBM100 Marketing Concepts
LBE100 Microeconomics
LBC200 Computer Accounting Systems
LBC201 Corporate Accounting
LBC202 Management Accounting 1
LBC203 Computer Cost Accounting Systems
LBC204 Financial Management 1
Stage 3
LBC300 Accounting Theory
LBC301 Taxation
LBC302 Auditing
Other subjects:
LBE200 Macroeconomics
LBM200 Company Law
and five electives
Entry requirements
The normal entry requirement for the Bachelor of Business (Accounting) degree
program is successful completion of an appropriate Victorian Year 12 or its
equivalent, such as an interstate or international Year 12 qualification.
Students must have passes in year 12 English with a grade average of D or
equivalent.
Consideration will be given to the full range of an applicant's VCE studies and
results, to the level of performance in CATs, and to the student profile
Special entry
Applicants who do not satisfy the above requirements may be selected after
consideration of their employment and educational background. Applicants must
sit a Special Tertiary Admissions Test (STAT) after negotiating with VTAC.
Credit transfer
Apart from established local and international pathways where block credit
arrangements exist, particularly for TAFE students, students admitted to the
degree may be granted advanced standing for previous studies on a case-by-case
basis. All applications for subject exemptions should be submitted on the
appropriate form at the time of enrolment, for consideration by exemption
advisers, who make recommendations to the Academic Assembly.
Further information
Contact the Swinburne at Lilydale Divisional Office (03) 9215 7000.

LO54 Bachelor Business (Accounting)
1999 VTAC course codes: 35021 (F/T), 35181 (P/T)
35023 (D/S Fee)
1998 ENTER: New course in 1999
Students wishing to undertake more intensive accounting studies than those
included in an accounting major (generally 6 accounting units) or an accounting
minor (generally 4 accounting units) should enrol in Bachelor of Business
(Accounting) degree.

Location
Lilydale campus.

Career opportunities
It is assumed that people enrolling in the Bachelor of Business (Accounting)
degree will want to pursue a career as a fully qualified professional accountant.

Professional recognition
Students who successfully complete the degree will automatically become eligible
to apply for membership of either the Australian Society of Certified Accountants
or the Institute of Chartered Accountants in Australia.

Course duration
The Bachelor of Business (Accounting) is a three year full-time program. Students
may also undertake the program on a part-time basis, taking six years to complete
the degree.

Course subjects
The degree comprises 24 subjects, each of 12.5 credit points. Students are
required to complete four Swinburne at Lilydale core subjects, and at least four
Business core subjects as follows:

Swinburne at Lilydale Core Subjects
LCT101 Information Methods
LCT100 Science Technology and Society
Business Core Subjects
LBC100 Accounting 1
LBE100 Microeconomics
LBM100 Marketing Concepts
LBE100 Microeconomics
LBC200 Computer Accounting Systems
LBC201 Corporate Accounting
LBC202 Management Accounting 1
LBC203 Computer Cost Accounting Systems
LBC204 Financial Management 1
Stage 3
LBC300 Accounting Theory
LBC301 Taxation
LBC302 Auditing
Other subjects:
LBE200 Macroeconomics
LBM200 Company Law
and five electives

Career opportunities
Tourism is a rapidly growing area of the Australian economy. While a high
percentage of the positions offered are relatively unskilled, part-time and casual,
there is recognition in the industry of the need for professionally qualified
managers in whom business expertise is combined with an understanding of
tourism. Graduates of this course may find employment in the wide range of
tourism enterprises (eg, attractions, transport and tour services), in other
enterprises where tourists are involved (eg, museums and national parks), and in
administrative or coordinating organisations such as regional tourism authorities.
They will also be equipped to develop and run their own businesses in the tourism
field.
Course duration
The Bachelor of Business (Tourism and Enterprise Management) is a full-time three-year degree program. Students may undertake the course on a part-time basis, which normally requires six years for completion.

Course structure
To qualify for the award, students must accumulate a minimum of 300 credit points. Subjects will normally be delivered on-campus, with lectures, tutorials and fieldwork sessions involving about 12 to 15 contact hours. Provision will be made for multimodal learning options. Students should expect to devote about 12 hours per week to each subject.

Students undertake a total of twenty-four subjects, consisting of core subjects, majors and minors. Students are required to complete at least four subjects at Stage 3 and no more than ten subjects at Stage 1.

Students may qualify for award of the degree by:
- completing the majors in Tourism and Enterprise Management plus the core subjects and other subjects offered by Swinburne at Lilydale for which prerequisites have been met; or
- completing a major in Tourism plus a minor in Enterprise Management, core subjects and other subjects offered by Swinburne at Lilydale for which prerequisites have been met; or
- completing a major in Enterprise Management plus a minor in Tourism, core subjects and other subjects offered by Swinburne at Lilydale for which prerequisites have been met.

A major consists of six subjects post Stage 1, with at least two subjects at Stage 3. A minor comprises four subjects post Stage 1, with at least one subject at Stage 3.

Course subjects
Students are required to complete four core subjects in first year. These are:
- LCT101 Information Methods
- LCL100 Learning and Communication Behaviour
- LCT100 Science, Technology and Society
- LOR100 Statistics and Research Methods

There are also core business subjects required for this course. These are:
- LBC100 Accounting 1
- LBC204 Financial Management 1
- LBL100 Introduction to Commercial Law
- LBM100 Marketing Concepts
- LBM200 Marketing Behaviour (required only for Tourism major)

Details of majors
Tourism
Stage 2
- LTT200 Introduction to Tourism
- LTT201 Tourist Destination Management
- LTT202 Tourism Enterprise Development
- LTT203 Tourism Services

Stage 3
- LTT300 Tourism Channels and Travel Management
- LTT301 Tourism Services
- LTT302 Planning and Management in Ecotourism

Enterprise Management
Stage 2
- LTE200 Organisations and Management
- LTE201 Human Resource Management
- LTE202 Organisational Behaviour

Stage 3
- LTE300 Managing Diversity/Culture in the Workplace
- LTE301 Strategic Planning and Project Management
- LTE302 Managing Quality in Organisations

Details of minors
Tourism
Stage 2
- LTT200 Introduction to Tourism
- LTT201 Tourist Destination Management
- LTT202 Tourism Enterprise Development
- LTT203 Tourism Services

Stage 3
- One of:
  - LTT300 Tourism Channels and Travel Management
  - LTT302 Planning and Management in Ecotourism

Enterprise Management:
Stage 2
- LTE200 Organisations and Management
- LTE201 Human Resource Management
- LTE202 Organisational Behaviour

Stage 3
- LTE301 Strategic Planning and Project Management

Entry requirements
The normal minimum requirement for admission to the Bachelor of Tourism and Enterprise Management program is satisfactory completion of VCE, including satisfactory completion of Units 3 and 4 English work requirements with a grade average of D or equivalent. Interstate and international equivalents will be recognised.

Special entry
Applicants who do not have a Year 12 qualification or have a non-competitive Year 12 score and no other tertiary study may be considered for admission if they have relevant employment experience and can demonstrate motivation and ability to succeed.

Credit transfer
Apart from established local and international pathways where block credit arrangements exist, particularly for TAFE students, students admitted to the degree may be granted advanced standing for previous studies on a case-by-case basis. All applications for subject exemptions should be submitted on the appropriate form at the time of enrolment.

Further information
Contact the Swinburne at Lilydale Divisional Office (03) 9215 7000.

DUAL QUALIFICATIONS
L072 Bachelor of Business (Accounting) / Advanced Diploma of Business (Accounting)

1998 VTAC course codes: 35041 (F/T) 35043 (O/S Fee)

1998 ENTER: New course in 1999

Students admitted to the dual award may be granted advanced standing for previous studies on a case-by-case basis. All applications for subject exemptions should be submitted on the appropriate form at the time of enrolment.

Aims and objectives
The dual award B.Bus(Acc)/Adv. Dip. Bus (Acc) program enables students to obtain two academic awards after four years of full-time study.

Subjects in the Bachelor of Business (Accounting) are taken in conjunction with subjects in the Advanced Diploma of Business (Accounting) offered by Swinburne TAFE. Initial TAFE-only studies are increasingly complemented by Higher Education studies over the first two years, with the last two years being undertaken only at Higher Education level.

The course will normally require up to four years of full-time study or eight years of part-time study. However, students may be able to reduce their time commitment by early completion of TAFE modules and expedited Higher Education modules, e.g., Summer semester study.

Location
Lilydale campus.
**Professional recognition**
Completion of the B. Bus (Acc) degree within the dual award framework will enable students to apply for membership of either the Australian Society of Certified Accountants or the Institute of Chartered Accountants in Australia. The Bachelor of Business (Accounting) degree at Lilydale has been accredited by both professional bodies.

**Course duration**
The dual award B. Bus (Acc)/Adv. Dip. Bus (Acc) program enables students to obtain two academic awards after four years of full-time study.

**Course subjects**
In addition to the TAFE subjects the students will be required to undertake the following Higher Education subjects:

**Stage 1**
- LBE100 Microeconomics
- LBM100 Marketing Concepts
- LCT100 Science Technology and Society

**Stage 2**
- LBC201 Corporate Accounting
- LBC202 Management Accounting 1
- LBC203 Computer Cost Accounting Systems
- LBC204 Financial Management 1
- LBE200 Macroeconomics
- LBL200 Company Law
- LFE200 Organisations and Management

**Stage 3**
- LBC300 Accounting Theory
- LBC301 Taxation
- LBC302 Auditing
- Other subjects:
  - 2 elective subjects

**Entry requirements**
The normal minimum requirement for admission to the dual award is satisfactory completion of VCE, including satisfactory completion of Units 3 and 4 English work requirements with a grade average of D or equivalent. Interstate and international equivalents will be recognised.

**Special entry**
Applicants who do not have a Year 12 qualification or have a non-competitive Year 12 score and no other tertiary study may be considered for admission if they have relevant employment experience and can demonstrate motivation and ability to succeed.

**Further information**
Contact the Swinburne at Lilydale Divisional Office (03) 9215 7000.

**L057 Bachelor of Business / Advanced Diploma of Business (Marketing)**

1999 VTAC course codes: 35171 (F/T) 35173 (O/S Fee)

1998 ENTER: New course in 1999

The dual award course provides an opportunity for students to combine specific sales and marketing competencies with the theoretical knowledge, communications skills and an advanced understanding of integrated business methods required for sound management in all areas of modern business.

Students will undertake concurrent studies in all marketing areas at both theoretical and practical levels, and have the opportunity to relate these to complementary business areas by undertaking majors, minors or electives in a variety of related business management areas, including tourism, financial management, economics, business computing and human resource management.

**Location**
Lilydale campus.

**Career opportunities**
The combined course is clearly directed to achieving practical vocational outcomes. Marketing is the fastest growing sector of management study and practical application within industry. The package offered by the dual award prepares graduates with both grassroots and conceptual competencies along with enhanced industry orientation by means of practically-oriented projects at all levels of study.

**Course duration**
The course will normally require up to four years of full-time study or eight years of part-time study. However, students may be able to reduce their time commitment by early completion of TAFE modules and expeditious HE modules, e.g., Summer school study. Students may withdraw at various exit points, namely an Advanced Certificate in Sales Management after one year, an Associate Diploma of Business (Marketing) after two years, or both Associate Diploma of Business (Marketing) and Bachelor of Business after four years study.

**Course structure**
Subjects in the Marketing Major within the Bachelor of Business are taken in conjunction with subjects in the Associate Diploma of Business (Marketing) offered by Swinburne TAFE. Initial TAFE-only studies are increasingly complemented by HE studies over the first two years, with the last two years being undertaken only at HE level.

**Course subjects**
Cross-credit arrangements ensure that appropriate credits and exemptions are given in each award for studies completed at each stage. Students are therefore required to undertake all TAFE modules in the diploma course plus sixteen degree subjects, as follows:

- LDR100 Statistics and Research Methods
- LCT100 Science Technology and Society
- LBC100 Accounting 1
- LBE100 Microeconomics
- LBC201 Marketing Planning
- LBM300 Product Management
- LBM301 Services Marketing and Management, and

Any combination of major (6 units) or minor (4 units) sequence from the wide variety offered in any of the Sal degrees, along with requisite number of electives to complete the 24 units required for the degree.

**Entry requirements**
The normal minimum requirement for admission to the dual award is satisfactory completion of VCE, including satisfactory completion of Units 3 and 4 English work requirements with a grade average of D or equivalent. Interstate and international equivalents will be recognised.

**Special entry**
Applicants who do not have a Year 12 qualification or have a non-competitive Year 12 score and no other tertiary study may be considered for admission if they have relevant employment experience and can demonstrate motivation and ability to succeed.

**Credit transfer**
Students admitted to the dual award may be granted advanced standing for previous studies on a case-by-case basis. All applications for subject exemptions should be submitted on the appropriate form at the time of enrolment.

**Further information**
Contact the Swinburne at Lilydale Divisional Office (03) 9215 7000.

**L070 Bachelor of Business (Tourism & Enterprise Management)/ Diploma of Hospitality Management**

1999 VTAC course codes: 35051 (F/T) 35053 (O/S Fee)

1998 ENTER: New course in 1999

The dual award course provides an opportunity for students to combine specific customer-related competencies and hospitality industry experience with the knowledge, skills and understandings required for sound management in the broader tourism system. Students will undertake concurrent studies at theoretical and practical levels in the hospitality, tourism and enterprise management areas, and have the opportunity to relate these to other business areas such as marketing, financial management, and human resource management.

**Location**
Lilydale campus.
Career opportunities
The course is clearly directed to vocational outcomes. Hospitality is the most rapidly growing subsector within the growing tourism industry. The package offered by the dual award prepares graduates with grassroots competencies and an industry orientation supported by deep theoretical and practical understandings of tourism management as a business activity and of tourism as a form of human behaviour.

Course duration
The course will normally require up to four years of full-time study or eight years of part-time study. However, students may be able to reduce their time commitment by early completion of TAFE modules. Students may withdraw at various exit points with a Certificate IV in Hospitality Supervision or a Diploma of Hospitality Management.

Course subjects
Subjects in the Bachelor of Business (Tourism and Enterprise Management) are taken in conjunction with subjects in the Diploma of Hospitality Management offered by Swinburne TAFE. Cross-credit arrangements ensure that credits and exemptions are given in each award for studies completed at each stage. Students are therefore required to undertake TAFE modules in the diploma course plus sixteen degree subjects, as follows:

- LCR100  Statistics and Research Methods
- LCT100  Science Technology and Society
- LBC100  Accounting 1
- LBL100  Introduction to Commercial Law
- LBM200  Marketing Behaviour
- LBC204  Financial Management 1
- LTE201  Human Resource Management
- LTE202  Organisation Behaviour
- LTE300  Diversity and Culture in the Workplace
- LTE301  Strategic Planning and Project Management
- LTE302  Managing Quality in Organisations
- LTT201  Tourist Destination Management
- LTT202  Tourism Enterprise development
- LTT300  Tourism Channels and Travel Management
- LTT302  Planning and Management in Ecotourism
- 1 elective

Entry requirements
The normal minimum requirement for admission to the dual award is satisfactory completion of VCE, including satisfactory completion of Units 3 and 4 English work requirements with a grade average of D or equivalent. Interstate and international equivalents will be recognised.

Special entry
Applicants who do not have a Year 12 qualification or have a non-competitive Year 12 score and no other tertiary study may be considered for admission if they have relevant employment experience and can demonstrate motivation and ability to succeed.

Credit transfer
Students admitted to the dual award may be granted advanced standing for previous studies on a case-by-case basis. All applications for subject exemptions should be submitted on the appropriate form at the time of enrolment.

Further information
Contact the Swinburne at Lilydale Divisional Office (03) 9215 7000.

INFORMATION TECHNOLOGY

L061 Bachelor of Applied Science (Information Technology)
1999 VTAC course codes: 35011 (F/T), 35191 (P/T)
35013 (O/S Fee)
1999 ENTER: New course in 1999

The Information Technology major and Computing co-minor cover the essential material necessary for entry to a professional career in information technology: programming, systems analysis and design, database, computer networks and project management. It also includes the opportunity of studies in the important areas of information systems and multimedia, as well as subjects which consider the social, legal and ethical implications of computing.

There is an emphasis on team project work throughout the degree, which enables students to develop technical and communication skills necessary to ensure that they are of immediate benefit to employers after completing the course. Some projects involve the development of small systems for clients external to the university.

Location
Lilydale campus.

Career opportunities
After successfully completing the course, students will have qualified for most entry level positions in the information technology field. Opportunities abound in areas such as software development, systems analysis and design, database development, systems administration and computer network administration. There are increasing opportunities for trained professionals in both the government and private sectors and private sectors.

Professional recognition
This course is recognised by the Australian Computer Society as a Professional Level course (provisional). Graduates are eligible for associate membership. After four years of relevant experience, a graduate can apply for full membership.

Course duration
The Bachelor of Applied Science (Information Technology) course is normally a three year full-time degree. However, students may apply to undertake the optional industry based learning in which case the course will be of four years duration. This course may be undertaken on a part-time basis. This would normally take six years. Industry based learning is not available to part-time students.

Course structure
Students undertake a total of twenty-four subjects, consisting of core subjects, majors and minors. Students are required to complete at least four subjects at Stage 3 and no more than ten subjects at Stage 1. A major consists of six subjects post Stage 1, with at least two subjects at Stage 3. For professional accreditation in Accounting, Information Technology or Psychology, students must take subjects as specified. A minor comprises four subjects post Stage 1 with at least one subject at Stage 3, except in the case of Psychology.

Satisfactory completion of the course will require the completion of the Information Technology major and Information Systems major OR Information Technology major and Computing co-minor, and one other major/minor.

Students may select a major in accounting, information systems, interactive multimedia, marketing, media, psychology, sociology, tourism, or enterprise management. Minors are offered in accounting, business computing and eBusiness, business law, economics, economics/finance, information systems, interactive multimedia development, marketing, media, psychology, sociology, tourism, enterprise management and social statistics.

Courses subjects
Students are required to complete the four Stage One Core subjects.

- LCI101  Information Methods
- LCQ100  Learning and Communication Behaviour
- LCR100  Statistics and Research Methods
- LCT100  Science Technology and Society

Information Technology major
Students undertaking the BAppSci(IT) are required to complete the Information Technology major and Computing co-minor.

Stage 1
- LAS100  Software Engineering Concepts
LAC100 Computing Fundamentals

Stage 2
LAS200 Systems Analysis and Design
LAC200 Programming
LAI210 Database Concepts and Modelling

Stage 3
LAC300 IT Professional & Ethical Issues
Plus two of:
LAC220 Systems Programming and Architectures
LAC310 Advanced Programming and Systems Project
LAI220 Database Management Systems
LAS220 Software Engineering and CASE
LZZ301 Work Integrated Learning Project (or equivalent)

Information Systems major

Stage 1
LAI100 Information Systems Fundamentals

Stage 2
LAI230 Management Support Systems
Plus three of:
LAI260 Human-Computer Interaction
LAI270 Interactive Multimedia Technologies Development
LAI210 Database Concepts and Modelling
LAI240 Electronic Communications and Applications

Stage 3
LAI300 Readings in Information Systems and Technology
Plus one of:
LAI320 Database Management Systems
LAI330 eCommerce and Business Computing Applications
LAS310 IT Strategies and Project Management

Computing minor

Stage 1
LAC100 Computing Fundamentals

Stage 2
LAI240 Electronic Communications and Applications
LAC220 Systems Programming and Architectures
Plus one other Stage 2 or 3 Information Technology Discipline subject.

Stage 3
LAI310 IT Strategies and Project Management

Business Computing and eBusiness minor

Stage 1
LAI100 Information Systems Fundamentals

Stage 2
LAI230 Management Support Systems
Plus two of:
LAI210 Database Concepts and Modeling
LAI260 Human-Computer Interaction
LAI270 Interactive Multimedia Technologies Development

Stage 3
LAI350 eCommerce and Business Computing Applications

Interactive Multimedia Development minor

Stage 1
LAI100 Information Systems Fundamentals

Stage 2
LAI260 Human-Computer Interaction
LAI270 Interactive Multimedia Technologies Development
Plus one other Stage 2 or 3 Information Technology Discipline subject.

Stage 3
LA090 eCommerce and Business Computing Applications
or
LA300 Readings in Information Systems and Technology

Information Systems minor

Stage 1
LAI100 Information Systems Fundamentals

Stage 2
Plus three Stage 2 or 3 Information Technology Discipline subjects.

Stage 3
LA300 Readings in Information Systems and Technology

Entry requirements

The normal entry requirement for the Bachelor of Applied Science (Information Technology) degree program is successful completion of an appropriate Victorian Year 12 or its equivalent, such as an interstate or international Year 12 qualification. Students must have passes in year 12 English with a grade average of D or equivalent.

Consideration will be given to the full range of an applicant’s VCE studies and results, to the level of performance in CATs, and to the student profile.

Special entry

Applicants who do not satisfy the above requirements may be considered on the basis of factors such as employment and educational background.

Credit transfer

Apart from established local and international pathways where block credit arrangements exist, particularly for TAFE students, students admitted to the degree may be granted advanced standing for previous studies on a case-by-case basis. All applications for subject exemptions should be submitted on the appropriate form at the time of enrolment.

Further information

Contact the Swinburne at Lilydale Divisional Office (03) 9215 7000.

MULTIMEDIA

L051 Bachelor of Social Science (Interactive Multimedia)

1998 VTAC course codes: 35161 (F/T), 35861 (P/T)
35163 (O/S Fee)

1998 ENTER: New course in 1999

The Bachelor of Social Science (Interactive Multimedia) combines computing and Media Studies subjects to address the practice and theory of producing interactive multimedia products both in terms of conceptualisation and content development and delivery. It emphasises the importance of programming (through its computing subjects) as well as the effective development of content appropriate to client needs (through its Media/writing subjects). Students will develop a range of practical skills necessary for the development of multimedia materials, such as programming, scripting and project management, as well as critical and cultural theory and criteria for analysing, utilising and creating effective multimedia and online deliveries.

This degree will prepare graduates for careers in any industry which has a demand for multimedia developers, particularly for the development of multimedia materials both in terms of conceptualisation and content development and delivery. It emphasises the importance of programming (through its computing subjects) as well as the effective development of content appropriate to client needs (through its Media/writing subjects). Students will develop a range of practical skills necessary for the development of multimedia materials, such as programming, scripting and project management, as well as critical and cultural theory and criteria for analysing, utilising and creating effective multimedia and online deliveries.

Aims and objectives

On the completion of this course students will be able to:

- utilise programs for authoring, sound effects, animation and editing;
- script and design web sites;
- script, design and program CD ROMs;
- take interactive multimedia projects from electation through design, development, and maintenance stages;
- understand visual concepts, three dimensionality, interactive multimedia, virtuality and utilise relevant software and hardware;
- understand the cultural and critical implications of globalisation;
- understand and develop interactive multimedia applications for small and
Stage 2 Details of the Information Technology Minor

Students are required to complete four core subjects in first year. The four core subjects are:
- LAS100 Software Engineering Concepts
- LAI230 Management Support Systems
- LAI240 Electronic Communications and Applications
- LAI250 Business Computer Applications

Course subjects

Students are required to complete at least four subjects at Stage 3 and no more than ten subjects at Stage 1.

Course structure

Satisfactory completion of the course will require the completion of a major in Interactive Multimedia, a minor in Media Studies and a minor in Information Technology. A major consists of six subjects post Stage 1, with at least two subjects at Stage 3.

Course subjects

Students are required to complete four core subjects in first year. The four core subjects are:
- LAS100 Software Engineering Concepts
- LAI230 Management Support Systems
- LAI240 Electronic Communications and Applications
- LAI250 Business Computer Applications

Details of the Interactive Multimedia major

Stage 1
- LAI100 Information Systems Fundamentals
- LSM100 An Introduction to Media, Literature and Film

Stage 2
- LAI270 Human Computer Interaction
- LAI280 Interactive Multimedia Technologies Development
- LSM200 Popular Culture

Stage 3
- LAI300 Readings in Information Systems and Technologies
- LSM301 Electronic Writing
- LSM303 Interactive Multimedia Project

Details of the Media Studies Minor

Stage 2
- LCR100 Statistics and Research Methods
- LSM100 An Introduction to Media, Literature and Film

Stage 3
- LAI230 Management Support Systems
- LAI240 Electronic Communications and Applications
- LAI250 Business Computer Applications
- LAI210 Software Design and Development

Entry requirements

The normal entry requirement for the Bachelor of Social Science (Interactive Multimedia) degree program is successful completion of an appropriate Victorian Year 12 or its equivalent, such as an interstate or international Year 12 qualification. Students must have passes in year 12 English with a grade of D or equivalent.

Consideration will be given to the full range of an applicant's VCE studies and results, to the level of performance in CATs, and to the student profile.

Special entry

Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational and general background.

Credit transfer

Apart from established local and international pathways where block credit arrangements exist, particularly for TAFE students, students admitted to the degree may be granted advanced standing for previous studies on a case-by-case basis. All applications for subject exemptions should be submitted on the appropriate form at the time of enrolment, for consideration by exemption advisers, who make recommendations to the Divisional Board.

Further information

Contact the Swinburne at Lilydale Divisional Office (03) 9215 7000.

SOCIAL SCIENCE

L050 Bachelor of Social Science

1999 VTAC course codes: 35201 (F/T), 35151 (P/T)
35203 (O/S Fee)

1998 ENTER: 68.65 (F/T), 64.10 (P/T)

The Bachelor of Social Science provides students with skills and abilities pertinent to a variety of professional careers in the public and private sectors of employment. Students are encouraged to develop a theoretical insight of their chosen disciplines to enable them to understand not only current developments in society and the workplace, but also to adapt and respond appropriately to future developments as they occur. In addition, the course is designed to enhance a number of generic skills highly valued by employers and important for the development of the individual such as self-awareness, presentation and communication skills and skills for the maintenance of learning and knowledge.

This course offers a combination of breadth and specialisation: breadth as a foundation for lifelong learning and specialisation as a preparation for future professional and vocational pursuits. In the implementation of these principles attention will be given to the process of learning and thinking involved as well as the content. A student's choice of subject combinations will be expanded by allowing significant selections across other degree streams.

The Bachelor of Social Science is planned to enable students to:
- develop learning skills in an interdisciplinary environment;
- communicate effectively in writing, orally and electronically;
- experience breadth of disciplinary studies and intellectual processes;
- specialise in the field of their chosen profession;
- study combinations of subjects leading to professional accreditation;
- use technology in a way that supports learning and vocational aspirations;
- develop a regional and international outlook in relation to learning;
- understand the cross-cultural issues of interdisciplinary study and teams;
- articulate easily from previous tertiary study to complete a degree program;
- develop the personal qualities and attitudes needed for professional success.

Location

Lilydale campus.

Course duration

The Bachelor of Social Science course is a three year full-time degree program. Students may undertake the Bachelor of Social Science on a part-time basis, taking around six years to complete the course.
Course structure

Students undertake a total of twenty-four subjects, consisting of core subjects, majors and minors. Students are required to complete at least four subjects at Stage 3 and no more than ten subjects at Stage 1. Satisfactory completion of the course will require the inclusion of either:

- one major and two minors; or
- one major and one minor; or
- two majors.

At least one major must be taken from either media, psychology or sociology. In addition students may select majors in accounting, computing, marketing, tourism, or enterprise management. Some combinations, for example both psychology and accounting with professional recognition, will not be possible in the 24 unit structure.

Minors are offered in accounting, business computing, economics, economics/finance, business law, marketing, media, psychology and sociology, social statistics, tourism and enterprise management.

A major consists of six subjects post Stage 1, with at least two subjects at Stage 3. For professional recognition in Accounting or Psychology, students must take subjects as specified. A minor comprises four subjects post Stage 1, with at least one subject at Stage 3, except in the case of Psychology.

SOCIAL SCIENCE SPECIALISATIONS

Media Studies

Media Studies at Swinburne offers a broad range of lively subjects which are essentially analytical and critical in their approach. During the later stage of the major, students can acquire hands on skills in publishing and production procedures.

Students undertaking the Bachelor of Social Science can choose from seven subjects in Media Studies, but only six subjects are required for completion of the Media Studies major. Minimum requirements for the major in the Media Studies are one stage one subject, two stage two subjects and three stage three subjects.

The media field offers appealing employment and community opportunities. Students who have graduated from the Bachelor of Social Science with a major in Media Studies have been employed in many related fields - commercial and public relations and television, print journalism, radio production, publishing, research, public relations, advertising and telecommunications research and marketing.

Many students have found that, though not directly employed in a media industry, the knowledge and communications skills acquired in the course have many useful applications in their work and life.

Psychology

The undergraduate psychology program provides students with a broad introduction to psychology in all three stages. In stage three, some attention is given to vocational skills and knowledge relevant to applied fields.

The stage one course in psychology introduces students to a range of topics in psychology and experimental design and analysis. Students intending to major in the subject are required to take LSY100 Psychology 100, LSY101 Psychology 101 and LCR100 Statistics and Research Methods. Each of these subjects comprises lectures, practical work and instruction in statistical analysis.

In stage two, LSY201 Cognitive and Human Performance, LSY202 Development Psychology and LSY203 Social Psychology are offered. For students wishing to major in psychology LSG200 Design and Measurement 2 must be taken.

In stage three, subjects offered are LSY300 The Psychology of Personality, LSY301 Psychological Measurement and LSY304 Abnormal Psychology. In addition, students majoring in psychology must take LSG300 Design and Measurement 3. It should be noted that the undergraduate psychology program is sequential in nature; completion of the prescribed subjects at one stage of the program is a prerequisite for study at the next level. All subjects at one stage of the program are prerequisites for students at the next level. All subjects offered in this program are semester subjects. Thus a student must complete both stage one psychology subjects before enrolling in any stage two psychology subjects, and must complete all stage two psychology subjects before enrolling in any stage three subjects. Details of these prerequisite arrangements are shown in entries for all psychology subjects.

Students should note that each psychology subject is worth one semester subject.

Sociology

Sociology is the study of people in groups ranging from the family to whole societies like Australia. It is about how individual and group behaviour shapes groups and society, and in turn, how behaviour is shaped by society and its institutions. A group may be as diverse as a large firm, a school, a rock band, the public service, or a voluntary agency like a sporting club or community housing association. Important to sociology is an appreciation of the different ways group behaviour can be explained, and the various methods which can be used to get a better understanding of the social world.

Understanding group behaviour, being familiar with different explanations for this behaviour, and being able to gather data to explore aspects of the social world are important skills, both for employment purposes and for being a knowledgeable and participating citizen of Australian society.

The teaching of sociology is focused on applied skills including problem identification, statistics, research methods, the formation of life-long learning skills, policy design and implementation. What differentiates sociology at Swinburne from what is taught by sociology departments at other tertiary institutions is our emphasis on comparing Australia with other parts of the world, and in applying sociology to solve practical problems. There are four specific types of skills we try to develop. First, we develop an awareness of core sociological concepts such as class, gender and ethnicity.

Second, we show the different ways these concepts have been applied to specific fields of study such as the family, the city, deviation, gender and migration.

Third, we explore how governments respond to social problems through policy initiatives, and we explain how these initiatives can be evaluated. Finally, we develop an acute awareness of how to gather data about the social world, and how these data can be used for policy purposes.

Few people who complete a major in sociology end up being employed as sociologists. This is equally so for graduates of many other disciplines in the social sciences. Sociology graduates typically find careers in the areas of social research, administration, planning, community development, human resources, policy development, and marketing. These positions all require the conceptual and skill-based training that comes from undertaking a degree in sociology.

Students undertaking the Sociology major can choose from seven subjects but only six subjects are required for a major. Minimum requirements for the major in the Sociology are one stage one subject, two stage two subjects and three stage three subjects.

Course subjects

Students are required to complete four core subjects in first year. Some combinations of majors may require a variation to these requirements. In addition students must complete prerequisite subjects for chosen majors and minors.

The four core subjects are:

- LQ101 Information Methods
- LCL100 Learning and Communication Behaviour
- LC7100 Science, Technology and Society
- LCR100 Statistics and Research Methods

Psychology for Professional Recognition

Stage 1

LSY100 Psychology 100
LSY101 Psychology 101

Stage 2

LSY200 Cognition and Human Performance
LSY201 Developmental Psychology
LSY202 Social Psychology
LSQ200 Design and Measurement 2

Stage 3

Two of (providing prerequisites/corequisites are met):
LSY300 The Psychology of Personality
LSY301 Psychological Measurement
LSY304 Abnormal Psychology
LSQ300 Design and Measurement 3

For professional recognition, students will be required to complete all Stage 3 subjects.
Details of majors

Media
Stage 1
LSM100 An Introduction to Media, Literature and Film
Stage 2
LSM200 Popular Culture
LSM201 Writing for the Media
LSM203 New Media: The Telecommunications Revolution
Stage 3
LSM300 Cinema Studies
LSM301 Electronic Writing
LSM302 Information Society: Promises and Policies
Psychology
Stage 1
LSY100 Psychology 100
LSY101 Psychology 101
Stage 2
LSY200 Cognition and Human Performance
LSY201 Developmental Psychology
LSY202 Social Psychology
LSQ200 Design and Measurement 2
Stage 3
LSY300 The Psychology of Personality
LSY301 Psychological Measurement
LSY304 Abnormal Psychology
LSQ300 Design and Measurement 3
Sociology
Stage 1
LSS100 Introduction to Sociology
Stage 2
LSS200 Difference, Deviance and Conformity
LSS201 Sociological Perspectives
LSS202 Ethnicity, Culture and Diversity Management
Stage 3
LSS300 Organisations and Society
LSS302 Methodology of Social Research
LSS303 Sociology and Social Policy
Details of minors

Media
Stage 1
LSM100 An Introduction to Media, Literature and Film
LCT100 Science, Technology and Society
Stage 2
LSM200 Popular Culture
LSM201 Writing for the Media
LSM203 New Media: The Telecommunications Revolution
Stage 3
One of:
LSM300 Cinema Studies
LSM301 Electronic Writing
LSM302 Information Society: Promises and Policies
Psychology
Stage 1
LSY100 Psychology 100
LSY101 Psychology 101
Stage 2
LSY200 Cognition and Human Performance
LSY202 Social Psychology
LSY203 New Media: The Telecommunications Revolution
LSY300 The Psychology of Personality
LSY301 Psychological Measurement
LSY304 Abnormal Psychology
LSQ300 Design and Measurement 3
Sociology
Stage 1
LSS100 Introduction to Sociology
Stage 2
LSS200 Difference, Deviance and Conformity
LSS201 Sociological Perspectives
LSS202 Ethnicity, Culture and Diversity Management
Stage 3
Two of:
LSS300 Organisations and Society
LSS302 Methodology of Social Research
LSS303 Sociology and Social Policy

Entry requirements
The normal entry requirement for the Bachelor of Social Science degree program is successful completion of an appropriate Victorian Year 12 or its equivalent, such as an interstate or international Year 12 qualification. Students must have passes in year 12 English with a grade of D or equivalent.
Consideration will be given to the full range of an applicant’s VCE studies and results, to the level of performance in CATs, and to the student profile.

Special entry
Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational and general background.

Credit Transfer
Apart from established local and international pathways where block credit arrangements exist, particularly for TAFE students, students admitted to the degree may be granted advanced standing for previous studies on a case-by-case basis. All applications for subject exemptions should be submitted on the appropriate form at the time of enrolment, for consideration by exemption advisers, who make recommendations to the Divisional Board.

Further information
Contact the Swinburne at Lilydale Divisional Office (03) 9215 7000.

DUAL QUALIFICATION
L073 Bachelor of Social Science / Diploma of Community Services (Welfare Studies)
For information on this course contact the Swinburne at Lilydale Divisional Office (03) 9215 7000.
COMPUTING & INFORMATION TECHNOLOGY

Z063 Bachelor of Applied Science (Computer Science and Software Engineering)

1999 VTAC course codes: 34431 (F/T)
34433 (O/S Fee)

1998 ENTER: 78.15

The Bachelor of Applied Science (Computer Science and Software Engineering) is currently one of the most popular computing courses in Victoria. The course focuses on the object-oriented approach to software development, which is accepted by industry as a key technology for the future. The course provides an extensive education in contemporary approaches to the analysis, design and implementation of large-scale systems, along with a sound understanding of the traditional aspects of computer science such as hardware and operating systems. Like all IT courses at Swinburne, this program pays particular attention to the human factors involved in the development, deployment and use of computer-based systems. There is a focus on applications involving multi-media, and on web-based systems, with an emphasis on the design of effective human-computer interfaces. A range of options in the final year of the course allows students to study advanced subjects in areas such as software engineering, computer networks, database, knowledge-based systems and human-computer interaction. The acquired skills and knowledge are consolidated in a major team project for an external client in the final year and in an optional supervised industry based learning year.

The course uses Java as the first programming language, recognising this language's role in the development of web-based systems. Students then develop skills in the C++ programming language.

Graduates of this course will possess:
- the skills necessary for working in a software development team on a large scale project;
- a deep understanding of the process of software development;
- skills in the object-oriented approach to systems analysis, design and implementation;
- high-level skills in developing software in Java and C++;
- the communication and management skills required to manage software development projects successfully;
- an understanding of the social, legal and ethical issues confronting the software engineering professional;
- knowledge and experience in human-computer interaction, knowledge-based systems, database systems and data communications.

Location
Hawthorn campus.

Career opportunities
The course is oriented towards applications in areas such as defence, aerospace and medicine, where complex software plays a major role, often of a safety-critical nature, as well as in businesses that require extensive computer support, such as banking and manufacturing.

Professional recognition
The degree provides credit at Professional Level (the highest level) towards membership of the Australian Computer Society.

Course duration
3 years full-time (plus one year optional industry based learning).

Course subjects

**Stage 1**

**Semester 1**

IT1015 Computer Systems
IT1048 Professional Skills for Software Engineers
IT1051 Software Development 1
MS131 Mathematics for Computing A

**Semester 2**

IT1004 Business Applications and Systems 1
IT1031 Introduction to Software Engineering
IT1052 Software Development 2

**Stage 2**

**Semester 1**

IT2015 Data Communications
IT2024 Introduction to Human-Computer Interaction
IT2053 Software Development 3
IT3056 Software Engineering 1

**Semester 2**

IT2014 Computer Organisation and Operating Systems
IT2020 Data Communications
IT2054 Software Development 4
IT3041 Multimedia Web Development

**Stage 3**

Optional Industry Based Learning (IBL) Year

**Stage 4**

**Semester 1**

IT3002 Introduction to Artificial Intelligence
IT3058 Software Engineering Project
Elective
Elective

**Semester 2**

IT3044 Professional Issues in Information Technology
IT3058 Software Engineering Project
Elective
Elective

Electives
Students select four elective subjects in their final year, of which at least two must be IT electives, and at most two may be non-IT subjects. The availability of electives is subject to timetabling and resource constraints. IT electives to be offered may include the following:

- IT3037 Software Engineering 2
- IT3045 Personal Software Process
- IT3039 Local Area Networks
- IT3064 Wide Area Networks
- IT3017 Database 2
- IT3018 Database 3
- IT3050 Soft Computing
- IT3038 Knowledge-Based Systems
- IT3011 Compiler Design
- IT3028 Interactive Systems Design
- IT3036 Information Technology Strategies
- IT3040 Multimedia Systems
- IT3042 Object-Oriented Systems 1
- IT3047 Real-Time Programming

Entry requirements
Applicants must have satisfactorily completed the Victorian Certificate of Education (VCE) or its equivalent, with Units 3 and 4 English and Mathematical Methods. Bonuses may apply for applicants who have successfully completed Information Technology, Information Systems, and/or Specialist Mathematics.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information
Contact the School of Information Technology on (03) 9214 5505.
Email: itinfo@swin.edu.au
**Bachelor of Applied Science (Computing)**

The Bachelor of Applied Science (Computing) is a two-year course, available to students who have completed an appropriate IT/Computing associate diploma, two-year diploma or equivalent at a TAFE institution or equivalent. Pathways programs such as this have become extremely popular over the past few years as an alternate method for entry into a degree course.

The Bachelor of Applied Science (Computing) course reflects the emerging prominence of the object-oriented approach to software development, and has an emphasis on multi-media software development for the web. The course offers an integrated approach to analysis, design and implementation of computer systems to assist students to embrace the whole software development lifecycle. It provides students with the knowledge, skills and attitudes to make them valuable members of any team developing software, where those skills are built upon a science base which includes topics such as database, artificial intelligence and data communications.

The course uses Java as the first programming language, recognising this language's role in the development of web-based systems. Students then develop skills in the C++ programming language.

Graduates of this course will possess:

- the skills necessary for working in a software development team;
- an understanding of the process of software development;
- skills in the object-oriented approach to systems analysis, design and implementation;
- high-level skills in developing software in Java and C++;
- an understanding of the social, legal and ethical issues confronting the software engineering profession;
- knowledge and experience in human-computer interaction, knowledge-based systems, database systems and data communications.

Students who achieve satisfactory results during the course may apply to undertake an additional year of study, enabling them to graduate with an honours degree.

**Location**

Hawthorn campus.

**Career opportunities**

Employment prospects for graduates of the course are excellent. Graduates are employed in organisations engaged in software development in areas such as banking, telecommunications, defence, aerospace and medicine, where software plays a major role, often of a critical nature. This course equips graduates with extensive skills in software development, and develops experience in working on team projects.

**Professional recognition**

Provides credit at Professional Level (the highest level) towards membership of the Australian Computer Society.

**Course duration**

Normally two years full-time.

**Structure**

Four subjects will generally be taken during each academic semester, with a total of around 12 hours per week contact time (including lectures, classes, tutorials and laboratory sessions). The typical student's average weekly workload during semester is expected to be 50 hours.

Students may choose two elective subjects in the final year of the course, enabling them to explore particular interests. The acquired skills and knowledge are consolidated in a project subject in the final year.

**Course subjects**

### Stage 1

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### Stage 2

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<td>IT2020</td>
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<td>IT3044</td>
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</table>

### Semester 1

| IT1046 | Professional Skills for Software Engineers |
| IT1051 | Software Development 1 |
| IT3002 | Introduction to Artificial Intelligence |
| IT2024 | Introduction to Human-Computer Interaction |

### Semester 2

| IT2054 | Software Development 4 |
| IT3041 | Multimedia Web Development |
| IT3061 | Software Team Project |

**Electives**

Availability of electives is subject to timetabling and resource constraints. Electives may include the following:

- IT3057 | Software Engineering 2 |
- IT3045 | Personal Software Process |
- IT3017 | Database 2 |
- IT3018 | Database 3 |
- IT3039 | Local Area Networks |
- IT3064 | Wide Area Networks |
- IT3050 | Soft Computing |
- IT3038 | Knowledge-Based Systems |
- IT3036 | Information Technology Strategies |
- IT3040 | Multimedia Systems |

**Entry requirements**

Applicants must have completed an appropriate TAFE Information Technology/Computing associate diploma, two-year diploma or equivalent. The course may be

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*Swinburne University of Technology | 1999 Higher Education Handbook*
in business, science or engineering, and must have its major emphasis in IT/Computing.

Applicants will also be expected to have the equivalent of VCE Units 3 and 4 English. Preference may be given to those who have successfully completed VCE Units 3 and 4 Mathematics or equivalent.

Credit transfer
An advanced credit transfer system, known as the Pathways program, is in place at Swinburne. The Bachelor of Applied Science (Computing) is a special Pathways degree which provides block credit for the first year of a degree program. Apart from these block arrangements, students admitted to the degree may be granted additional credit for previous studies on a case-by-case basis.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information
Contact the School of Information Technology on (03) 9214 5505.
Email: itinfo@swin.edu.au

Z159 Bachelor of Applied Science (Computing and Applied Statistics)
New course in 1999

This program combines major studies in computing with an Applied Statistics major.

Location
Hawthorn campus.

Professional recognition
It is expected that completion of this course will be recognised at professional level (highest level) by the Australian Computer Society's requirements for professional membership.

Course duration
Three years full-time. Optional four year program which includes one year of paid work experience (IBL Component)

Career opportunities
Graduates of this course will be well placed to move into the workforce as applied statisticians with professional level computing skills.

Course subjects

Year 1
Semester 1
- MS121 Mathematics 1
- MS151 Statistical Reasoning and Communication
- IT1051 Software Development 1
- IT1015 Computer Systems

Semester 2
- MS122 Mathematics 2
- MS102 Introduction to Statistics
- IT1052 Software Development 2
- IT1031 Introduction to Software Engineering

Year 2
Semester 1
- MS261 Forecasting
- MS253 Methods for Statistical Investigation
- IT2016 Database 1
- IT Elective 1

Electives
An IT Elective 1 can be chosen from the following list:
- IT2053 Software Development 3 (prerequisite: IT1052)
- IT3056 Software Engineering 1 (prerequisite: IT1031)
- IT2024 Introduction to HCI
- IT1004 Business Applications and Systems 1
- IT2013 Cobol Programming (prerequisite: IT1052)

Year 2
Semester 1
- MS251 Forecasting
- MS253 Methods for Statistical Investigation
- IT2016 Database 1
- IT Elective 1

Electives
An IT Elective 1 can be chosen from the following list:
- IT2053 Software Development 3 (prerequisite: IT1052)
- IT3056 Software Engineering 1 (prerequisite: IT1031)
- IT2024 Introduction to HCI
- IT1004 Business Applications and Systems 1
- IT2013 Cobol Programming (prerequisite: IT1052)

Year 3
Semester 1
- MS351 Multivariate Statistics
- Applied Statistical Practice B*
- IT3044 Professional Issues in Information Technology or General Elective#
- IT3061 Software Team Project or IT Elective 3^*

Electives
An IT Elective 3 can be chosen from the following list:
- IT2053 Software Development 3 (prerequisite: IT1052) (semester 1)
- IT3056 Software Engineering 1 (prerequisite: IT1031) (semesters 1and2)
- IT2024 Introduction to HCI (1 and 2)
- IT1004 Business Applications and Systems 1 (semesters 1and2)
- IT2013 Cobol Programming (prerequisite: IT1052) (semesters 1and2)
- IT2054 Software Development 4 (prerequisite: IT2053) (semester 2)
- IT3041 Multi-media Web Development (prerequisite: IT1051) (semester 2)
- IT3002 Introduction to AI (prerequisite: IT1052) (semester 1)
- IT1005 Business Applications and Systems 2 (prerequisite: IT1004) (semester 2)
- IT2014 Computer Organisation and Operating Systems (prerequisite: IT2053) (semester 2)
- IT3011 Compiler Design (prerequisite: IT2053) (semester 2)
- IT3017 Database 2 (prerequisite: IT2016) (semesters 1 and 2)
- IT3018 Database 3 (prerequisite: IT3017) (semester 2)
- IT3036 Information Technology Strategies, any 2 level 2 IT subjects (sem 1 & 2)
- IT3038 Knowledge-Based Systems (prerequisite: IT2016) (semester 2)
- IT3050 Soft Computing IT1052 (prerequisite: IT2002) (semester 1)
- IT3065 Windows Programming (prerequisite: IT2054) (semester 1)

Students may also choose one or two additional subjects from the above list as general electives. There are two such electives in the program.

Availability of electives is subject to timetabling constraints, and to enrolment numbers being sufficiently high.

Semester 2
- MS392 Optional Industry Based Learning

Year 4
Semester 1
- MS491 Optional Industry Based Learning

Semester 2
- MS492 Industrial Project
- Applied Statistical Practice C*
- IT3044 Professional Issues in Information Technology or General Elective#
Notes:
* Applied Statistical Practice subjects will initially be drawn from:  
  • Years 2 and 3  
    • MS252 Introduction to Statistics in Sport  
    • MS254 Introduction to Statistics in Health  
  • Year 4  
    • MS454 Modelling in Sport  
  # The Mathematical Sciences General Elective in Year 2 semester 2 and the IT General Elective in Year 3 can be selected from any suitable subject from any school.  
  ^ IT3061 must be chosen in either Year 3 Semester 1 or Year 3 Semester 2 and  
  IT3044 must be chosen in either Year 3 Semester 1 or Year 3 Semester 2.

Entry requirements
Applicants who have satisfactorily completed the VCE including the satisfactory completion of the work requirements in Units 3 and 4 of English will be eligible for admission.

Applicants who have:
1. successfully completed an Advanced Certificate or Associate Diploma at a Victorian TAFE Institute; or  
2. reached a standard approved as the equivalent of the above will also be eligible for consideration for admission.

Credit transfer
Certain subjects passed in other courses or at another university may provide advanced standing in the course. All applications for subject exemptions and advanced standing must be submitted in writing at the time of initial enrolment in the course.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC).

Further information
Contact the School of Mathematical Sciences on (03) 9214 8484.

Z056 Bachelor of Applied Science (Computing and Scientific Instrumentation)  
(No new intake)

Z045 Bachelor of Applied Science (Computing and Advanced Technologies)  
(No new intake)

This course is an interdisciplinary course that covers the areas of computer science, electronics, and applied physics. Students study a range of subjects which prepare them for a wide variety of careers across a range of disciplines including computer programming, microprocessor interfacing, electronics, and instrumentation. The course develops practical, hands-on skills, with emphasis on project work. It is estimated that students who graduate now, will have an average of three major career changes during their working life. This course prepares students to take full advantage of these opportunities by giving them a flexible and diverse range of software and hardware skills. The first two stages of the course are foundation years in which students learn the fundamentals of computing and electronics.

During the Industry Based Learning (IBL) stage, students learn important practical and interpersonal skills which are highly valued by employers. In the final stage, the course material focuses on the latest technologies found in rapidly developing areas of science and industry.

Location
Hawthorn campus.

Career opportunities
Graduates of this course are highly skilled in the areas of computing, electronics and physics and are ideally placed to take advantage of the growing need for these skills in many areas of science, technology and industry. As dependence on the use of sophisticated scientific instrumentation grows, there is a need for personnel who have in-depth knowledge of the principles, design and effective operation of advanced instrumentation systems, especially when this is combined with high-level computing and interfacing skills. Graduates take up positions in all areas of science and technology within industry, including research and development laboratories.

Professional recognition
Graduates will be eligible for membership of the Australian Computer Society and associate membership of the Australian Institute of Physics.

Course duration
The course will normally require four years full-time study, including an optional, one year of paid, supervised Industry Based Learning (IBL).

Structure
This course will operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed to be equivalent to one hour of student work per week over a semester, whether in contact with staff or in private study.

Four subjects will generally be taken each semester. The typical student’s average weekly workload during semester is therefore deemed to be fifty hours. Total student contact hours, including lectures, classes, tutorials, flexible learning and laboratory and field sessions will vary in different semesters.

Course subjects

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HET118 Physics 1</td>
<td>12.5</td>
</tr>
<tr>
<td>HMS121 Mathematics 1</td>
<td>12.5</td>
</tr>
<tr>
<td>HIT1015 Introduction to Computer Systems</td>
<td>12.5</td>
</tr>
<tr>
<td>HIT1051 Software Development 1</td>
<td>12.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HET112 Electronic Systems</td>
<td>12.5</td>
</tr>
<tr>
<td>HMS122 Mathematics 2</td>
<td>12.5</td>
</tr>
<tr>
<td>HIT1031 Introduction to Software Engineering</td>
<td>12.5</td>
</tr>
<tr>
<td>HIT1052 Software Development 2</td>
<td>12.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HET210 Electronics</td>
<td>12.5</td>
</tr>
<tr>
<td>HET219 Physics 2</td>
<td>12.5</td>
</tr>
<tr>
<td>HMS213 Engineering Mathematics 3B</td>
<td>12.5</td>
</tr>
<tr>
<td>HIT2016 Database 1</td>
<td>12.5</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 4</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HET220 Sensors, Interfacing and Control</td>
<td>12.5</td>
</tr>
<tr>
<td>HET225 Biomedical Electronics</td>
<td>12.5</td>
</tr>
<tr>
<td>HIT3041 Multimedia Web Development</td>
<td>12.5</td>
</tr>
<tr>
<td>HIT2020 Data Communications</td>
<td>12.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 5</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIT3044 Professional Issues in IT</td>
<td>12.5</td>
</tr>
<tr>
<td>HIT 2053 Software Development 3</td>
<td>12.5</td>
</tr>
<tr>
<td>Choose one of the following electives:</td>
<td></td>
</tr>
<tr>
<td>HET417 Photonics and Fibre Optics (preferred elective)</td>
<td>12.5</td>
</tr>
<tr>
<td>HET425 Nuclear and Spectroscopy</td>
<td>12.5</td>
</tr>
<tr>
<td>Choose one of the following electives:</td>
<td></td>
</tr>
<tr>
<td>HET310 Analog Electronics Design (preferred elective)</td>
<td>12.5</td>
</tr>
<tr>
<td>HET312 Control and Automation</td>
<td>12.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 6</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HET426 Instrumentation Project</td>
<td>12.5</td>
</tr>
<tr>
<td>HIT3061 Software Team Project</td>
<td>12.5</td>
</tr>
<tr>
<td>IT Elective</td>
<td>12.5</td>
</tr>
<tr>
<td>Choose one of the following electives:</td>
<td></td>
</tr>
<tr>
<td>HET403 Astronomy and Instrumentation</td>
<td>12.5</td>
</tr>
<tr>
<td>HET423 Neural Networks and Intelligent Instrumentation</td>
<td>12.5</td>
</tr>
<tr>
<td>HET329 Digital Signal and Image Processing (preferred elective)</td>
<td>12.5</td>
</tr>
<tr>
<td>HET431 Digital Electronic Design</td>
<td>12.5</td>
</tr>
<tr>
<td>HMS214 Mathematics 4B</td>
<td>12.5</td>
</tr>
<tr>
<td>HIT138 Physics 3</td>
<td>12.5</td>
</tr>
</tbody>
</table>
Further information
Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859.

Z059 Bachelor of Applied Science (Mathematics and Computing)
1998 VTAC course codes: 34291 (F/T) 34293 (G/S Fee)
1998 ENTER: 12.20

This program combines major studies in computing with a mathematics major comprising studies in operations research and applied statistics.

Computing
This includes the study of software development using object-oriented methods. The Java and C++ languages are used. Students also study the core areas of database, networking, human-computer interaction, systems programming and artificial intelligence.

Operations Research
Operation Research, also known as Management Science, is the application of mathematical and statistical methods to solve problems that arise in business and industry, such as forecasting business activity, scheduling a sequence of manufacturing operations or assessing the relative worth of different courses of action. Students work on case studies and a group project for an external client. Computer methods are used extensively.

Applied Statistics
Students learn about data-how to design data collection, appropriate ways to analyse data and how to effectively communicate the results. Specific application areas are many but will include sports statistics and health. Computer packages will be used throughout the course.

Industry Based Learning (IBL)
The optional four year program is taken in the IBL format which includes one year of paid work experience.

Location
Hawthorn campus.

Career opportunities
Graduates from the Bachelor of Applied Science (Mathematics and Computing) are equipped for a wide variety of business, industrial and scientific jobs in software development, operations research and data collection and analysis. The course provides a valuable preparation for potential statisticians, computer programmers, systems analysts, operations researchers, management scientists and teachers.

Professional recognition
This program is accredited by the Australian Computer Society as a Level 1 course. Graduates are eligible for associate membership. After four years of relevant experience, a graduate can apply for full membership.

Graduates are also eligible for membership of the Australian Society of Operations Research after one to two years of work experience. Students can become student members while doing the course and then apply for full membership upon graduation.

Course duration
Three years full-time. Optional four year program which includes one year of paid work experience (IBL Component)

Course subjects
Year 3 (1998 syllabus)
The syllabus for this program changed in 1998. All students enrolled in 1998 at any stage will complete the 1998 syllabus.

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS361</td>
<td>12.5</td>
</tr>
<tr>
<td>MS351</td>
<td>12.5</td>
</tr>
<tr>
<td>2 Information Technology Electives</td>
<td>12.5 (ea)</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th></th>
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<tbody>
<tr>
<td>Industry Based Learning</td>
<td>50.0</td>
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<table>
<thead>
<tr>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
</tr>
<tr>
<td>Industry Based Learning</td>
</tr>
</tbody>
</table>
Entry requirements
Applicants must have satisfactorily completed the Victorian Certificate of Education (VCE) or its equivalent, with Units 3 and 4 Mathematical Methods or Specialist Mathematics.

Middle-band selection: Applicants who have successfully completed both Mathematical Methods and Specialist Mathematics will be deemed to have a TER up to 5 percentage points higher. Applicants who have successfully completed Information Technology: Information Systems will be deemed to have a TER up to 5 percentage points higher.

Passes may be accumulated over more than one year.

Consideration will be given to the full range of applicants VCE studies and results, and the level of performance in CATs in prerequisite studies, and to the student profile.

Applicants who do not satisfy the above requirements will be considered on the basis of factors such as employment, educational background, and in some cases, an interview.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC).

Further information
Contact the School of Mathematical Sciences on (03) 9214 8484.

AO66 Bachelor of Information Systems
1998 VTAC course codes: 34641 (F/T), 34031 (P/T) 34643 (Q/S Fee)
1998 ENTER: 77.60 (F/T), 67.25 (P/T)

Information technology is one of the main drivers of success in the global market place. Modern employers seek graduates who combine a sound understanding of the theory and practice of effective use of information technology with an understanding of the social and business environment in which the technology is utilised.

The two key features of the Bachelor of Information Systems are the ability for students to integrate an Information Systems specialisation with a focused selection of business and arts subjects within their degree, and the opportunity to undertake the optional and highly popular cooperative education program.

Our degree opens up many employment opportunities, both in the public and private sectors. Students currently find employment in organisations which utilise information technology to support traditional business applications.

Increasingly organisations are seeking to employ students with understanding of the advances in information systems methodologies and technologies.

Location
Hawthorn campus.

Career opportunities
Our degree opens up many employment opportunities, both in the public and private sectors. Students currently find employment in organisations that utilise information technology to support traditional business applications.

Graduates may choose to specialise in one of the following:

- Systems analysis: analysis of the information needs of organisations leading to specification of requirements for computer-based information systems.
- Project management: definition and management of the scope and task structure of information systems projects and management of the resources for project implementation.
- Product support: facilitation of the effective use of major computer software products to solve information-processing problems.
- Software development: application of sound principles of design and construction to the development and implementation of computer-based information systems.
- User liaison: provision of software product and information systems methodology expertise to facilitate effective use of information technology for a variety of business and professional applications.

Professional recognition
Application has been made for recognition of the course at Professional Level (the highest level) with the Australian Computer Society.

Course duration
Three years full-time (plus one year optional IBL) or six years part-time.

Structure
Students take a total of 24 subjects (or equivalent), consisting of 14 to 16 information systems subjects, 4 foundation business subjects, and 4 to 6 subjects in another approved discipline. Option A subjects will be taken by those choosing Visual Basic and Option B subjects form the more technical Java curriculum.

Course subjects

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Semester 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT1025</td>
<td>Introduction to Information Systems</td>
</tr>
<tr>
<td>IT1009</td>
<td>Business Programming 1 (Option A) OR</td>
</tr>
<tr>
<td>IT1051</td>
<td>Software Development 1 (Option B)</td>
</tr>
<tr>
<td>BC110</td>
<td>Accounting 1</td>
</tr>
<tr>
<td>BH110</td>
<td>Organisations and Management</td>
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<table>
<thead>
<tr>
<th>Semester 2</th>
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<tbody>
<tr>
<td>IT2049</td>
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<tr>
<td>IT1031</td>
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<tr>
<td>IT2010</td>
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<td>IT1052</td>
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<tr>
<td>BM110</td>
</tr>
<tr>
<td>BE110</td>
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<tr>
<td>MB111</td>
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</tbody>
</table>

*Students without Year 12 Mathematics must do an enabling subject if they wish to study Quantitative Analysis.

<table>
<thead>
<tr>
<th>Semester 2</th>
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</thead>
<tbody>
<tr>
<td>IT3008</td>
</tr>
<tr>
<td>IT2020</td>
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<tr>
<td>IT3017</td>
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<td>IT2049</td>
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<table>
<thead>
<tr>
<th>Stage 3</th>
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<tbody>
<tr>
<td>Optional IBL Year</td>
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</tbody>
</table>

<table>
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<tr>
<th>Stage 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
</tr>
<tr>
<td>IT3038</td>
</tr>
<tr>
<td>IT3056</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
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</thead>
<tbody>
<tr>
<td>IT3044</td>
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<tr>
<td>IT3034</td>
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<table>
<thead>
<tr>
<th>Electives</th>
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</thead>
<tbody>
<tr>
<td>Students must choose at least two and at most four information systems electives. Possible electives include the following:</td>
</tr>
<tr>
<td>IT3007</td>
</tr>
<tr>
<td>IT2013</td>
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<tr>
<td>IT3018</td>
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<tr>
<td>IT3029</td>
</tr>
<tr>
<td>IT3002</td>
</tr>
<tr>
<td>IT2024</td>
</tr>
</tbody>
</table>
IT3038  Knowledge-Based Systems
IT3041  Multimedia Web Development
IT3045  Personal Software Process
IT3050  Soft Computing
IT2053  Software Development 3 (Option B only)
IT2056  Software Development 4 (Option B only)
IT3048  Software Platforms and the Internet
IT3084  E-Commerce: A Business Perspective
IT3085  E-Commerce: A Technical Perspective

In addition, students must choose at least four and at most six additional subjects to complement their information systems studies. As a minimum requirement, students must complete a minor in a non-IS discipline. Recommended areas of study are Accounting, Organisation Behaviour, Marketing, Economics, Media Studies, Sociology or Management Science.

Students must meet the prerequisite requirements of the electives they select. Availability of all electives is subject to timetabling and resource constraints.

**Entry requirements**

Applicants must have satisfactorily completed the Victorian Certificate of Education (VCE) or its equivalent, with Grade D or better in four VCE subjects including English. Passes may be accumulated over more than one year.

**Application procedure**

Application must be made through the Victorian Tertiary Admissions Centre (VTAC).

**Further information**

Contact the School of Information Technology on (03) 9214 5505.

Email: itinfo@swin.edu.au

**I050  Bachelor of Information Technology**

1999 VTAC course codes: 34311 (F/T)
1998 ENTER: Individual offer

The Bachelor of Information Technology is concerned with the design, implementation and management of computer systems in all types of organisations. Throughout the program, students are exposed to a range of hardware and software to illustrate how technology can be used to solve typical business problems. By providing an infrastructure through which students can gain both technical knowledge and interpersonal skills, they can develop the abilities and skills important for effective participation and leadership in industry. To ensure students develop the teamwork skills required as an information technology professional, there is a strong emphasis on group work in both the curricular and extracurricular parts of the program. The Industry Based Learning segments of the program also provide valuable experience within the commercial world, providing added exposure to the use of technology within industry.

All students admitted to the Bachelor of Information Technology receive a scholarship for the three years of the course from a fund to which sponsoring companies contribute. This was valued between $8,500 and $9,700 pa. in 1998. The grant of a scholarship does not create, on completion of the course, any employment obligation on the part of the student or contributing organisations.

**Location**

Hawthorn campus.

**Career opportunities**

Graduates of the Bachelor of Information Technology will be well equipped to meet the requirements of both industrial and commercial organisations for information technology specialists. Technical skills such as systems analysis and design are sought after by industry, with good opportunities available for progressing into management and leadership positions. Since the course commenced all BIT graduates have been able to obtain relevant positions in IT-related fields and positions including: developer, analyst, project controller, project manager, production manager, programmer, client service network consultant, network coordinator, consultant/resource.

**Professional recognition**

The degree provides credit at Professional Level (the highest level) towards membership of the Australian Computer Society.

**Course duration**

Three calendar years, full-time, including two twenty-week periods of Industry Based Learning and two summer semesters. This course is not offered on a part-time basis.

**Structure**

This course includes four normal semesters, two summer semesters and two twenty-week periods of industry based learning. This provides a course that is essentially a four-year course completed in three calendar years.

**Course subjects**

**Year 1**

**Semester 1**

IT1051  Software Development 1
IT1015  Computer Systems
IT1004  Business Applications and Systems 1
BC110  Accounting 1
BSH200  Behaviour and Communications in Organisations

**Semester 2**

IT1052  Software Development 2
IT2016  Database 1
IT1005  Business Applications and Systems 2
IT1031  Introduction to Software Engineering
Plus 1 Non-IT Elective

**Summer Semester**

IT3017  Database 2
IT2013  COBOL Programming
BSH100  Organisation Behaviour

**Year 2**

**Semester 1**

IT2100  Industry Based Learning - 20 weeks

**Semester 2**

IT2020  Data Communications
IT2049  Systems Analysis and Design
IT3018  Database 3
Plus 1 or 2 non IT Electives*

**Year 3**

**Semester 1**

IT3036  Information Technology Strategies
IT3056  Software Engineering 1
IT3034  Information Systems Project
Plus 1 or 2 non IT Electives *

* Students must take 3 non-IT electives over these two semesters.

**Semester 2**

IT3100  Industry Based Learning - 20 weeks

**Summer Semester**

IT3044  Professional Issues in Information Technology
IT3022  Emerging Information Technologies

**Electives**

It is recommended that students follow a sequence of business or management related studies from the areas of Accounting and Finance, Human Resource Management, Marketing, Management Science, or Social and Behavioural Science. Students may be permitted to take non computing subjects from any area within Swinburne.

**Entry requirements**

The course is primarily intended for high achieving school leavers. Applicants must have completed satisfactorily an appropriate Victorian Year 12 or its equivalent, such as an interstate or international Year 12 qualification. Applicants must also have completed VCE Units 3 and 4 English and Mathematics (any), or equivalent.

Prior to selection in the course all short-listed candidates are required to attend a briefing session on the course and an interview. The briefing explains in detail about the course and is designed to ensure students enter the course with realistic expectations. Interviews are non technical and are conducted by Swinburne and sponsor staff to assess the candidate’s suitability for the course. Selection is based upon academic merit and interview.
Application procedure
In addition to their application to VTAC, applicants must also apply directly to Swinburne University of Technology, School of Information Technology by 30 September 1999. To receive a Swinburne Bachelor of Information Technology application form please contact the Undergraduate Administrative Officer on (03) 9214 5505. Interviews will be held shortly after the end of the VCE examinations. Deferral of offered places will not be possible.

Further information
Contact the School of Information Technology on (03) 9214 5505.
Email: info@swin.edu.au

Z044 Bachelor of Software Engineering
1989 VTAC course codes: 34961 (F/T) 34963 (O/S Fee)

The Bachelor of Software Engineering (BSE) is an exceptionally innovative and challenging engineering program, consisting of four full-time years of academic study plus one year of industry based learning (IBL).

The process of developing large scale software systems is very complex, involving detailed processes and sophisticated techniques and tools. Software Engineers bring to the development of Software the methodologies, technologies and management practices of traditional engineering disciplines, along with an extensive knowledge of fundamental computer science.

Graduates of the program will be equipped with the knowledge, skills and attitudes to make them valuable members of any team developing large-scale software-based systems using contemporary Software Engineering approaches.

Students have the opportunity to study, to an advanced level, important areas of software engineering such as software process modelling, software architecture, validation and verification, software re-engineering, formal methods and metrics, together with real-time systems engineering. They will also graduate with advanced skills in management of resources and technology.

The skills and knowledge acquired during the course are reinforced by several project subjects and through a supervised industry based learning year (or 12 week industry based placement).

A range of electives is offered, which allow students to explore a specialist area of computer science/software engineering at an advanced level, and domains in which they might subsequently practise as developers of software.

The program also includes the study of fundamental generic engineering concepts and principles, and the mathematics and physics necessary to support these studies. Students elect to undertake an advanced stream in electronics, telecommunications or manufacturing engineering to complement their software studies. Students elect to undertake an advanced stream in electronics, telecommunications or manufacturing engineering to complement their software engineering studies.

Successful completion of the BSE is deemed equivalent to the completion of a four-year honours program and generally fulfils entry requirements for postgraduate research study.

Industry based learning (IBL) is a mandatory part of the course. Students have the opportunity to undertake one full year of paid IBL, between the third and final years of the course. Alternatively they must take at least 12 weeks of relevant industry experience prior to graduation. IBL gives students a real advantage in the graduate job market.

Location
Hawthorn campus.

Career opportunities
Many Australian organisations experience difficulty in obtaining personnel with high-level, up-to-date skills and knowledge in software engineering, and industry demand for professionals in information technology and electronics is expected to continue to grow. Students graduating from the Bachelor of Software Engineering will be well placed to meet this need.

Graduates will typically find employment in organisations engaged in large-scale software development. The course is oriented towards applications in areas such as defence, aerospace and medicine, where software plays a major role, often of a safety-critical nature. Initially graduates could expect to be involved in technical areas such as programming and systems analysis and design, with good opportunities available for progression into project leadership and management positions.

Professional recognition
The degree provides credit at Professional Level (the highest level) towards professional membership of the Australian Computer Society. Application has also been made for recognition of the course to the Institution of Engineers Australia (IEAust).

Course duration
Four years full-time (plus one year optional industry based learning).

Structure
The Bachelor of Software Engineering degree course operates under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed to be equivalent to one hour of student work per week over a semester whether in contact with staff or in private study. Four subjects are generally taken each semester. The typical student's average weekly workload during semester is therefore 50 hours. In the normal degree program, students will generally undertake one year of IBL after their third year. Total student contact hours, including lectures, classes, tutorials and laboratory sessions, will be approximately twelve to sixteen hours per week during the academic semesters. In practical subjects, students will be expected to spend three or four hours per week in unsupervised laboratories or using a home computer, in addition to the formal class time.

Students who omit the year of industry based learning (IBL), must take at least twelve weeks of relevant industry experience prior to graduation.

Course subjects

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Semester 1</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>IT1015 Computer Systems</td>
<td>12.5</td>
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<tr>
<td>IT1046 Professional Skills for Software Engineers</td>
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<tr>
<td>IT1051 Software Development 1</td>
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<tr>
<td>MS111 Engineering Mathematics 1</td>
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<tr>
<th>Year 2</th>
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<tr>
<td>IT1031 Introduction to Software Engineering</td>
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<td>IT1052 Software Development 2</td>
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<tr>
<td>ET182 Electronic Systems</td>
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<td>MS112 Engineering Mathematics 2</td>
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<th>Year 3</th>
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<tr>
<td>IT3002 Introduction to Artificial Intelligence</td>
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<tr>
<td>IT2024 Introduction to Human-Computer Interaction</td>
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<td>IT2057 Software Engineering 2</td>
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<th>Year 4</th>
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<th>Credit points</th>
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<tbody>
<tr>
<td>IT3058 Software Engineering Project</td>
<td>12.5</td>
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</tr>
<tr>
<td>IT Elective or Engineering Minor Stream*</td>
<td>12.5</td>
<td></td>
</tr>
</tbody>
</table>

Application codes: 34961 (F/T) 34963 (O/S Fee)
Students may choose to study IT3044 Professional Issues in Information Technology in Semester 1 in place of an IT Elective, in which case they will take an additional IT elective in Semester 2. IT electives may be chosen from those listed below. Students taking the telecommunications minor may be permitted to select an additional telecommunications subject instead of one of the IT electives.

Availability of all electives will be subject to resources and demand. In addition, in the case of Engineering Minor streams, it may be necessary in any given year to limit the available streams to a sub-set of those listed, to meet timetabling constraints.

Normally a year of industry-based learning will be taken between the third and final years. It is possible to omit the IBL year, in which case, students must complete a least 12 weeks of relevant industry-based experience prior to graduation.

**IT Electives**

Availability of electives is subject to resource and timetable constraints. Possible Information Technology electives include the following:

- IT3011 Compiler Design
- IT3017 Database 2
- IT3018 Database 3
- IT3028 Interactive System Design
- IT3036 Information Technology Strategies
- IT3038 Knowledge Based Systems
- IT3039 Local Area Networks
- IT3040 Multimedia Systems
- IT3042 Object-Oriented Systems 1
- IT3050 Soft Computing
- IT3063 UNIX Systems Programming
- IT3084 Wide Area Networks
- IT3095 Windows Programming

**Engineering Minor Streams**

Availability of engineering minor streams is subject to resource and timetable constraints. Possible minors include the following:

**Digital Electronics**

- MS213 Engineering Mathematics 3B (Y2S1)
- MS214 Engineering Mathematics 4B or ES1120 Mechanics of Structures (Y2S2)
- ET210 Electronics (Y2S1)
- ET222 Embedded Microcontrollers (Y2S2)
- ET310 Analog Electronic Design (Y2S1) or ET329 Digital Signal and Image Processing (Y2S2)
- ET431 Digital Electronic Design (Y2S2)

**Telecommunications**

- MS213 Engineering Mathematics 3B (Y2S1)
- MS214 Engineering Mathematics 4B (Y2S2)
- ET314 Communication Principles (Y2S1)
- ET321 Network Engineering (Y2S2)

**Note**

Students choosing this stream may be permitted to study an additional telecommunications subject in final year, replacing one of the IT electives.

**Manufacturing**

- ET124 Energy and Motion (Y2S1)
- ES1120 Mechanics of Structures (Y2S2)
- ES2120 Structural Mechanics (Y3S1)
- ES2280 Manufacturing Technology (Y3S2)
- ES4290 Industrial Systems (Y4S1)
- ES4250 Design for Manufacture (Y4S2)

**Entry requirements**

Applicants must have completed satisfactorily an appropriate Victorian Year 12 or its equivalent such as an interstate or international Year 12 qualification.

VCE Prerequisites: Physics Units 1 and 2; a grade average of C or higher in Units 3 and 4 Mathematical Methods or Specialist Mathematics. A bonus is awarded to applicants who have successfully completed Information Technology: Information Systems and/or Specialist Mathematics.

Generally students will not be selected if they have a TER below 80.

**Credit transfer**

Students admitted to the degree may be granted advanced standing for previous studies on a case-by-case basis.

**Application procedure**

Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information

Contact the School of Information Technology on (03) 9214 8180.

Email: itinfo@swin.edu.au

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**DOUBLE DEGREES**

**EO69 Bachelor of Applied Science (Computer Science and Software Engineering) / Bachelor of Engineering (Telecommunications and Internet Technologies)**

1999 VTAC course codes: 34791 (F/T) 34793 (O/S Fee)

**New course in 1999**

This double degree course provides education for professional careers in the converging telecommunications, internet and information industries. It has a major focus on the application of computers in the internet/telecommunications field.

**Location**

Hawthorn campus.

**Course duration**

This course normally requires five years of full-time study. An optional and additional one year of paid, supervised industry-based learning is also available (normally taken after the fifth semester).

**Structure**

This course will operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed to be equivalent to one hour of student work per week over a semester, whether in contact with staff or in private study. Four subjects will generally be taken each semester. The typical student's average weekly workload during semester is therefore expected to be fifty hours. Total student contact hours, including lectures, classes, tutorials, flexible learning and laboratory and field sessions will vary in different semesters.

**Course subjects**

**Semester 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
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</thead>
<tbody>
<tr>
<td>HET121</td>
<td>Introduction to Telecommunications</td>
<td>12.5</td>
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<tr>
<td>HET113</td>
<td>The Internet and WWW</td>
<td>12.5</td>
</tr>
<tr>
<td>HIT1051</td>
<td>Software Development</td>
<td>12.5</td>
</tr>
<tr>
<td>HMS111</td>
<td>Engineering Mathematics 1</td>
<td>12.5</td>
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Swinburne University of Technology | 1999 Higher Education Handbook
Further information
Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859.

A067 Bachelor of Information Systems / Bachelor of Business
1999 VTAC course codes: 34561 (F/T) 34563 (O/S fee)
1998 ENTER: 82.90

The Bachelor of Information Systems/Bachelor of Business double degree combines a complete study of business practice with specialist studies in information systems leading to a choice of generalist or specialist career in the utilisation of information technology to solve business problems. This double degree is designed to enable students to complete the compulsory requirements for both degrees in a normal course of study of four years full-time (eight years for part-time study).

Location
Hawthorn campus.

Career opportunities
Our degree opens up many employment opportunities, both in the public and private sectors. Students currently find employment in organisations that utilise information technology to support traditional business applications.

Graduates may choose to specialise in one of the following:
- Systems analysis: analysis of the information needs of organisations leading to specification of requirements for computer-based information systems.
- Project management: definition and management of the scope and task structure of information systems projects and management of the resources for project implementation.
- Product support: facilitation of the effective use of major computer software products to solve information-processing problems.
- Software development: application of sound principles of design and construction to the development and implementation of computer-based information systems.
- User liaison: provision of software product and information systems methodology expertise to facilitate effective use of information technology for a variety of business and professional applications.

Professional recognition
The course satisfies requirements for membership at professional level (the highest level) of the Australian Computer Society and, with appropriate choice of business subjects, membership requirements of the Australian Society of CPAs.

Course duration
Four years full-time. An optional and additional one year of paid, supervised industry-based learning is also available (normally taken after the sixth semester). This course may also be taken part-time.

Course subjects
Stage 1

Semester 1
IT1025 Introduction to Information Systems
IT1051 Software Development 1
BC110 Accounting 1
BH110 Organisations and Management

Semester 2
IT2010 Business Programming 2 OR
IT1052 Software Development 2
IT2049 Systems Analysis and Design OR
IT1031 Introduction to Software Eng
MB111 Quantitative Analysis B
BM110 Marketing 1

Stage 2

Semester 1
IT2006 Business Computing
IT3008 Business Data Communications
### Business elective

### Semester 2
- IT3017 Database 2
- IT2010 Business Programming 2B
- Business elective
- Business elective

### Semester 1
- IT3026 Information Tech Strategies
- IT3056 SE 1
- Business elective
- Business elective

### Semester 2
- IT3034 Information Systems Project
- IT3054 Professional Issues
- Business elective
- Business elective

### Stage 3
- IT3026 Information Systems Project
- IT3056 SE 1
- Business elective
- Business elective

### IT electives include:
- IT3007 Business Computing Applications
- IT2013 Cobol Programming
- IT3018 Database 3
- IT3029 Information Systems Analysis
- IT3022 Introduction to Artificial Intelligence
- IT2024 Introduction to Human Computer Interaction
- IT3038 Knowledge Based Systems
- IT3041 Multimedia Web Development
- IT3045 Personal Software Process
- IT3050 Soft Computing
- IT2053 Software Development 3
- IT2054 Software Development 4
- IT3048 Software Platforms and the Internet
- IT3084 E-Commerce - Business Perspective
- IT3085 E-Commerce - Technical Perspective
- IT2014 Computer Organisation and Operating Systems
- IT3011 Compiler Design
- IT3029 Local Area Networks
- IT3040 Multimedia Systems
- IT3057 Software Engineering 2
- IT3064 Wide Area Networks

## Entry requirements

Applicants must have satisfactorily completed the Victorian Certificate of Education (VCE) or equivalent, with grade D or better in four VCE subjects including English or a TAFE diploma (any discipline).

## Application procedure

Application must be made through the Victorian Tertiary Admissions Centre (VTAC).

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**Further information**

Contact the School of Information Technology on (03) 9214 5505.

Email: tinfo@swin.edu.au

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### HONOURS YEAR

**ZO65 Bachelor of Applied Science (Computer Science)(Honours)**

A one year full-time program that follows the completion of all requirements for a three-year degree. The program is designed for students who have an interest in research, and is particularly geared to those who are contemplating progressing to postgraduate studies.

Normally to be eligible for this degree a student would have achieved a grade point average of credit or above on the best seventy-five per cent (75%) of the post-first year subjects. However, it is likely that a performance in excess of this minimum will be necessary to gain selection.

A student would normally undertake a program involving three semester-length coursework subjects, one reading subject, and a research topic leading to the production of a minor thesis. The reading subject will involve one semester of directed reading of research methods relevant to the proposed minor thesis and the theoretical underpinning of the thesis topic. The three coursework subjects will consist of at least two subjects at the masters by coursework or honours level and at most one subject at the third year undergraduate level which has not been attempted previously.

**Location**

Hawthorn campus.

**Further information**

Contact the School of Information Technology on (03) 9214 8180 or tinfo@swin.edu.au

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**A068 Bachelor of Information Systems (Honours)**

The Bachelor of Information Systems (Honours) course provides students with demonstrated academic ability the opportunity to pursue their undergraduate studies to an advanced level, to deepen their intellectual understanding in their major field and to develop their research skills. The honours course is a recognised point of entry into postgraduate research studies. Students concentrate on their chosen major area, gaining a better understanding and practicing appropriate research techniques. The requirement to complete a substantial original piece of research for their thesis ensures that honours graduates develop their abilities to conceptualise problems, devise research strategies and carry out individual research work under the supervision of a member of staff with expertise in the area.

For students wishing to seek employment following their BInfSys degree, the honours course affords the opportunity to extend their knowledge of information systems and to specialise in an area within it. The course’s strong orientation to research instructs students in the principles and techniques of original research and prepares them for areas of professional employment in which conceptual, organisational and research skills are in demand. To be eligible for admission to the BInfSys (Honours) course, a student must hold a Bachelors (pass) degree from Swinburne University of Technology or another recognised university (or equivalent) or have completed all the requirements for a Bachelor of Information Systems (pass) degree. The student must have demonstrated a high level of academic achievement overall and an excellent academic record in their chosen major study, especially at third year level.

**Course duration**

The course normally requires one year of full-time study.
Structure
Students enrol in an equivalent of 8 subjects, 4 coursework subjects and an equivalent of 4 Information Systems Honours thesis subjects. All students do a research methods unit plus a major research project. In addition, students may undertake approved advanced coursework subjects from other schools or institutions.
Alternatively, Information Systems Honours reading subjects may be chosen.

Location
Hawthorn campus.

Further information
Contact the School of Information Technology, telephone: (03) 9214 8180 or Email: itinfo@swin.edu.au

DESIGN
DGD10  Bachelor of Design (Graphic Design)
DGD20  Bachelor of Design (Graphic Design)(Honours)

1999 VTAC course codes: 36101 (F/T)  36103 (O/S Fee)

The Bachelor of Design (Graphic Design) is a three year full-time program of design education within the changing dynamic of the broad visual communication design profession. The aim of the degree course is to educate designers to work effectively in areas where information is conveyed by visual means, such as publishing, publicity, merchandising, multimedia, advertising, printing, education and research. The course is devised to produce imaginative, capable and responsible designers, who, with specialisation and experience in industry, are capable of working within the broader design profession. The first two years of the course are common to each of the degree/honours streams, but in the final degree year areas of investigation include, production technology, design management, publication design, multimedia design, typography, communication design, image making, packaging, visual identity and digital production.

The Bachelor of Design (Honours) is a four year full-time program of applied and advanced design education where students participate in the Industry Based Learning Program (IBL) and undertake a research project for an honours award.

The program provides opportunities to undertake sophisticated practice and leadership in design. Students must be capable of demonstrating decision making at management level with emphasis not only on the heightening of technical skills, but the development of creative thought, strategy and application through research, experimentation and production.

Students participating in the external IBL honours program in year three return to work in a professional studio atmosphere, with the emphasis given to developing and further enhancing the students' special capabilities through assigned professional projects, self-determined projects and regular design project assignments.

Students participating in the internal IBL placement in fourth year combine the essential component of professional practice with active and responsible participation of graduate students in the organisation and function of the Swinburne Design Centre undertakes professional commercial projects, but also initiates and promotes socially constructive ideas through non-commercial projects for community and charitable organisations.

Eligible students may also participate in this program without undertaking a research project for an honours award.

Industry Based Learning (IBL)
The National School of Design has a long and highly valued experience of Cooperative Education and the IBL program (24 years). These programs are part of the cornerstone of the school's professional design education. Design students are placed in leading national and international design organisations for a 48 week period. Placement is made on the basis of academic merit and interview. Selection normally takes place in December of each year. Successful candidates in IBL external placements are then interviewed by prospective employers. The placement is supervised by an academic manager from The National School of Design and a workplace supervisor. Students will be required to attend the university for one day a week and present a comprehensive report about the placement. During the IBL year in industry (external placement), students may be eligible for a stipend.

Career opportunities
Graphic design for and within the broad visual communication industry.
Employment in design consultancies, multi-disciplinary design practices, communication design, advertising, multimedia design or independent designer/maker.

Professional recognition
Membership of Design Institute of Australia.

Course duration
Three years full-time for Bachelor of Design,
Four years full-time for Bachelor of Design (Honours).

Location
Prahran campus.
Structure
The Bachelor of Design (Graphic Design) course will operate under a student workload model based on 100 credit points for a full-time academic year. To qualify for the award a student must complete, or have been granted exemption for, the subjects shown below.

Students successfully completing an IBL component will be awarded 75 credit points in excess of the 300 awarded for the course work required to qualify for the Bachelor of Design. Students undertaking an IBL external placement in year 3 will need to complete their 300 course work units in year 4.

Course subjects
Year 1
Semester 1
DCP101 Core Program 25.0
DGD102 Design Practice 1 12.5
DHCT12 Design History and Critical Theory 12.5
Or
DHCT12A Ideas Culture and Communication (for international students only) 12.5
Semester 2
DCP101 Core Program 25.0
DGD102 Design Practice 1 12.5
DHCT12 Design History and Critical Theory 12.5
Or
DHCT12A Ideas Culture and Communication (for international students only) 12.5
Year 2
Semester 1
DGD201 Design Studio 2A 12.5
DGD202 Design Studio 2B 12.5
DGD203 Design Practice 2 12.5
DHCT3 Modernism and Mass Culture 12.5
Semester 2
DGD201 Design Studio 2A 12.5
DGD202 Design Studio 2B 12.5
DGD203 Design Practice 2 12.5
DHCT4 Modern/Postmodern 12.5
Year 3
Semester 1
DGD301 Design Studio 3 12.5
DGD302 Design Practice 3 12.5
DHCT5 Design and the Production of Culture 12.5
One elective subject from the following:
DTYP302 Typography 12.5
DGPD302 Publication Design 1 12.5
DIM302 Image-Making 1 12.5
DGOS302 3D Studio 1 12.5
Or
DiBl303 IBL Placement 37.5
DHCT5 Design and the Production of Culture 12.5
Semester 2
DGD301 Design Studio 3 12.5
DGD302 Design Practice 3 12.5
DHCT6 Commodity Design and Lifestyles 12.5
One elective subject from the following:
DTYP302 Publication Design 2 12.5
DIM303 Image-making 2 12.5
DGOS302 3D Studio 12.5
DVL303 Visual Language 12.5
Or
DiBl303 IBL Placement 37.5
Year 4 (Honours Year - IBL and Studio Stream)
Semester 1
DGD401 Design Studio 4 25.0
DGD402 Design Practice 4 12.5
DRES400 Design Research 12.5
Semester 2
DGD401 Design Studio 4 25.0
DGD402 Design Practice 4 12.5
DRES400 Design Research 12.5
Year 4 (Honours Year - Design Centre Stream)
Semester 1
DCC401 Studio Practice 25.0
DCC402 Design Practice 12.5
DRES400 Design Research 12.5
Semester 2
DCC401 Studio Practice 25.0
DCC402 Design Practice 12.5
DRES400 Design Research 12.5
Electives
In specific instances students may wish to take a subject offered in another school of the University in place of a subject offered in this course. In order for this to occur a student must liaise with the Co-ordinator of the course in question and seek approval of the Head of Graphic Design.

Entry requirements
Satisfactory completion of an appropriate Victorian Year 12 or its equivalent. VCE prerequisites: Units 3 and 4 - a grade average of at least C in English.
Applicants are advised to undertake Art or any art-related study such as Studio Art or Graphic Communication in Units 3 and 4 to assist in the development of a folio.

Credit transfer
There will be an articulation process for those students who have successfully completed an Associate Diploma of Arts. Those students will gain entry into the Bachelor of Design Program at an appropriate level. Entry to the program is conditional on successful completion of the normal National School of Design application process and the availability of places.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC). In addition, all applicants must participate in a pre-selection program and, if selected, attend an interview/folio presentation in December. For further details refer to the VTAC Guide.

Further information
Contact the Swinburne National School of Design on (03) 9214 6755.
Email: lstandley@swin.edu.au
Website http://www.swin.edu.au/design

DID10 Bachelor of Design (Industrial Design)
DID20 Bachelor of Design (Industrial Design)(Honours)
1998 VTAC course codes: 36201 (F/T) 36203 (O/S Fee)
1999 ENTER: Individual offer

Industrial Design is a broadly-based discipline in which designers participate in the development of products and systems associated with all areas of human activity and the environment. In consultation with the profession, the course provides a learning environment in which students will experience a proportional relationship between design theory and design practice with a strong emphasis on the design process and creative problem solving. The first two years of the course are common to each of the degree/honours streams.

The Bachelor of Design is a three year full-time program of design education focussing upon three-dimensional activity. The aim of the program is to provide students with the necessary skills to work effectively within the ever-changing field of industrial design. Students experience a broad range of theoretical and
studio based activities designed to facilitate career paths within consumer product, furniture, exhibition, management, transportation and other areas of three-dimensional design.

The program provides an opportunity for students to work both in teams and on an individual basis exploring the integration of new technologies, creativity, theory and practice. Students gain an understanding of appropriate vocational skills including computer software and visual communication techniques whilst exploring environmental, philosophical and ethical issues associated with the future direction of industrial design.

Industry Based Learning (IBL)
The National School of Design has a long and highly valued experience of Cooperative Education and the IBL program (24 years). These programs are part of the cornerstone of the School’s professional design education. Design students are placed in leading national and international design organisations for a 48 week period.

Placement is made on the basis of academic merit and interview. Selection normally takes place in December of each year. Successful candidates in IBL external placements are then interviewed by prospective employers. The placement is supervised by an academic manager from The National School of Design and a workplace supervisor. Students will be required to attend the university for one day a week and present a comprehensive report about the placement. During the IBL year in industry (external placement), students may be eligible for a stipend.

Location
Prahran campus.

Career opportunities
Product design for and within manufacturing industries or design consultancies, exhibition, environmental and furniture design, stage and set design, self-employed designers.

Professional recognition
Membership of Design Institute of Australia.

Course duration
Three years full-time for Bachelor of Design, four years full-time for Bachelor of Design (Honours).

Structure
The Bachelor of Design (Industrial) Design course will operate under a student workload model based on 100 credit points for a full time academic year. To qualify for the award a student must complete, or have been granted exemption for, the subjects shown.

Students successfully completing an IBL component will be awarded 50 credit points in excess of the 300 awarded for the course work required to qualify for the Bachelor of Design. Students undertaking an IBL placement in year 3 will need to complete their 300 course work units in year 4.

A Bachelor of Design (Honours) will be awarded to students who complete a research component for which a further 25 credit points will be awarded.

Work expected of students outside normal timetabled hours, in keeping with the research component for which a further 25 credit points will be awarded.

Course subjects

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<tr>
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<tr>
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<td>12.5</td>
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<tr>
<td>DHCT12 Design History and Critical Theory</td>
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<tr>
<th>Semester 2</th>
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<tbody>
<tr>
<td>DCP101 Core Program</td>
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<tr>
<td>DID104 Technology 1B</td>
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<td>DHCT12 Design History and Critical Theory</td>
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<tr>
<td>DID202 Design Studio 2B</td>
</tr>
<tr>
<td>DID204 Technology 2B</td>
</tr>
<tr>
<td>DHCT4 Modern/Postmodern</td>
</tr>
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</table>

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<thead>
<tr>
<th>Year 3</th>
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<tbody>
<tr>
<td>Semester 1</td>
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<tr>
<td>DID201 Design Studio 3A</td>
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<tr>
<td>DID202 Design Studio 3B</td>
</tr>
<tr>
<td>DID204 Technology 3</td>
</tr>
<tr>
<td>DHCT5 Design and the Production of Culture</td>
</tr>
<tr>
<td>DHBL333 IBL Placement</td>
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<thead>
<tr>
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<tbody>
<tr>
<td>DID201 Design Studio 3A</td>
</tr>
<tr>
<td>DID202 Design Studio 3B</td>
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<tr>
<td>DIBL333 IBL Placement</td>
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<tr>
<td>DHCT5 Design and the Production of Culture</td>
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<table>
<thead>
<tr>
<th>BDes(Hons) - IBL and Studio Stream</th>
<th>Years 1-3 of the BDes, leading to</th>
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<tbody>
<tr>
<td>Year 4</td>
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<tr>
<td>Semester 1</td>
<td></td>
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<tr>
<td>DIBL401 Design Studio 4</td>
<td>25.0</td>
</tr>
<tr>
<td>DRES400 Design Research</td>
<td>12.5</td>
</tr>
<tr>
<td>Elective on approval</td>
<td>12.5</td>
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<table>
<thead>
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<th>Semester 2</th>
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<tr>
<td>DIBL401 Design Studio 4</td>
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<td>DRES400 Design Research</td>
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<tr>
<td>Elective on approval</td>
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<table>
<thead>
<tr>
<th>BDes(Hons) - Design Centre Stream</th>
<th>Years 1-3 of the BDes, leading to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 4</td>
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<tr>
<td>Semester 1</td>
<td></td>
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<tr>
<td>DIDC401 Studio Practice</td>
<td>37.5</td>
</tr>
<tr>
<td>DRES400 Design Research</td>
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<table>
<thead>
<tr>
<th>Semester 2</th>
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</thead>
<tbody>
<tr>
<td>DIDC401 Studio Practice</td>
</tr>
<tr>
<td>DRES400 Design Research</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electives</th>
</tr>
</thead>
<tbody>
<tr>
<td>In specific instances students may wish to take a subject offered in another school of the University in place of a subject offered in this course. In order for this to occur a student must liaise with the Co-ordinator of the course in question and seek approval of the Head of Industrial Design.</td>
</tr>
</tbody>
</table>
Entry requirements
Satisfactory completion of an appropriate Victorian Year 12 or its equivalent. VCE prerequisites: A technology or science related subject and an essay-based subject such as Art History or History would be beneficial - a grade average of at least C in English.
Applicants are advised to undertake Art or any art-related study such as Studio Art or Graphic Communication in Units 3 and 4 to assist in the development of a folio. There is provision for entry to the first year of the program for those students with no VCE or equivalent qualification to be considered for acceptance into this program. Selection will be based on recognition of prior learning together with written application, folio appraisal and interview.

Credit transfer
There will be an articulation process for those students who have successfully completed an Associate Diploma of Arts. Those students will gain entry into the Bachelor of Design Program at an appropriate level. Entry to the program is conditional on successful completion of the normal National School of Design application process and the availability of places.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC). In addition, all applicants must participate in a pre-selection program and, if selected, attend an interview/folio presentation in December. For further details refer to the VTAC Guide.

Further information
Contact the Swinburne National School of Design on (03) 9214 6755.
Email: lstandley@swin.edu.au
Website http://www.swin.edu.au/design

Structure
The Bachelor of Design (Interior/Exhibition Design) course will operate under a student workload model based on 100 credit points for a full-time academic year. To qualify for the award a student must complete, or have been granted exemption for, the subjects listed, which total 400 credit points. Honours may be awarded for outstanding results in the final year.
Work expected of students outside normal timetabled hours, in keeping with related design courses, will usually be no less than one for one.

Course subjects
Year 1
Semester 1
DCP101 Core Program 25.0
DIEX102 Technology 1 12.5
DNCT12 Design History and Critical Theory 12.5
Or
DNCT12A Ideas Culture and Communication (for international students only) 12.5
Semester 2
DCP101 Core Program 25.0
DIEX103 CAD1 12.5
DNCT12 Design History and Critical Theory 12.5
Or
DNCT12A Ideas Culture and Communication (for international students only) 12.5

Year 2
Semester 1
DIEX201 Design Studio 2 25.0
DIEX203 CAD2 12.5
DNCT3 Modernism and Mass Culture 12.5
Semester 2
DIEX201 Design Studio 2 25.0
DIEX202 Technology 2 12.5
DNCT4 Modern/Postmodern 12.5

Year 3
Semester 1
DIEX302 Design Practice 3 12.5
DNCT5 Design and the Production of Culture 12.5
DIEX333 Work Placement 37.5
DNCT6 Commodity Design and Lifestyles 12.5
Semester 2
DIEX333 Work Placement 37.5
DNCT6 Commodity Design and Lifestyles 12.5

Year 4
Semester 1
DIEX401 Design Studio 4 25.0
Elective on approval 12.5
DRES400 Design Research 12.5
Semester 2
DIEX401 Design Studio 4 25.0
Elective on approval 12.5
DRES400 Design Research 12.5

Entry requirements
Satisfactory completion of an appropriate Victorian Year 12 or its equivalent. VCE prerequisites: Units 3 and 4 - a grade average of at least C in English.
Applicants are advised to undertake Art or any art-related study such as Studio Art or Graphic Communication in Units 3 and 4 to assist in the development of a folio. There is provision for entry to the first year of the program for those students with no VCE or equivalent qualification to be considered for acceptance into this program. Selection will be based on recognition of prior learning together with written application, folio appraisal and interview.
Credit transfer
There will be an articulation process for those students who have successfully completed an Associate Diploma of Arts. Those students will gain entry into the Bachelor of Design Program at an appropriate level. Entry to the program is conditional on successful completion of the normal National School of Design application process and the availability of places.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC). In addition, all applicants must participate in a pre-selection program and, if selected, attend an interview/folio presentation in December. For further details refer to the VTAC Guide.

Further information
Contact the Swinburne National School of Design on (03) 9214 6755.
Email: lstandley@swin.edu.au
Website http://www.swin.edu.au/design

DMD10 Bachelor of Design
(Multimedia Design)
Refer to main entry in the Multimedia section, page 131.

PDE50 Bachelor of Engineering
(Product Design Engineering)
Refer to main entry in the Engineering and Technology section, page 120.

ENGINEERING & TECHNOLOGY

CH055 Bachelor of Engineering (Chemical and Bioprocess Engineering)
1999 VTAC course codes: 34011 (F/T) 34013 (O/S Fee)
1998 ENTER: 76.50

The course provides an industrially relevant education in the core discipline of chemical engineering, with additional subjects in the biological sciences, to provide preparation for a wide range of employment opportunities in the bioprocess industries and in environmental applications as well as the chemical industry.

The Chemical & Bioprocess Engineering degree course sets out to educate and develop students:

- To understand the fundamentals of engineering and science
- To possess the technical skills required of Chemical & Bioprocess engineers
- To have an appreciation for the history of engineering and their discipline
- To be literate, highly numerate and competent in various aspects of computer aided engineering
- To have a broad view of engineering and the place occupied by their chosen discipline
- To have explored some areas of their chosen discipline to a depth equivalent to the state of the art
- To have appreciated some of the directions in which their profession is likely to develop in the future
- To understand the nature of creativity, innovation and enterprise
- To have an interest and ability for self-learning
- To become balanced and mature contributors to society
- To have a keen appreciation of professional ethics
- To be able to get to the heart of a problem and develop solution strategies
- To manage complex projects
- To be effective team members and be able to manage conflict
- To understand the importance of engineering in the context of a sustainable environment

And in all ways to conduct themselves in a caring, assertive and professionally competent manner.

Location
Hawthorn campus.

Career opportunities
There is a large range of employment opportunities for chemical engineers, especially if they have bioprocess skills, from large trans-national companies to small locally-based companies, from the petrochemical industries to the food industries. Many chemical engineers work as consultants, sometimes managing their own companies.

Professional recognition
Professional recognition is currently being sought with The Institution of Engineers, Australia.

Course duration
Four years of full-time academic study plus one year of Industry Based Learning.

Course structure
The subjects making up the academic component of the degree program are structured into First Year, Intermediate Studies, Industry Based Learning and Advanced Studies.

First Year
Semesters 1 and 2: Common first year subject pool for several engineering degrees. It should be noted that the first year project subject offers opportunity for a significant input of Chemistry as teams of students prepare to manufacture pilot scale quantities of substances such as soap, beer or wine, and other similar products.

It is anticipated that undertaking the Chemical & Bioprocess option in this subject will not limit selection for transfer to or from other Engineering Disciplines.

Intermediate studies
Semester 3 to 6: Basic material in Chemistry, Biochemistry, Chemical Engineering, Fluids, Materials and Management to prepare students for the Industry Based
Semester 1
Common year for several engineering degrees.

Industry Based Learning
Seminars 7 and 8: Two paid six month placements in Industry providing professional engineering experience.

Advanced Studies
Semester 9 to 10: An even greater emphasis on development of design skills and project based learning culminating in a major design project in Chemical and/or Bioprocess Engineering. Laboratory research projects will hone engineering and research techniques, and further studies in Bioprocess Engineering, Biotechnology and Management studies will be undertaken. The provision of electives also provides a seamless articulation to further studies such as double degrees and masters by coursework.

Electives
The course provides for two elective subjects, one in each semester of final year. These electives are intended to provide the student with a choice to pursue an area of specialist interest which leads to either broadening or deepening of knowledge and understanding. They may be any approved undergraduate subjects offered by the Division of Higher Education.

Although the choice of electives is essentially free, it is possible that a particular elective or stream of electives may be in a student's best interests if they wish to prepare for specific ongoing studies such as continuing into an MBA.

Course subjects

First Year

Semester 1
EF1000 Professional Engineering 12.5
ES1230 Materials and Processes 12.5
ET124 Energy and Motion 12.5
MS111 Engineering Mathematics 1 12.5

Semester 2
EF1005 Engineering Project 12.5
ES1125 Mechanics of Structures 12.5
ET182 Electronic Systems 12.5
MS112 Engineering Mathematics 2 12.5

Year 2

Semester 3
ES2051 Basic Process Analysis and Calculations 12.5
ES2620 Biochemistry 1 12.5
ES2631 Industrial Chemistry 12.5
MS211 Engineering Mathematics 3A 12.5

Semester 4
ES2075 Chemical Engineering Thermodynamics 12.5
ES2625 Biochemistry 2 12.5
ES2340 Fluid Mechanics 1 12.5
ES2230 Engineering Materials 12.5

Year 3

Semester 5
ES3021 Heat Transfer 12.5
ES3041 Fluid-Particle Systems 12.5
ES3310 Control Engineering 12.5
ES3380 Engineering Management 1 12.5

Semester 6
ES3025 Mass Transfer 12.5
ES3045 Separation Processes 12.5
ES3095 Microbial Biotechnology 12.5
ES3015 Laboratory Projects 12.5

Year 4

Semesters 7 and 8
Industry Based Learning

Two paid six month placements in industries providing professional engineering experience.

Year 5

Semester 9
ESS001 Research Project 12.5
ESS051 Process Equipment and Reactor Design 12.5
ESS380 Engineering Management 2 12.5
Elective

Semester 10
ESS055 Process Control and Environmental Engineering 12.5
ESS056 Process Plant Design and Economics 12.5
ESS059 Bioprocess Engineering 12.5
Elective

Entry requirements
Applicants must have satisfactorily completed the Victorian Certificate of Education (or its equivalent) with passes in Units 3 and 4 of each of: English, Mathematical Methods, and one of: Physics, Chemistry Biology, Specialist Mathematics, Psychology or Information Technology/Information Systems.

Credit transfer
An advanced credit transfer system, known as the Pathways program, is in place at Swinburne. Through Pathways, students with one or more of a wide range of post-secondary qualifications (both local and international) can gain entry into this course with advanced standing. Certain subject requirements must be met and an acceptable standard of results achieved in order to gain admission and for maximum credit to be granted.

Career opportunities
Civil engineering offers a creative and rewarding career for men and women in many different areas which are essential to modern civilisation. Currently career prospects for civil engineers are good, both in Australia and overseas. Because civil engineers are responsible for many of Australia’s essential services, they will continue to be needed in considerable numbers for the foreseeable future.

Civil engineers work as planners, designers, construction managers, administrators, investigation and research engineers and consultants. They work
for public authorities, municipalities, consulting firms and industry, or are self-employed.

Civil engineering is also an excellent preparation for many general managerial positions in business and industry, not directly related to civil engineering.

Professional recognition

Students satisfy the educational requirements for corporate membership of The Institution of Engineers, Australia. Students who have undertaken the construction elective major, satisfy the educational requirements of the Australian Institute of Building.

Course duration

Five years full-time.

Course structure

The subjects making up the academic component of the degree program are structured into First Year, Intermediate Studies, Industry Based Learning and Advanced Studies.

First Year

Seminars 1 and 2: Common first year for several engineering degrees.

Intermediate studies

Seminars 3 to 5: Common studies for all students taking Civil Engineering. Students are prepared for industry based learning.

Industry Based Learning

Seminars 6 and 7: Two paid six month placements in industries providing professional civil engineering experience.

Advanced studies

Seminars 8 to 10: Advanced discipline study management, project and electives.

Course subjects

First Year

Common year for several engineering degrees

Semester 1

EF1000 Professional Engineering
ES1230 Materials & Processes
HET124 Energy and Motion
MS111 Engineering Maths 1

Semester 2

ES1125 Mechanics of Structures
EF1005 Engineering Project
HET182 Electronic Systems
MS112 Engineering Maths 2

Intermediate Studies

Common studies for all students taking civil engineering. Students are prepared for industry based learning.

Semester 3

ES2100 Civil Engineering Practice
ES2120 Structural Mechanics
ES2130 Engineering Surveying
MS215 Engineering Maths 3C

Semesters 6 & 7

Industry Based Learning

Two paid six month placements in industries providing professional civil engineering experience.

Advanced studies

Advanced discipline study, professional practice, project and electives. In each semester students study 2 core subjects and 2 elective subjects from 2 streams.

Semester 8

Core subjects

ES4115 Civil Engineering Applications
ES4125 Structural Engineering Applications

Elective subjects - choose one of:

ES4135 Transport Engineering
ES4145 Structural Engineering 1

and choose one of:

ES4155 Civil Construction Management & Technology
ESS165 Fire Technology
ES4175 Civil Engineering Management
ES4185 Environmental Engineering & Management

Semester 9

Core subjects

ES5100 Professional Practice & Investigation 1
ES5110 Design & Construction 1

Choose one of:

ES5130 Water Engineering
ES5140 Structural Engineering 2

and choose one of:

ES5160 Building Control A
ESS170 Construction Systems
ESS180 Environmental Procedures

Semester 10

Core subjects

ES5105 Professional Practice & Investigation 2
ES5125 Design & Construction 2

Choose one of:

ES5135 Local Planning & Engineering Systems
ES5155 Problematic Soils & Structures

and choose one of:

ES5165 Building Control B
ESS175 Construction Management (Quantity Surveying)
ESS185 Environment Elective
ESS320 Solid Mechanics (Structural Eng 3)

Entry requirements

For entry to first year in 1999, the applicant should have satisfactorily completed an appropriate Victorian Certificate of Education (VCE) Year 12, or its equivalent, such as an interstate or international year 12 qualification in the following subjects.

Prerequisites: Units 3 and 4 in English, Mathematical Methods, and one of Physics, Chemistry, Biology, Specialist Mathematics, Information Technology (Information Systems) or Psychology.

Applicants who have successfully completed an Advanced Certificate or Associate Diploma at a Victorian Institute of TAFE, or reached an approved equivalent standard will also be eligible for consideration for admission. However, this does not guarantee a place.

Application procedure

Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information

Contact the School of Engineering and Science on (03) 9214 8372.
Email: engsci@swin.edu.au
### E050 Bachelor of Engineering (Electrical and Electronic Engineering)

**1999 VTAC course codes: 34371 (F/T) 34373 (O/S Fee)**

1998 ENTER: 80.30

This degree course has the following objectives:

- to develop in students a mastery of the basic engineering principles underlying electrical and electronic engineering;
- to develop in students a thorough understanding of appropriate engineering methods and techniques, and competence in their application, so that students are able to comprehend and analyse problems and obtain satisfactory design solutions which, where appropriate, show originality and resourcefulness;
- to develop students' communication skills so that they can present their ideas clearly by verbal, written and graphical means;
- to give students an appropriate introduction to the role of the professional engineer in the community and to explore the social effects of engineering decisions; and to prepare students for the changing workplace and changing societal context of engineering by developing their life-long learning skills and flexibility of mind.

**Location**

Hawthorn campus.

**Career opportunities**

Career opportunities include: microprocessor applications, telecommunications and the 'information superhighways', electronic design, systems modelling and control, electrical power generation and distribution and advanced computer design.

**Professional recognition**

Graduates are expected to be eligible to apply for graduate membership of The Institution of Engineers, Australia.

**Course duration**

The course will normally require four years of full-time study, with an optional, and additional, one year of paid, supervised Industry Based Learning (IBL).

**Structure**

This course will operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed to be equivalent to one hour of student work per week over a semester, whether in contact with staff or in private study.

Four subjects will generally be taken each semester. The typical student's average weekly workload during semester is therefore expected to be fifty hours. Total student contact hours, including lectures, classes, tutorials, flexible learning and laboratory and field sessions will vary in different semesters.

**Course subjects**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>HMS111 Engineering Mathematics 1</td>
<td>12.5</td>
</tr>
<tr>
<td>HET124 Energy and Motion</td>
<td>12.5</td>
</tr>
<tr>
<td>HET1000 Professional Engineering</td>
<td>12.5</td>
</tr>
<tr>
<td>HES1230 Materials and Processes</td>
<td>12.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>HMS112 Engineering Mathematics 2</td>
<td>12.5</td>
</tr>
<tr>
<td>HES1120 Mechanics of Structures</td>
<td>12.5</td>
</tr>
<tr>
<td>HET182 Electronic Systems</td>
<td>12.5</td>
</tr>
<tr>
<td>HET1005 Engineering Project</td>
<td>12.5</td>
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<tr>
<th>Semester 3</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>HMS213 Engineering Mathematics 3B</td>
<td>12.5</td>
</tr>
<tr>
<td>HET210 Electronics</td>
<td>12.5</td>
</tr>
<tr>
<td>HET212 Circuits</td>
<td>12.5</td>
</tr>
<tr>
<td>HIT2080 Introduction to Programming</td>
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<table>
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<tr>
<th>Semester 4</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>HMS214 Engineering Mathematics 4B</td>
<td>12.5</td>
</tr>
<tr>
<td>HET223 Linear Systems</td>
<td>12.5</td>
</tr>
<tr>
<td>HET225 Electrical Machines</td>
<td>12.5</td>
</tr>
</tbody>
</table>

### Semester 5

- HET310 Analog Electronics Design | 12.5 |
- HET312 Control and Automation | 12.5 |
- HET314 Communications Principles | 12.5 |
- HET316 Electromagnetic Waves | 12.5 |

### Semester 6

- HIT3081 Software Development for Engineers | 12.5 |
- HET431 Digital Electronics Design | 12.5 |
- HET229 Digital Signal and Image Processing | 12.5 |
- HET616 Management Fundamentals | 12.5 |

### Semester 7

- HET550 Design and Development Project 1 | 12.5 |
- HET313 Telecommunication Technologies | 12.5 |
- HET615 Introduction to Finance and Accounting | 12.5 |

Choose one of the following electives:

- HET417 Photonics and Fibre Optics | 12.5 |
- HET378 Integrated Circuit Design (preferred elective) | 12.5 |

### Semester 8

- HET556 Design and Development Project 2 | 12.5 |
- HET488 Robotic Control | 12.5 |
- HET618 Management Practices | 12.5 |

Choose one of the following electives:

- HET403 Astronomy and Instrumentation | 12.5 |
- HET235 Biomedical Electronics | 12.5 |
- HET224 Computer Communications and LANs (preferred elective) | 12.5 |
- HET559 Power Electronics | 12.5 |
- HET423 Neural Networks and Intelligent Instrumentation | 12.5 |

### Entry requirements

For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Victorian year 12 or its equivalent, such as an interstate or international year 12 qualification. Students must have completed the following subjects with an average of grade D or better: VCE units 3 and 4 English, Mathematical Methods and one of Physics, Chemistry, Biology, Psychology, Information Technology (Information Systems) or Specialist Mathematics. Passes may be accumulated over more than one year.

Special Entry - Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational background.

**Application procedure**

Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

**Further information**

Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859.

### P050 Bachelor of Engineering (Manufacturing)

**1999 VTAC course codes: 34371 (F/T) 34373 (O/S Fee)**

1998 ENTER: 80.30

Manufacturing Engineering has a vital, direct, impact on the national economy and living standards of Australians by its input into the competitiveness and efficiency of Australian production.

Manufacturing engineers need to respond rapidly to a changing world dominated by advances in technology. Their combination of broad engineering knowledge and resourcefulness, and flexibility of mind.

The Manufacturing Engineering degree course aims to educate and develop manufacturing engineers who:

- To understand the fundamentals of engineering science.
- To possess the technical skills required of manufacturing engineers.
- To have an appreciation for the history of engineering and their discipline.
• To be literate, highly numerate and competent in all aspects of computer aided engineering.
• To have a broad view of engineering and the place occupied by their chosen discipline.
• To have explored some areas of their chosen discipline to a depth equivalent to the state of the art.
• To have appreciated some of the directions in which their profession is likely to develop in the future.
• To understand the nature of creativity, innovation and enterprise.
• To have an interest and ability for self-learning.
• To become balanced and mature contributors to society.
• To have a keen appreciation of professional ethics.
• To be able to get to the heart of a problem and develop solution strategies.
• To manage complex projects.
• To be effective team members and be able to manage conflict.
• To understand the importance of engineering in the context of a sustainable environment.

And in all ways to conduct themselves in a caring, assertive and professionally competent manner.

Location
Hawthorn campus.

Career opportunities
Manufacturing engineering graduates can take jobs in manufacturing industries producing: chemicals, pharmaceuticals, food, robots, aircraft, cars, appliances, plastics, ceramics, textiles and clothing.

The manufacturing engineer’s contributions can include project management, computer aided manufacture, industrial economic analysis, planning and control of production, product and process design, environmental and plant engineering and operations research.

Professional recognition
The revised course is intended to meet the requirements of The Institution of Engineers, Australia for graduate membership. The most recent reaccreditation with the Institution was in 1993.

Course duration
Four years of academic study plus one year of Industry Based Learning.

Structure
The subjects making up the academic component of the degree program are structured into First Year, Intermediate Studies, Industry Based Learning and Advanced Studies.

Course subjects

First Year
Common year for several engineering degrees.

Semester 1 Credit points
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF1000</td>
<td>Professional Engineering</td>
<td>12.5</td>
</tr>
<tr>
<td>ES1230</td>
<td>Materials and Processes</td>
<td>12.5</td>
</tr>
<tr>
<td>ET124</td>
<td>Energy and Motion</td>
<td>12.5</td>
</tr>
<tr>
<td>MS111</td>
<td>Engineering Mathematics 1</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Semester 2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF1005</td>
<td>Engineering Project</td>
<td>12.5</td>
</tr>
<tr>
<td>ES1120</td>
<td>Mechanics of Structures</td>
<td>12.5</td>
</tr>
<tr>
<td>ET182</td>
<td>Electronic Systems</td>
<td>12.5</td>
</tr>
<tr>
<td>MS112</td>
<td>Engineering Mathematics 2</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Intermediate studies
Common studies for all students taking Mechanical or Manufacturing Engineering. Students are prepared for industry based learning.

Semester 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES2270</td>
<td>Computer Aided Engineering 1</td>
<td>12.5</td>
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<tr>
<td>ES2120</td>
<td>Structural Mechanics</td>
<td>12.5</td>
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<tr>
<td>ES2330</td>
<td>Thermodynamics 1</td>
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<tr>
<td>MS211</td>
<td>Engineering Mathematics 3A</td>
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</table>

Semester 4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES2280</td>
<td>Manufacturing Technology 1</td>
<td>12.5</td>
</tr>
<tr>
<td>ES2310</td>
<td>Machine Dynamics 1</td>
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<td>ES2340</td>
<td>Fluid Mechanics 1</td>
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<tr>
<td>ES2230</td>
<td>Engineering Materials</td>
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Semester 5

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<thead>
<tr>
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<th>Course Title</th>
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<tr>
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<tr>
<td>ES3380</td>
<td>Engineering Management 1</td>
<td>12.5</td>
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</table>

Industry Based Learning
Two paid six month placements in industries providing professional manufacturing engineering experience.

Advanced studies
Advanced discipline study, management, project and electives.

Semester 6

<table>
<thead>
<tr>
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<th>Course Title</th>
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<td>ES4280</td>
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<tr>
<td>ES4210</td>
<td>Operations Analysis</td>
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</tr>
<tr>
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Semester 7

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<th>Course Title</th>
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<tr>
<td>ES5210</td>
<td>Industrial Systems</td>
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<tr>
<td>ES5280</td>
<td>Advanced Manufacturing Processes</td>
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<td>ES5380</td>
<td>Engineering Management 2</td>
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Semester 8

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<tr>
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<td>ES5300</td>
<td>Major Project</td>
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<tr>
<td>ES5385</td>
<td>Engineering Management 3</td>
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Electives
The course provides for two elective subjects, one in each semester of final year. These electives are intended to provide the student with a choice to pursue an area of specialist interest which leads to either broadening or deepening of knowledge and understanding. They may be any approved undergraduate subjects offered by the Higher Education Division.

Entry requirements
Applicants must have satisfactorily completed the Victorian Certificate of Education (or its equivalent) with passes in Units 3 and 4 of each of: English, Mathematical Methods, and one of: Physics, Chemistry Biology, Specialist Mathematics, Psychology or Information Technology/Information Systems.

Credit transfer
An advanced credit transfer system, known as pathways program, is in place at Swinburne. Through Pathways, students with one or more of a wide range of post-secondary qualifications (both local and international) can gain entry into this course with advanced standing. Certain subject requirements must be met in order to gain admission and for maximum credit to be granted.

Applicants who have successfully completed an advanced certificate or associate diploma at another Victorian Institute of TAFE, or reached an approved equivalent standard will also be eligible for consideration for admission. However, this does not guarantee a place.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information
Contact the School of Engineering and Science on (03) 9214 8372.
Email: engsci@swin.edu.au

Swinburne University of Technology | 1999 Higher Education Handbook
**M050 Bachelor of Engineering (Mechanical)**

1999 VTAC course codes: 34371 (F/T), 34373 (O/S Fee)

1998 ENTER: 80.30

Mechanical Engineering is a vital, direct, impact on the national economy and living standards of Australians by its input into the competitiveness and efficiency of Australian production.

Mechanical engineers need to respond rapidly to a changing world dominated by advances in technology. Their combination of broad engineering knowledge and detailed expertise in a specialist field enables them to keep pace and harness these changes.

The Mechanical Engineering degree course aims to educate and develop students:

- To understand the fundamentals of engineering science.
- To possess the technical skills required of mechanical engineers.
- To have an appreciation for the history of engineering and their discipline.
- To be literate, highly numerate and competent in all aspects of computer aided engineering.
- To have a broad view of engineering and the place occupied by their chosen discipline.
- To have explored some areas of their chosen discipline to a depth equivalent to the state of the art.
- To have appreciated some of the directions in which their profession is likely to develop in the future.
- To understand the nature of creativity, innovation and enterprise.
- To have an interest and ability for self-learning.
- To become balanced and mature contributors to society.
- To have a keen appreciation of professional ethics.
- To be able to get to the heart of a problem and develop solution strategies.
- To manage complex projects.
- To be effective team members and be able to manage conflict.
- To understand the importance of engineering in the context of a sustainable environment.

And in all ways to conduct themselves in a caring, assertive and professionally competent manner.

**Location**

Hawthorn campus.

**Career opportunities**

Employment may be found in many areas of industry and commerce including: aeronautical laboratories, power generation, automotive/ transport manufacturing, chemical/plastic/ceramic/textile processing, appliance production, mechanical building services, risk management, mining and raw material conversion.

The mechanical engineer's contributions can include consulting, project management, planning, research and development, engineering design, quality control, measurement and control of environmental conditions, manufacturing and testing of products, processes and services, sales, installation and maintenance.

**Professional recognition**

The revised course is intended to meet the requirements of The Institution of Engineers, Australia for graduate membership. The most recent reaccreditation with the Institution was in 1993.

**Course duration**

Four years of full-time academic study plus one year of Industry Based Learning.

**Course structure**

The subjects making up the academic component of the degree program are structured into First Year, Intermediate Studies, Industry Based Learning and Advanced Studies.

**Course subjects**

**First Year**

Common year for several engineering degrees.

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
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<tbody>
<tr>
<td>EF1000 Professional Engineering</td>
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<tr>
<td>ES1230 Materials and Processes</td>
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<tr>
<td>ET124 Energy and Motion</td>
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**Second Year**

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<td>EF1005 Engineering Project</td>
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<td>ES1120 Mechanics of Structures</td>
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<td>ES1282 Electronic Systems</td>
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<tr>
<td>MS112 Engineering Mathematics 2</td>
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**Intermediate studies**

Common studies for all students taking Mechanical or Manufacturing Engineering. Students are prepared for industry based learning.

<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Credit points</th>
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<tbody>
<tr>
<td>ES2270 Computer Aided Engineering 1</td>
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<tr>
<td>ES2120 Structural Mechanics</td>
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</tr>
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<td>ES2300 Thermodynamics 1</td>
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<td>MS211 Engineering Mathematics 3A</td>
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<table>
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<td>ES2280 Manufacturing Technology 1</td>
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<td>ES2340 Fluid Mechanics 1</td>
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<td>ES2230 Engineering Materials</td>
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<table>
<thead>
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<th>Semester 5</th>
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<td>ES3550 Machine Design</td>
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<td>ES3840 Human Factors</td>
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<tr>
<td>ES3110 Control Engineering</td>
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</tr>
<tr>
<td>ES3880 Engineering Management 1</td>
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**Industry Based Learning**

Two paid six month placements in industries providing professional mechanical engineering experience.

<table>
<thead>
<tr>
<th>Semester 6</th>
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<tbody>
<tr>
<td>ES4350 Mechanical Systems Design</td>
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<tr>
<td>ES5300 Solid Mechanics</td>
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<tr>
<td>ES4330 Thermodynamics 2</td>
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<tr>
<td>MS212 Engineering Mathematics 4A</td>
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<table>
<thead>
<tr>
<th>Semester 7</th>
<th>Credit points</th>
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<td>ES5310 Machine Dynamics 2</td>
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<tr>
<td>ES5340 Fluid Mechanics 2</td>
<td>12.5</td>
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<tr>
<td>ES5380 Engineering Management 2</td>
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<tr>
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<table>
<thead>
<tr>
<th>Semester 8</th>
<th>Credit points</th>
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<td>ES5360 Product Design</td>
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<tr>
<td>ES5300 Major Project</td>
<td>12.5</td>
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<tr>
<td>ES5385 Engineering Management 3</td>
<td>12.5</td>
</tr>
<tr>
<td>Elective</td>
<td>12.5</td>
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</tbody>
</table>

**Electives**

The course provides for two elective subjects, one in each semester of final year. These electives are intended to provide the student with a choice to pursue an area of specialist interest which leads to either broadening or deepening of knowledge and understanding. They may be any approved undergraduate subjects offered by the Higher Education Division.

**Entry requirements**

Applicants must have satisfactorily completed the Victorian Certificate of Education (or its equivalent) with passes in Units 3 and 4 of each of: English, Mathematical Methods, and one of: Physics, Chemistry Biology, Specialist Mathematics, Psychology or Information Technology/Information Systems.

**Credit transfer**

An advanced credit transfer system, known as the Pathways program, is in place at Swinburne. Through Pathways, students with one or more of a wide range of post-secondary qualifications (both local and international) can gain entry into this course with advanced standing. Certain subject requirements must be met and an acceptable standard of results achieved in order to gain admission and for maximum credit to be granted.

Swinburne University of Technology | 1999 Higher Education Handbook
Applicants who have successfully completed an advanced certificate or associate diploma at another Victorian Institute of TAFE, or reached an approved equivalent standard will also be eligible for consideration for admission. However, this does not guarantee a place.

**Application procedure**
Application must be made through the Victorian Tertiary Admissions Centre (VTAC). Contact the School of Engineering and Science on (03) 9214 8372. Email: Engsci@swin.edu.au

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET124</td>
<td>Energy and Motion</td>
<td>12.5</td>
</tr>
<tr>
<td>MS111</td>
<td>Engineering Mathematics</td>
<td>12.5</td>
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</tbody>
</table>

**PDE50 Bachelor of Engineering (Product Design Engineering)**

1999 VTAC course codes: 34121 (F/T) 34123 (O/S Fee)

This course is offered by the School of Engineering and Science in cooperation with the Swinburne National School of Design. The main aim of the course is to educate a new generation of creative product design engineers. This course will provide industry with graduates equipped with the knowledge, skills and attitudes that makes them valuable members of any team working with design, development and production. It combines the essential parts of engineering and industrial design areas, to educate a product design engineer that has knowledge of both the technological and creative design aspects of a product. The subjects studied during the course will be equally shared by the School of Engineering and Science and the Swinburne National School of Design. These will have a focus on creative design, engineering science, material and manufacturing process selection, project management and innovation.

The objectives of the course are to:
- Produce graduates with a sound knowledge of the principles and processes of product design.
- Develop the ability to design products with a sound engineering base.
- Develop student knowledge and understanding of traditional and innovative processes in developing successful products for competitive markets.
- Educate students in making suitable material selection based on human/machine/manufacturing requirements.
- Produce graduates with sound management and professional practice skills (embracing, for example, ethics and law).

**Location**
Hawthorn / Prahran

**Career opportunities**
Graduates will find employment in industries dealing in the manufacture of domestic products or the automobile industry. Their role will be primarily in the area of design, project management and manufacturing.

**Professional recognition**
Graduates are eligible to apply for membership of:
- The Institution of Engineers, Australia;
- The Australian Association of Industrial Design.

**Course duration**
Four years of full-time study plus one year of optional Industry Based Learning (IBL).

**Structure**
The course will operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed equivalent to one hour of student work per week, whether in contact with staff or in private study. The typical students’ average weekly workload during the semester is therefore expected to be 50 hours.

Subjects are normally 12.5 credit points each. However some project based learning subjects may be allocated 25 credit points. A full student load is therefore the equivalent of 4 single subjects per semester.

**Course subjects**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Semester 1</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET124</td>
<td>Energy and Motion</td>
<td>12.5</td>
</tr>
<tr>
<td>MS111</td>
<td>Engineering Mathematics</td>
<td>12.5</td>
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</tbody>
</table>

**Semester 2**

| ET172 | Electronic Systems | 12.5          |
| MS112 | Engineering Mathematics | 12.5          |
| DPD121| Product Design 2 | 12.5          |

**Year 2**

| Semester 1 | ES1230 | Materials and Processes | 12.5          |
| ET210 | Structural Mechanics | 12.5          |
| DPD211 | Product Design 3 | 25.0          |

**Semester 2**

| ES2290 | Manufacturing Technology 1 | 12.5          |
| ES2310 | Machine Dynamics | 12.5          |
| ES2230 | Engineering Materials | 12.5          |
| DPD221 | Product Design 4 | 12.5          |

**Year 3**

| Semester 1 | ES3350 | Machine Design | 12.5          |
| ES3334 | Thermofluid Systems | 12.5          |
| ES380 | Engineering Management 2 | 12.5          |
| DPD311 | Product Design 5 | 12.5          |

**Semester 2**

| ES4290 | Design for Manufacture | 12.5          |
| ES4280 | Manufacturing Technology 2 | 12.5          |
| DPD421 | Product Design 6 | 25.0          |

**Year 4**

| Semester 1 | Industry Based Learning | 50.0          |
| Semester 2 | Industry Based Learning | 50.0          |

**Year 5**

| Semester 1 | ESS210 | Industrial Systems | 12.5          |
| DPD511 | Product Design 7 | 12.5          |
| DPD512 | Professional Project | 12.5          |

**Semester 2**

| ESS385 | Engineering Management 3 | 12.5          |
| DPD521 | Product Design 8 | 12.5          |
| DPD522 | Professional Project | 12.5          |

**Entry requirements**
Successful completion of VCE which includes units 3&4 in, English, Mathematical Methods, and one of Physics, Chemistry, Biology, Specialist Mathematics, Information Technology: Information Systems or Psychology.

There is provision for entry to the first year of the program for those students with no VCE or equivalent qualification to be considered for acceptance into this program. Selection will be based on recognition of prior learning together with written application and interview.

**Credit transfer**
An advanced credit transfer system, known as the Pathways program, is in place at Swinburne. Through pathways, students with one or more of a wide range of post-secondary qualifications (both local and international) can gain entry into this course with advanced standing. Certain subjects requirements must be made and an acceptable standard of results achieved in order to gain admission and for maximum credit to be granted.
Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC). All applicants must participate in a pre-selection program and, if selected, attend an interview in December. For further details refer to the VTAC Guide.

Further information
Contact the School of Engineering and Science on (03) 9214 8372 or the National School of Design on (03) 9214 6755.

R050 Bachelor of Engineering (Robotics and Mechatronics)
1999 VTAC course codes: 34581 (F/T) 34589 (Q/S Fee)
1998 ENTER: 81.00

This course is intended to prepare students for professional engineering careers in industries that use or manufacture equipment that consist of both mechanical and electronic systems and, as a consequence, require a multi-skilled engineer.

The course aims to deliver a current and relevant course of study in robotics and mechatronics covering the principal areas of mechanical engineering, electrical engineering, computer science and electronics (and associated minor areas of study).

In particular, the degree course in robotics and mechatronics aims to develop in a student:
- a mastery of the basic scientific principles underlying robotics and mechatronics;
- a sound knowledge of engineering science and both electrical/electronics and software engineering;
- a thorough understanding of engineering methods and the ability to apply them competently, and where appropriate, with originality and resourcefulness;
- an understanding of the principles of management and the financial aspects of engineering;
- communication skills so that students can present their ideas clearly by verbal, written and graphic means;
- an appreciation of the role of the professional engineer in the community, of engineering ethics and of the social and environmental effects of engineering decisions;
- self-educative skills and flexibility of mind so that students are prepared for a world of accelerating technological change.

Location
Hawthorn campus.

Career opportunities
Graduates from the Robotics and Mechatronics program can take up careers in a wide spectrum of industries including robotics, airlines, chemical industries, automotive, appliance manufacturing and industrial research. Contributions can be made to these industries in a variety of roles including design engineer, project planner, product designer and project manager.

Course duration
Five years full-time (four years of academic study and one year of industry based learning).

Course subjects

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Semester 1</th>
<th>Credit points</th>
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<tbody>
<tr>
<td>ES1300</td>
<td>Robotics and Mechatronics Project 1</td>
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<tr>
<td>ES1230</td>
<td>Materials and Processes</td>
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<tr>
<td>ET124</td>
<td>Energy and Motion</td>
<td>12.5</td>
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<td>MS111</td>
<td>Engineering Mathematics 1</td>
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<tr>
<td>Semester 2</td>
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<tr>
<td>ES1305</td>
<td>Robotics and Mechatronics Project 2</td>
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<tr>
<td>ES1120</td>
<td>Mechanics Structures</td>
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<td>ET182</td>
<td>Electronic Systems</td>
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<th>Semester 1</th>
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<tr>
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<td>Computer Aided Engineering</td>
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<td>ET210</td>
<td>Electronics</td>
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<td>IT1051</td>
<td>Software Development 1</td>
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<td>MS211</td>
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<td>ET225</td>
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<td>IT1052</td>
<td>Software Development 2</td>
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<tbody>
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<td>Control and Automation</td>
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<td>ET616</td>
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<td>ET489</td>
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<tr>
<td>ET329</td>
<td>Digital Signal and Image Processing</td>
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<td>Introduction to Software Engineering</td>
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<td>ES5290</td>
<td>Robot System Design</td>
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<td>ET615</td>
<td>Introduction to Finance and Accounting</td>
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<td>ET313</td>
<td>Telecommunication Technologies</td>
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<td>ET556</td>
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<td>Neural Networks and Intelligent Instrumentation</td>
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<tr>
<td>ET725</td>
<td>Biomedical Electronics</td>
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<tr>
<td>Approved mechanical elective</td>
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</tr>
</tbody>
</table>

Entry requirements
For entry to first year in 1999, the applicant should have satisfactorily completed an appropriate Victorian Certificate of Education (VCE) Year 12, or its equivalent, such as an interstate or international year 12 qualification in the following subjects.

Prerequisites: Units 3 and 4 in English, Mathematical Methods, and one of Physics, Chemistry, Biology, Specialist Mathematics, Information Technology (Information Systems) or Psychology.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information
Contact the School of Engineering and Science on (03) 9214 8372.
E058 Bachelor of Engineering (Telecommunications and Networks)  
(No new intake)

E059 Bachelor of Engineering (Telecommunications and Internet Technologies)  
1999 VTAC course codes: 34201 (F/T) 34203 (O/S Fee)

This course has the following aims:

- to develop in students a broad mastery of the basic science and engineering principles underlying telecommunications and internet technologies and an ability to apply that knowledge;

- to develop in students a thorough understanding of appropriate engineering methods and techniques, and competence in their application, so that students are able to comprehend and analyse problems and obtain satisfactory design solutions which, where appropriate, show originality and resourcefulness;

- to develop students’ communication skills so that they can present their ideas clearly by verbal, written and graphic means both within the engineering community and the community at large;

- to give students an appropriate introduction to the role of the professional engineer in the community and to explore the social effects of engineering decisions. These studies are aimed at developing moral, social, aesthetic, environmental and ethical concepts essential to a satisfying personal philosophy and a sound professional attitude;

- to develop abilities to function effectively as an individual and in project teams, whether as manager, leader or team member; and

- to prepare students for the changing workplace and the changing societal context of engineering by developing their life-long learning skills and flexibility of mind.

Location
Hawthorn campus.

Career opportunities
Graduates will find rewarding high-tech careers in the converging telecommunications, multimedia, computing, and internet ‘information technology’ industries. They may become an internet applications engineer, a telecommunications link designer, an embedded computing systems designer, an analyst/designer/manager of internal corporate multimedia networks, or a network administrator/web-master.

Professional recognition
Graduates are expected to be eligible to apply for graduate membership of the Institution of Engineers, Australia.

Course duration
The course will normally require four years of full-time study, with an optional, and additional, one year of paid, supervised Industry Based Learning (IBL).

Structure
This course will operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed to be equivalent to one hour of student work per week over a semester, whether in contact with staff or in private study.

Four subjects will generally be taken each semester. The typical student's average weekly workload during semester is therefore expected to be fifty hours. Total student contact hours, including lectures, tutorials, flexible learning and laboratory and field sessions will vary in different semesters.

Course subjects

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HET121 Introduction to Telecommunications</td>
<td>12.5</td>
</tr>
<tr>
<td>HET113 The Internet and WWW 1</td>
<td>12.5</td>
</tr>
<tr>
<td>HIT1051 Software Development 1</td>
<td>12.5</td>
</tr>
<tr>
<td>HMS111 Engineering Mathematics 1</td>
<td>12.5</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HET211 Telecommunications Project</td>
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</tbody>
</table>

HET182 Electronic Systems 12.5
HIT1052 Software Development 2 12.5
HMS112 Engineering Mathematics 2 12.5

Semester 3

HET314 Communications Principles 12.5
HIT2053 Software Development 3 12.5
HET210 Electronics 12.5
HMS213 Engineering Mathematics 3B 12.5

Semester 4

HET224 Computer Communications and LANs 12.5
HET232 Embedded Microcontrollers 12.5
HIT1031 Introduction to Software Engineering 12.5
HMS214 Engineering Mathematics 4B 12.5

Semester 5

HET313 Telecommunication Technologies 12.5
HET338 Network Engineering 12.5
HET316 Electromagnetic Waves 12.5

For 1998 only:

HSM2558 Engineering Mathematics 5B 12.5

Semester 6

HET315 Communications Information Theory 12.5
HET431 Digital Electronics Design 12.5
HET329 Digital Signal and Image Processing 12.5
HET432 Internetworking and Real Time Distributed Systems 12.5

Semester 7

HET550 Design and Development Project 1 12.5
HET436 Broadband Multimedia Networks 12.5
HET417 Photonics and Fibre Optics 12.5
HET515 Introduction to Finance and Accounting 12.5

Semester 8

HET556 Design and Development Project 2 12.5
HET452 Mobile and Personal Communications 12.5
HAM315 Information Society: A Global Perspective 12.5
HET616 Management Fundamentals 12.5

Entry requirements
For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Victorian Year 12 or its equivalent, such as an interstate or international Year 12 qualification. Students must have completed the following subjects: VCE Units 3 and 4 English and Mathematical Methods.

Special Entry - Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational background.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information
Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859.

Z044 Bachelor of Software Engineering  
Refer to main entry in the Computing and Information Technology section, page 106.

MO55 Bachelor of Technology (Aviation)  
1999 VTAC course codes: 34511 (F/T) 34513 (O/S Fee)

1998 ENTER: Individual offer

This three year full-time degree prepares students for aviation careers in the air transportation industry as either professional pilots or in other professional capacities. The course incorporates the theory subjects required by the Australian Civil Aviation Safety Authority (CASA) up to Airline Transport Pilot Licence (ATPL) standard.
Students who successfully complete this course are awarded the Degree of Bachelor of Technology (Aviation) and those who undertake the flying hours necessary will also gain a Commercial Pilot Licence (CPL). Strong emphasis will be placed on the engineering, human factors and management aspects of aviation and flying, and a strong sense of practical problem solving will be engendered in students. Various motivational subjects are included to maintain a high level of dedication in students.

**Location**
Hawthorn campus.

**Course duration**
Three years full-time.

**Course subjects**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF110*</td>
<td>Flight Planning and Procedures 1</td>
<td>5.0</td>
</tr>
<tr>
<td>MF120*</td>
<td>Navigation and Meteorology 1</td>
<td>7.5</td>
</tr>
<tr>
<td>MF131*</td>
<td>Aircraft General Knowledge 1</td>
<td>7.5</td>
</tr>
<tr>
<td>MF150</td>
<td>Occupational Health and Safety</td>
<td>5.0</td>
</tr>
<tr>
<td>MF160</td>
<td>Propulsion and Aircraft Systems</td>
<td>7.5</td>
</tr>
<tr>
<td>MF170</td>
<td>Aviation Mathematics and Computing</td>
<td>10.0</td>
</tr>
<tr>
<td>MF190</td>
<td>Communication Skills</td>
<td>7.5</td>
</tr>
</tbody>
</table>

| Semester 2 | |
| MF110* | Flight Planning and Procedures 1 | 7.5 |
| MF120* | Navigation and Meteorology 1 | 7.5 |
| MF131* | Aircraft General Knowledge 1 | 7.5 |
| MF150 | Occupational Health and Safety | 5.0 |
| MF160 | Propulsion and Aircraft Systems | 7.5 |
| MF170 | Aviation Mathematics and Computing | 10.0 |
| MF180 | Aviation Electronics | 5.0 |

| Year 2 | Semester 1 | |
| MF211* | Air Transport Pilot Licence 1 | 20 |
| MF241 | Theoretical Aerodynamics | 5.0 |
| MF250 | Human Factors and Performance | 7.5 |
| MF260 | Advanced Propulsion and Aircraft Systems | 5.0 |
| MF270 | Aircraft Materials and Structures | 7.5 |
| MF280 | Avionics and Electronics | 5.0 |

| Semester 2 | |
| MF211* | Air Transport Pilot Licence 1 | 15 |
| MF241 | Theoretical Aerodynamics | 5.0 |
| MF250 | Human Factors and Performance | 7.5 |
| MF260 | Advanced Propulsion and Aircraft Systems | 5.0 |
| MF270 | Aircraft Materials and Structures | 7.5 |
| MF280 | Avionics and Electronics | 5.0 |
| MF290 | Aviation Business Management | 5.0 |

| Year 3 | Semester 1 | |
| MF311* | Air Transport Pilot Licence 2 | 7.5 |
| MF340 | Advanced Aerodynamics | 5.0 |
| MF350 | Human Factors and Leadership Training | 7.5 |
| MF380 | Aviation Project 1 | 10.0 |
| MF370 | Aircraft Design | 7.5 |
| MF380 | Aircraft Navigation Control Systems | 7.5 |
| MF390 | Aviation Facilities Management | 7.5 |

| Semester 2 | |
| MF311* | Air Transport Pilot Licence 2 | 7.5 |
| MF340 | Advanced Aerodynamics | 5.0 |
| MF350 | Human Factors and Leadership Training | 7.5 |

| MF380 | Aviation Project | 10.0 |
| MF370 | Aircraft Design | 7.5 |
| MF380 | Aircraft Navigation Control Systems | 7.5 |
| MF390 | Aviation Facilities Management | 7.5 |

*Some or all of the subjects shown with an asterisk are provided at Moorabbin Airport.*

**Entry requirements**
Completion of VCE. Units 3 and 4: English and Mathematical Methods, Physics.

**Application procedure**
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

**Further information**
Contact the School of Engineering and Science on (03) 9214 8372.

Website: www.swin.edu.au/aviation/

**C051 Bachelor of Technology (Building Surveying)**

1999 VTAC course codes: 34351 (F/T) 34353 (O/S Fee)

This course is intended to prepare students for the professions of building and building surveying. It meets the educational requirements for membership of the Australian Institute of Building Surveyors (nationally) and the educational requirements of the Victorian Building Practitioners Board, which licenses Building Surveyors in the State of Victoria. The course is also accredited by the Australian Institute of Building. The course was introduced at the request of the AIBS and has been designed to enable future members of the profession to cope with anticipated changes in building technology, materials and statutory regulations.

The course is coordinated by the School of Civil Engineering and Building. It is interdisciplinary in nature, with a teaching input from a number of schools.

The aims and objectives are:

- Mastery of the basic scientific principles of building;
- A sound knowledge of building science and practices;
- A thorough understanding of the acts and regulations pertaining to building;
- An understanding of the principles of management and finance.

**Career opportunities**

Graduates in Building Surveying have the opportunity to enter either the private or municipal field practising as building control officers or building surveyors, administering building regulation and control. Employment opportunities also exist in the planning and supervisory areas of building construction.

- The building surveyor in a municipality is the council’s technical officer in matters pertaining to buildings. Duties include giving advice to council on various parliamentary acts and regulations, council bylaws and regulations relevant to building, together with their administration as required by law and by council. The building surveying department is responsible for checking plans and computations submitted for council approval and for carrying out inspections of buildings during construction, alteration and demolition.
- In private practice the consultant building surveyor is an essential part of the building team. Advice is given to the designer team, and the final documents are approved by the building surveyor who issues the building permit, and later carries out the mandatory inspections. Graduates are also employed by builders as project managers. In these roles they coordinate the administrative and construction planning aspects of building projects.

**Professional recognition**

Australian Institute of Building Surveying and Australian Institute of Building

**Course duration**

The Bachelor of Technology in Building Surveying is structured as a cooperative or industry based learning program, and consists of six academic semesters at Swinburne and two semesters in industry. The total length of the full-time course is four years and 400 credit points.

**Course structure**

First and second years are spent full-time at Swinburne. In third year, students spend the entire year working in industry. Employment is arranged by Swinburne University of Technology | 1999 Higher Education Handbook
and students are paid by the employer. Students benefit greatly from this first-hand experience and a consistent liaison is maintained between the mentor, the employer, and the student.

The fourth year is spent at Swinburne.

The course can be completed by part-time study. Students should consult with staff to plan a part-time program of classes from the required subjects of the course.

Course subjects
(1999 syllabus)


<table>
<thead>
<tr>
<th>Year 1</th>
<th>Semester 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ES1810 Building Control 1</td>
</tr>
<tr>
<td></td>
<td>ES1820 Construction 1</td>
</tr>
<tr>
<td></td>
<td>ES1830 Materials and Services 1</td>
</tr>
<tr>
<td></td>
<td>MS100 Mathematics for Builders</td>
</tr>
<tr>
<td>Semester 2</td>
<td>ES1815 Building Control 2</td>
</tr>
<tr>
<td></td>
<td>ES1825 Construction 2</td>
</tr>
<tr>
<td></td>
<td>ES1845 Communications</td>
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<tr>
<td></td>
<td>ES1855 Applied Structures 1</td>
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<tr>
<td>Year 2</td>
<td>Semester 1</td>
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<tr>
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<td>ES2810 Building Control 3</td>
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<td>ES2820 Construction 3</td>
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<td>ES2830 Materials and Services 2</td>
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<td>ES2850 Applied Structures 2</td>
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<tr>
<td>Semester 2</td>
<td>ES2815 Building Control 4</td>
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<tr>
<td></td>
<td>ES2825 Construction 4</td>
</tr>
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<td></td>
<td>ES2835 Materials and Services 3</td>
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<td></td>
<td>ES2845 Management 1</td>
</tr>
<tr>
<td>Year 3</td>
<td>Semester 1</td>
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<tr>
<td></td>
<td>ES3800 Industry Based Learning 24 weeks</td>
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<td>Semester 2</td>
<td>ES3805 Industry Based Learning 24 weeks</td>
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<tr>
<td>Year 4</td>
<td>Semester 1</td>
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<td>ES4810 Building Control 5</td>
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<td>ES4850 Applied Structures 3</td>
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<td>ES4860 Fire Technology 1</td>
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<td>ES4865 Fire Technology 2</td>
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<td></td>
<td>ES4875 Final Year Project</td>
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</table>

Entry requirements

For entry to first year in 1999, the applicant should have satisfactorily completed an appropriate Victorian Certificate of Education (VCE) Year 12, or its equivalent, such as an interstate or international year 12 qualification in the following subjects.

Prerequisites: Units 3 and 4 in English, Mathematical Methods, and one of Physics, Chemistry, Biology, Specialist Mathematics, Information Technology (Information Systems) or Psychology.

Students who have completed an:
- Associate Diploma or certificate of Technology course in a relevant area will be admitted with some exemptions, as appropriate.

Application procedure

Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information

Contact the School of Engineering and Science on (03) 9214 8372.

DOUBLE DEGREES

E069 Bachelor of Applied Science (Computer Science and Software Engineering) / Bachelor of Engineering (Telecommunications and Internet Technologies)

Refer to main entry in the Computing and Information Technology section, page 107.

Z032 Bachelor of Applied Science (Multimedia Technology) / Bachelor of Engineering (Telecommunications and Internet Technologies)

Refer to main entry in the Multimedia section, page 135.

E061 Bachelor of Applied Science (Research and Development) / Bachelor of Engineering (Electrical and Electronic Engineering)

Refer to main entry in the Applied Science section, page 68.

ECH050 Bachelor of Engineering (Chemical and Bioprocess Engineering) / Bachelor of Arts / Business / Social Science

This double degree involves the study of chemical and bioprocess engineering and arts, business or social science subjects. Students entering the first year of the double degree complete the standard first year of the Bachelor of Engineering degree at the end of which students elect the chemical and bioprocess stream. Arts/business/social science studies commence in the third year of the program. An optional year of paid Industry Based Learning is available and is usually undertaken in the seventh and eighth semesters.

Location

Hawthorn campus.

Course duration

Five years full-time plus optional one year of IBL. The course can only be taken on a full-time basis.

Students who do not take the IBL component will be allowed to graduate on completion of the necessary academic component of the course together with twelve (12) weeks of approved industry experience, but will not receive the normal certification for the IBL component.

The IBL component is normally undertaken in the seventh and eighth semesters. Variations in the positioning of the IBL components will be possible with approval from the Head of the awarding School.

Total student contact hours, including lectures, classes, tutorials, laboratory and field sessions, will be approximately 20 hours/week during academic semesters.

Course subjects

Year 1 (Standard First Year)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS111</td>
<td>12.5</td>
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<tr>
<td>ET124</td>
<td>12.5</td>
</tr>
<tr>
<td>EF1000</td>
<td>12.5</td>
</tr>
<tr>
<td>ES1230</td>
<td>12.5</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS112</td>
<td>12.5</td>
</tr>
<tr>
<td>ES1125</td>
<td>12.5</td>
</tr>
</tbody>
</table>
Students must complete:

- the five core subjects
  - BC110 Accounting 1
  - BL111 Law in Global Business
  - BH110 Organisations and Management
  - BM110 The Marketing Concept
  - BE 110 Microeconomics
- one business major study
- in addition to BH110, business subjects must include at least two additional management subjects.

Business studies will normally commence with one subject in semester 5 of the program or earlier if taken in the summer program. This would normally be the first subject from the selected major study. For further information on business majors, refer to the Bachelor of Business course description in this Handbook.

### Engineering/Social Science

Students must complete:

- one full social science major;
- the first year core business management subject ‘BH110 Organisations and Management’;
- two additional approved management subjects.

Social science majors consist of at least eight approved subjects. Social science studies will normally commence with one subject in semester 5 of the program or earlier if taken in the summer program. This would normally be the first subject from the selected major study. For further information on social science majors, refer to the Bachelor of Social Science course description in this Handbook.

### Entry requirements

For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Victorian year 12 or its equivalent, such as an interstate or international year 12 qualification. Students must have completed subjects with an average of grade D or better: VCE units 3 and 4 English, Mathematical Methods or Specialist Mathematics. Passes may be accumulated over more than one year.

Special Entry - Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational background.

### Application procedure

Application must be made through the Victorian Tertiary Admissions Centre (VTAC). Further information

Contact the School of Engineering and Science on (03) 9214 8372.

### EC050 Bachelor of Engineering (Civil) / Bachelor of Arts / Business / Social Science

This double degree involves the study of civil engineering and arts, business or social science subjects. Students entering the first year of the double degree complete the standard first year of the Bachelor of Engineering degree at the end of which students elect the civil engineering stream. Arts/business/social science studies commence in the third year of the program. An optional year of paid Industry Based Learning is available and is usually undertaken in the sixth and seventh semesters.

### Location

Hawthorn campus.

### Course duration

Five years full-time plus optional one year of IBL. The course can only be taken on a full-time basis.

Students who do not take the IBL component will be allowed to graduate on completion of the necessary academic component of the course together with

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tr>
<td>ET182</td>
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<tr>
<td>EF1005</td>
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<tr>
<td>BH110</td>
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<tr>
<td>BC110</td>
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<tr>
<td>BL111</td>
<td>12.5</td>
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<tr>
<td>BM110</td>
<td>12.5</td>
</tr>
<tr>
<td>BE 110</td>
<td>12.5</td>
</tr>
<tr>
<td>BC110</td>
<td>12.5</td>
</tr>
</tbody>
</table>

### Note:

Double Degree students may exchange up to two of the four subjects ES3841, ES3865, ES3851, and ES5001 for a subject in the second degree. However students should be aware that each of these subjects provides advanced material in a significant area of chemical and bioprocess engineering and should be exchanged only with clear career objectives in mind.
twelve (12) weeks of approved industry experience, but will not receive the normal certification for the IBL component.

The IBL component is normally undertaken in the sixth and seventh semesters. Variations in the positioning of the IBL components will be possible with approval from the Head of the awarding School.

Total student contact hours, including lectures, classes, tutorials, laboratory and field sessions, will be approximately 20 hours/week during academic semesters.

Course subjects

**Year 1 (Standard First Year)**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS111 Engineering Mathematics 1</td>
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<tr>
<td>ET124 Energy and Motion</td>
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<tr>
<td>EF1000 Professional Engineering</td>
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<tr>
<td>ES1230 Materials and Processes</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>MS112 Engineering Mathematics 2</td>
<td>12.5</td>
</tr>
<tr>
<td>ES1125 Mechanics of Structures</td>
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<tr>
<td>ET182 Electronic Systems</td>
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<tr>
<td>EF1005 Engineering Project</td>
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**Year 2 (Civil Course)**

<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Credit points</th>
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<tbody>
<tr>
<td>ES2130 Engineering Surveying</td>
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<tr>
<td>ES2100 Civil Engineering Practice</td>
<td>12.5</td>
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<tr>
<td>ES2120 Structural Mechanics</td>
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<tr>
<td>MS211 Engineering Mathematics 3</td>
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<table>
<thead>
<tr>
<th>Semester 4</th>
<th>Credit points</th>
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<tbody>
<tr>
<td>ES2155 Geomechanics</td>
<td>12.5</td>
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<tr>
<td>ES2115 Road Data, Design and Environment</td>
<td>12.5</td>
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<tr>
<td>ES2135 Hydraulics and Environment</td>
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<tr>
<td>Arts/Business/Social Science subject</td>
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**Year 3**

<table>
<thead>
<tr>
<th>Semester 5</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>ES3150 Geotechnical Engineering</td>
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</tr>
<tr>
<td>ES3110 Civil Design and Materials</td>
<td>12.5</td>
</tr>
<tr>
<td>ES3120 Structural Design</td>
<td>12.5</td>
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<tr>
<td>Arts/Business/Social Science subject</td>
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<table>
<thead>
<tr>
<th>Semester 6</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES4135 Transport Engineering 1 or</td>
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<tr>
<td>ES4145 Structural Engineering 1 (Civil - Structural Major)</td>
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<tr>
<td>ES4115 Civil Engineering Applications or</td>
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<tr>
<td>ES4125 Structural Engineering Applications (Civil - Structural Major)</td>
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<td>Business/Arts/Social Science subject</td>
<td>12.5</td>
</tr>
<tr>
<td>Business/Arts/Social Science subject</td>
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</table>

**Year 4**

<table>
<thead>
<tr>
<th>Semester 7</th>
<th>Credit points</th>
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<tbody>
<tr>
<td>ESS130 Water Engineering or</td>
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<tr>
<td>ESS140 Structural Engineering 2 (Civil - Structural Major)</td>
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<tr>
<td>ESS110 Project Design and Construction 1</td>
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<tr>
<td>Arts/Business/Social Science subject</td>
<td>12.5</td>
</tr>
<tr>
<td>Arts/Business/Social Science subject</td>
<td>12.5</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Semester 8</th>
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<tbody>
<tr>
<td>ESS135 Local Planning and Engineering Systems or</td>
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<tr>
<td>ESS200 Solid Mechanics (Civil - Structural Major)</td>
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<tr>
<td>ESS125 Project Design and Construction 2</td>
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<tr>
<td>Arts/Business/Social Science subject</td>
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<tr>
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**Year 5**

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<tr>
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<tr>
<td>Arts/Business/Social Science subject</td>
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<tr>
<td>Arts/Business/Social Science subject</td>
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<tr>
<td>Arts/Business/Social Science subject</td>
<td>12.5</td>
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<tr>
<td>Arts/Business/Social Science subject</td>
<td>12.5</td>
</tr>
</tbody>
</table>

**Engineering/Arts**

Students must complete:

- one full arts major;
- the first core business management subject BH110 Organisation and Management;
- two additional approved management subjects.

Arts majors consist of at least eight approved subjects. In the case of languages, ten subjects are prescribed. Arts studies will normally commence with one subject in semester 5 of the program or earlier if taken in the summer program (please refer to page 6 of this guide). This would normally be the first subject from the selected major study. For further information on arts majors, refer to the Bachelor of Arts course description in this Handbook.

**Engineering/Business**

Students must complete:

- the five core subjects
  - BC110 Accounting 1
  - BL111 Law in Global Business
  - BH110 Organisations and Management
  - BM110 The Marketing Concept
  - BE 110 Microeconomics
- one business major study
- in addition to BH110, business subjects must include at least two additional management subjects.

Business studies will normally commence with one subject in semester 5 of the program or earlier if taken in the summer program. This would normally be the first subject from the selected major study. For further information on business majors, refer to the Bachelor of Business course description in this Handbook.

**Engineering/Social Science**

Students must complete:

- one full social science major;
- the first year core business management subject ‘BH110 Organisations and Management’;
- two additional approved management subjects.

Social science majors consist of at least eight approved subjects. Social science studies will normally commence with one subject in semester 5 of the program or earlier if taken in the summer program. This would normally be the first subject from the selected major study. For further information on social science majors, refer to the Bachelor of Social Science course description in this Handbook.

**Entry requirements**

For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Victorian year 12 or its equivalent, such as an interstate or international year 12 qualification. Students must have completed subjects with an average of grade D or better - VCE units 3 and 4 English, Mathematical Methods or Specialist Mathematics. Passes may be accumulated over more than one year.

Special Entry - Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational background.

**Application procedure**

Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

**Further information**

Contact the School of Engineering and Science on (03) 9214 8372.
This double degree involves the study of engineering and arts or engineering and business subjects. Students entering the first year of the double degree complete the standard first year of the Bachelor of Engineering degree at the end of which students elect the stream of engineering they wish to major in: chemical, civil, electrical, manufacturing or mechanical engineering. Arts/business studies commence in the third year of the program involving six engineering and four arts/business subjects. In the fourth and fifth years students undertake four engineering and four arts/business subjects each year. An optional year of paid Industry Based Learning is available in the sixth year.

**Location**
Hawthorn campus.

**Career opportunities**
Microprocessor applications, telecommunications and the ‘information superhighways’, electronic design, systems modelling and control, electrical power generation and distribution and advanced computer design, are some of the career opportunities available to students who complete this course.

**Professional recognition**
Graduates are expected to be eligible to apply for graduate membership of The Institution of Engineers, Australia.

**Course duration**
The course will normally require five years of full-time study, with an optional, and additional, one year of paid, supervised Industry Based Learning (IBL).

**Structure**
This course will operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed to be equivalent to one hour of student work per week over a semester, whether in contact with staff or in private study.

Four subjects will generally be taken each semester. The typical student’s average weekly workload during semester is therefore expected to be fifty hours. Total student contact hours, including lectures, classes, tutorials, flexible learning and laboratory and field sessions will vary in different semesters.

**Course subjects**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMS111 Engineering Mathematics 1</td>
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<tr>
<td>HET124 Energy and Motion</td>
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</tr>
<tr>
<td>HEF1000 Professional Engineering</td>
<td>12.5</td>
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<tr>
<td>HES1200 Materials and Processes</td>
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<table>
<thead>
<tr>
<th>Semester 2</th>
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<tbody>
<tr>
<td>HMS112 Engineering Mathematics 2</td>
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<tr>
<td>HES1125 Mechanics of Structures</td>
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<tr>
<td>HET182 Electronic Systems</td>
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<td>HEF1005 Engineering Project</td>
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<thead>
<tr>
<th>Semester 3</th>
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<tbody>
<tr>
<td>HMS213 Engineering Mathematics 3B</td>
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<tr>
<td>HET210 Electronics</td>
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<tr>
<td>HET212 Circuits</td>
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<td>HIT2080 Introduction to Programming</td>
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<th>Semester 4</th>
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<td>HMS214 Engineering Mathematics 4B</td>
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<td>HET223 Linear Systems</td>
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<tr>
<td>HET225 Electrical Machines</td>
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</table>

**Entry requirements**
For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Victorian year 12 or its equivalent, such as an interstate or international year 12 qualification. Students must have completed subjects with an average of grade D or better: VCE units 3 and 4 English, Mathematical Methods or Specialist Mathematics. Passes may be accumulated over more than one year.

Special Entry - Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational background.

**Application procedure**
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

**Further information**
Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859.

**EM050 Bachelor of Engineering (Manufacturing) / Bachelor of Arts / Business / Social Science**

This double degree involves the study of manufacturing engineering and arts, business or social science subjects. Students entering the first year of the double degree complete the standard first year of the Bachelor of Engineering degree at the end of which students elect the manufacturing engineering stream. Arts/business/social science studies commence in the third year of the program. An optional year of paid Industry Based Learning is available and is usually undertaken in the sixth and seventh semesters.

**Location**
Hawthorn campus.

**Course duration**
Five years full-time plus optional one year of IBL. The course can only be taken on a full-time basis.
Students who do not take the IBL component will be allowed to graduate on completion of the necessary academic component of the course together with twelve (12) weeks of approved industry experience, but will not receive the normal certification for the IBL component.

The IBL component is normally undertaken in the sixth and seventh semesters. Variations in the positioning of the IBL components will be possible with approval from the Head of the awarding School.

Total student contact hours, including lectures, classes, tutorials, laboratory and field sessions, will be approximately 20 hours/week during academic semesters.

Course subjects

Year 1 (Standard First Year)

Semester 1

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credit Points</th>
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<tbody>
<tr>
<td>MS111 Engineering Mathematics 1</td>
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Semester 2

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Year 2 (Manufacturing Stream)

Semester 3

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<td>ES2270 Computer Aided Engineering 1</td>
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<td>ES2120 Structural Mechanics</td>
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<td>ES2330 Thermodynamics 1</td>
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Semester 4

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<td>ES2340 Fluid Mechanics 1</td>
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<td>ES2230 Engineering Materials</td>
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Year 3

Semester 5

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<th>Subject</th>
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<td>ES3350 Machine Design</td>
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Semester 6

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<td>ES4210 Operation Analysis</td>
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Year 4

Semester 7

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<td>ESS280 Advanced Manufacturing Processes</td>
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Semester 8

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Year 5

Semester 9

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Semester 10

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<tr>
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</tbody>
</table>

Note: Double Degree students may exchange up to two of the four subjects ES4280, ES4210, ESS210, and ESS5280 for subject in the second degree. However students should be aware that each of these subjects provides advanced material in a significant area of manufacturing engineering and should be exchanged only with clear career objectives in mind.

Engineering/Arts

Students must complete:

- one full arts major;
- the first core business management subject BH110 Organisation and Management;
- two additional approved management subjects.

Arts majors consist of at least eight approved subjects. In the case of languages, ten subjects are prescribed. Arts studies will normally commence with one subject in semester 5 of the program or earlier if taken in the summer program (please refer to page 6 of this guide). This would normally be the first subject from the selected major study. For further information on arts majors, refer to the Bachelor of Arts course description in this Handbook.

Engineering/Business

Students must complete:

- the five core subjects
  - BC110 Accounting 1
  - BL111 Law in Global Business
  - BH110 Organisations and Management
  - BM110 The Marketing Concept
  - BE 110 Microeconomics
- in addition to BH110, business subjects must include at least two additional management subjects.

Business studies will normally commence with one subject in semester 5 of the program or earlier if taken in the summer program. This would normally be the first subject from the selected major study. For further information on business majors, refer to the Bachelor of Business course description in this Handbook.

Engineering/Social Science

Students must complete:

- one full social science major;
- the first year core business management subject ‘BH110 Organisations and Management’;
- two additional approved management subjects.

Social science majors consist of at least eight approved subjects. Social science studies will normally commence with one subject in semester 5 of the program or earlier if taken in the summer program. This would normally be the first subject from the selected major study. For further information on social science majors, refer to the Bachelor of Social Science course description in this Handbook.

Entry requirements

For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Victorian year 12 or its equivalent, such as an interstate or international year 12 qualification. Students must have completed subjects with an average of grade D or better. VCE units 3 and 4 English, Mathematical Methods or Specialist Mathematics. Passes may be accumulated over more than one year.
Special Entry - Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational background.

**Application procedure**
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

**Further information**
Contact the School of Engineering and Science on (03) 9214 8372.

**EME050 Bachelor of Engineering (Mechanical) / Bachelor of Arts / Business / Social Science**
This double degree involves the study of mechanical engineering and arts, business or social science subjects. Students entering the first year of the double degree complete the standard first year of the Bachelor of Engineering degree at the end of which students elect the mechanical engineering stream. Arts/business/social science studies commence in the third year of the program. An optional year of paid Industry Based Learning is available and is usually undertaken in the sixth and seventh semesters.

**Location**
Hawthorn campus.

**Course duration**
Five years full-time plus optional one year of IBL. The course can only be taken on a full-time basis.

Students who do not take the IBL component will be allowed to graduate on completion of the necessary academic component of the course together with twelve (12) weeks of approved industry experience, but will not receive the normal certification for the IBL component.

The IBL component is normally undertaken in the sixth and seventh semesters. Variations in the positioning of the IBL components will be possible with approval from the Head of the awarding School.

Total student contact hours, including lectures, classes, tutorials, laboratory and field sessions, will be approximately 20 hours/week during academic semesters.

**Course subjects**

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<thead>
<tr>
<th>Year 1 (Standard First Year)</th>
<th>Semester 1</th>
<th>Credit points</th>
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<tbody>
<tr>
<td></td>
<td>MS111</td>
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<td>EF1000</td>
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<td>MS112 Engineering Mathematics 2</td>
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<tr>
<td>ES125S Mechanics of Structures</td>
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<td>ET182 Electronic Systems</td>
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<td>EF1005 Engineering Project</td>
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<tr>
<th>Year 2 (Mechanical Stream)</th>
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<tbody>
<tr>
<td>Semester 3</td>
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<tr>
<td>ES2270 Computer Aided Engineering 1</td>
</tr>
<tr>
<td>ES2120 Structural Mechanics</td>
</tr>
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<td>ES2330 Thermodynamics 1</td>
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<td>MS211 Engineering Mathematics 3A</td>
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<tr>
<td>ES2280 Manufacturing Technology 1</td>
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<th>Year 3</th>
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<td>ES3350 Machine Design</td>
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<th>Year 4</th>
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<tr>
<td>Semester 7</td>
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<tr>
<td>ES5310 Machine Dynamics 2 or Business/Arts/Social Science subject</td>
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<td>ES5340 Fluid Mechanics 2 or Business/Arts/Social Science subject</td>
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<th>Year 5</th>
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<td>Semester 8</td>
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<td>ES5350 Product Design</td>
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<tr>
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</table>

**Note:** Double degree students may exchange up to two of the four subjects ESS320, ESS330, ESS310 and ESS340 for subjects in the second degree. Students should be aware that these subjects provide advanced material in a significant area of mechanical engineering. Exchanging one or two of these for subjects in the second degree should only be done with clear career objectives in mind.

**Engineering/Arts**
Students must complete:
- one full arts major;
- the first core business management subject BH110 Organisation and Management;
- two additional approved management subjects.

Arts majors consist of at least eight approved subjects. In the case of languages, ten subjects are prescribed. Arts studies will normally commence with one subject in semester 5 of the program or earlier if taken in the summer program (please refer to page 6 of this guide). This would normally be the first subject from the selected major study. For further information on arts majors, refer to the Bachelor of Arts course description in this Handbook.

**Engineering/Business**
Students must complete:
- the five core subjects
  - BC110 Accounting 1
  - BM110 The Marketing Concept
  - BE 110 Microeconomics
- one business major study
- in addition to BH110, business subjects must include at least two additional management subjects.
Business studies will normally commence with one subject in semester 5 of the program or earlier if taken in the summer program. This would normally be the first subject from the selected major study. For further information on business majors, refer to the Bachelor of Business course description in this Handbook.

**Engineering/Social Science**

Students must complete:
- one full social science major;  
- the first year core business management subject 'BH110 Organisations and Management';  
- two additional approved management subjects.

Social science majors consist of at least eight approved subjects. Social science studies will normally commence with one subject in semester 5 of the program or earlier if taken in the summer program. This would normally be the first subject from the selected major study. For further information on social science majors, refer to the Bachelor of Social Science course description in this Handbook.

**Entry requirements**

For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Victorian year 12 or its equivalent, such as an interstate or international year 12 qualification. Students must have completed subjects with an average of grade D or better: VCE units 3 and 4 English, Mathematical Methods or Specialist Mathematics. Passes may be accumulated over more than one year.

Special Entry - Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational background.

**Application procedure**

Application must be made through the Victorian Tertiary Admissions Centre (VTAC).

**Further information**

Contact the School of Engineering and Science on (03) 9214 8372.

*** Bachelor of Engineering (Robotics and Mechatronics) / Bachelor of Applied Science (Computer Science and Software Engineering)

*This new course is planned to run in 1999.*

For further information contact the School of Engineering and Science on (03) 9214 8372.

Email: robmech@swin.edu.au

**Z043 Bachelor of Applied Science (Multimedia Technology)**

1999 VTAC course codes: 34531 (F/T) 34535 (O/S Fee)

1998 ENTER: 83.45

This course covers the latest state-of-the-art technologies involved in the multimedia industry. The course will appeal to anyone interested in multimedia hardware and software development and Web-based applications, and provides a vast range of career opportunities for the graduate. Because Swinburne provides training in areas relevant to industry, our graduates have for many years enjoyed one of the highest employment rates in Victoria - this course is intended to further strengthen this tradition.

The course is intended to serve the rapidly growing multimedia industry by producing graduates who can function in a variety of capacities, most particularly as generalists who understand the range of disciplines involved in multimedia and can function in a project leadership role. Throughout the course students will gain experience in the creative use of a wide range of technologies, with detailed understanding of the human factors involved.

It contains a number of ‘threads’ which combine to cover the range of disciplines involved in multimedia, with particular emphasis on the underlying technologies. These include:
- Computer software and programming: Java programming, computer graphics and animation, virtual reality, games;  
- Computer and multimedia hardware: image and audio capture, storage technologies, processing and reproduction, virtual reality hardware;  
- Telecommunications and the Internet: local and wide area networks, protocols, the World Wide Web, broadband/interactive delivery;  
- Design for multimedia: principles of design for electronic media and multimedia, multimedia authoring;  
- Multimedia content: sensation, perception, cognition, learning, instructional design, authoring systems;

This course includes an industry based learning segment, in which students are placed in paid, supervised industrial employment as part of their degree program. Industry based learning, as this scheme is known, gives students practical experience to add to their academic studies, and is a proven advantage in the graduate job market. All industry based learning placements are subject to availability and require suitable English language skills.

**Location**

Hawthorn campus.

**Career opportunities**

This course is intended to serve the rapidly growing multimedia industry, with particular emphasis on Internet delivery, by producing graduates who can function in a variety of capacities, most particularly as general technologists who understand the range of disciplines involved in this industry and can function in a project leadership role. Throughout the course students will gain experience in the creative use of a wide range of technologies, with detailed understanding of the human factors involved.

**Professional recognition**

Graduates will be eligible for membership of the Australian Computer Society and can practice as computer professionals in the wider computer industry.

**Course duration**

Four years full-time, including one year of paid, supervised Industry Based Learning (IBL).

**Structure**

To qualify for the award of Bachelor of Applied Science (Multimedia Technology), students must accumulate a minimum of 300 credit points (100 credit points per full-time academic year).

Students undertaking IBL accumulate 400 credit points and will be presented with an additional testamur indicating their successful completion of the IBL program.

Five subjects will generally be taken during each academic semester, with a total of approximately 20 hours per week contact time (including lectures, classes, tutorials and laboratory sessions).

The typical student's average weekly workload during semester is expected to be 50 hours.
Course subjects

**Semester 1**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit points</th>
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<tbody>
<tr>
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<td>Design for Multimedia 1</td>
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<td>HET113</td>
<td>The Internet and WWW 1</td>
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</tr>
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<td>HMS111</td>
<td>Engineering Mathematics 1</td>
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<td>HET192</td>
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**Semester 3**

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<td>Computer Authoring</td>
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<td>HET410</td>
<td>Network Administration</td>
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<td>HET616</td>
<td>Management Fundamentals</td>
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**Semester 5**

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<td>Multimedia Project 1</td>
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<td>Software Development 1</td>
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**Semester 6**

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<td>HET402</td>
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<td>HET410</td>
<td>Network Administration</td>
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<tr>
<td>HT1052</td>
<td>Software Development 2 or 3</td>
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</tr>
<tr>
<td>HET616</td>
<td>Management Fundamentals</td>
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</table>

**Entry requirements**

Applicants must have satisfactorily completed the Victorian Certificate of Education (VCE) or its equivalent, with Units 3 and 4 passes in English and Mathematical Methods. Passes may be accumulated over more than one year.

Applicants who do not have a Year 12 qualification or who have a non-competitive Year 12 score and no other tertiary study, and have at least five years related work experience, may be considered for admission if they can demonstrate motivation and ability to succeed.

**Application procedure**

Application must be made through the Victorian Tertiary Admissions Centre (VTAC).

**Further information**

Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 9868.

Information sessions are held annually in December. Attendance at one of these sessions is highly recommended for prospective students.
J044 Bachelor of Multimedia (Business Marketing)

New course in 1999

This program gives graduates the opportunity of participating in the exciting new field of electronic commerce. It would serve the needs of those wishing to pursue a multimedia-oriented career, particularly related to the production and design of multimedia applications in their respective chosen discipline, as expressed by the co-major. Graduates will provide their future employers with comprehensive skills in the principles and practice of marketing as they are applied in a multimedia environment, with a solid grounding in the analysis and modelling of market conditions.

Location
Hawthorn campus.

Course duration
The course will normally require three years of full-time study, with an optional, and additional, one year of paid, supervised Industry Based Learning (IBL).

Structure
This course will operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed to be equivalent to one hour of student work per week over a semester, whether in contact with staff or in private study.

Four subjects will generally be taken each semester. The typical student's average weekly workload during semester is therefore expected to be fifty hours. Total student contact hours, including lectures, classes, tutorials, flexible learning and laboratory and field sessions will vary in different semesters, but will be less than 20 hours per week.

Course subjects

<table>
<thead>
<tr>
<th>Semester 1</th>
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<tbody>
<tr>
<td>HDMD101 Design for Multimedia 1</td>
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<tr>
<td>HET113 The Internet and WWW 1</td>
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<td>HMB110 The Marketing Concept</td>
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<td>HMB110E Quantitative Analysis A (Enabling)</td>
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<td>HDMD102 Design for Multimedia 2</td>
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<tr>
<td>HET123 The Internet and WWW 2</td>
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<td>HBM220 Market Behaviour</td>
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<td>HBG229 Marketing Research</td>
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<td>HMB110 Quantitative Analysis A</td>
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<td>HDMD201 Design for Multimedia 3</td>
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<td>HET218 Learning and Instructional Design</td>
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<td>HBM222 Marketing Planning</td>
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<td>HBG230 Electronic Marketing</td>
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<tr>
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<tr>
<td>HET208 3D Animation and Special Effects</td>
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<tr>
<td>HET229 Computer Authoring</td>
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<td>HBM223 International Marketing</td>
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<td>HET401 Multimedia Project 1</td>
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<td>HBM330 Product Management</td>
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<td>HBM333 Communications Strategy</td>
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<td>HBM331 Services Marketing and Management</td>
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<td>HBG223 Business Demography</td>
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<tr>
<td>HET408 Advanced Multimedia</td>
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<td>HET402 Multimedia Project 2</td>
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<td>HBM341 Business Strategy</td>
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<td>HBG330 Market Modelling</td>
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<td>HBG335 Quality Mechanisms and Measures</td>
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<td>HBG332 Advanced Marketing Research</td>
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Entry requirements
For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Victorian Year 12 or its equivalent, such as an interstate or international Year 12 qualification. Students must have completed the following subjects: VCE Units 3 and 4 English, with a grade average of D or better. Special Entry - Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational background.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information
Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859.
J055 Bachelor of Multimedia (Media Studies)  
New course in 1999

This course would serve the needs of those wishing to pursue a multimedia-oriented career, particularly related to the production and design of multimedia applications in their respective chosen discipline, as expressed by the co-major.

Location
Hawthorn campus.

Career opportunities
In addition to a range of career choices that other media graduates can expect, graduates of this program are expected to be in high demand as the media industry progressively shifts its delivery to the newer multimedia platforms. Examples include: web authoring for the new wave of electronic publications and news broadcasts, computer authoring.

Course duration
The course will normally require three years of full-time study, with an optional, and additional, one year of paid, supervised Industry Based Learning (IBL).

Structure
This course will operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed to be equivalent to one hour of student work per week over a semester, whether in contact with staff or in private study.

Four subjects will generally be taken each semester. The typical student’s average weekly workload during semesters is therefore expected to be fifty hours. Total student contact hours, including lectures, classes, tutorials, flexible learning and laboratory and field sessions will vary in different semesters, but will be less than 20 hours per week.

Course subjects

<table>
<thead>
<tr>
<th>Semester 1</th>
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<tbody>
<tr>
<td>HDMD101 Design for Multimedia 1</td>
<td>12.5</td>
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<tr>
<td>HET113 The Internet and WWW 1</td>
<td>12.5</td>
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<tr>
<td>HAML104 Media, Literature and Film: Texts and Contexts Media Studies or Arts Elective</td>
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<tr>
<th>Semester 2</th>
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<tbody>
<tr>
<td>HDMD102 Design for Multimedia 2</td>
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<td>HET123 The Internet and WWW 2</td>
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<tr>
<td>HALM211 New Media: The Telecommunications Revolution</td>
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<td>HALM201 Media Voices, Media Style: The Process of Journalism</td>
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<th>Semester 3</th>
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<td>HDMD201 Design for Multimedia 3</td>
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<td>HET218 Learning and Instructional Design</td>
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<td>HAM310 Popular Culture</td>
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<td>HAM313 Radio Production and Criticism</td>
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<td>HAML315 Information Society: A Global Perspective</td>
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<td>HAML312 Cinema Studies Media Studies or Arts Elective</td>
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<td>HET409 Advanced Multimedia</td>
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Entry requirements
For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Victorian Year 12 or its equivalent, such as an interstate or international Year 12 qualification. Students must have completed the following subjects: VCE Units 3 and 4 English, with a grade average of D or better.

Special Entry - Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational background.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC).

Further information
Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859.

J060 Bachelor of Multimedia (Multimedia Software Development)  
New course in 1999

This course would serve the needs of those wishing to pursue a multimedia-oriented career, particularly related to the production and design of multimedia applications in their respective chosen discipline, as expressed by the co-major.

Location
Hawthorn campus.

Career opportunities
Graduates not only enjoy all the career choices of other computer science graduates in the booming IT industry, they can expect to be in demand for very sophisticated software development in the multimedia industry.

Examples include Java-based Web site development, the next generation of multimedia and Web design tools, e-commerce secure systems development and so on.

Professional recognition
It is expected that graduates of this course will be eligible for membership with the Australian Computer Society.

Course duration
The course will normally require three years of full-time study, with an optional, and additional, one year of paid, supervised Industry Based Learning (IBL).

Structure
This course will operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed to be equivalent to one hour of student work per week over a semester, whether in contact with staff or in private study.

Four subjects will generally be taken each semester. The typical student’s average weekly workload during semester is therefore expected to be fifty hours. Total student contact hours, including lectures, classes, tutorials, flexible learning and laboratory and field sessions will vary in different semesters, but will be less than 20 hours per week.

Course subjects

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<tbody>
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<td>HDMD101 Design for Multimedia 1</td>
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<td>HIT2016 Database 1</td>
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Semester 4
HET208 3D Animation and Special Effects 12.5
HET229 Computer Authoring 12.5
HIT2020 Data Communications 12.5
HIT2024 Introduction to HCI or IT Elective 2 12.5

Semester 5
HET404 Multimedia Systems 12.5
HET401 Multimedia Project 1 12.5
HIT2053 Software Development 3 12.5
HIT3044 Professional Issues in Information Technology or IT Elective 3 12.5

Semester 6
HET409 Advanced Multimedia 12.5
HET402 Multimedia Project 2 12.5
HIT3044 Professional Issues in Information Technology or IT Elective 3 12.5

Entry requirements
For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Victorian year 12 or its equivalent, such as an interstate or international year 12 qualification. Students must have completed the following subjects: VCE Units 3 and 4 English, with a grade average of D or better.

Special Entry - Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational background.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information
Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859.

J043 Bachelor of Multimedia (Networks and Computing)

New course in 1999

This course would serve the needs of those wishing to pursue a multimedia-oriented career, particularly related to the production and design of multimedia applications in their respective chosen discipline, as expressed by the co-major.

Career opportunities
This program covers sufficient studies in software development to enable graduates to exploit this in areas such as Java-based Web-site development. In addition, graduates can expect to be in demand for their networking skills in the multimedia industry to manage corporate LANs, intranets and other Internet access facilities.

Professional recognition
It is expected that graduates of this course will be eligible for membership with the Australian Computer Society.

Course duration
The course will normally require three years of full-time study, with an optional, and additional, one year of paid, supervised Industry Based Learning (IBL).

Structure
This course would operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed to be equivalent to one hour of student work per week over a semester, whether in contact with staff or in private study.

Four subjects will generally be taken each semester. The typical student’s average weekly workload during semester is therefore expected to be fifty hours. Total student contact hours, including lectures, classes, tutorials, flexible learning and laboratory and field sessions will vary in different semesters, but will be less than 20 hours per week.

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<td>HMD101 Design for Multimedia 1 12.5</td>
<td>HMD102 Design for Multimedia 2 12.5</td>
<td>HMD201 Design for Multimedia 3 12.5</td>
<td>HET208 3D Animation and Special Effects 12.5</td>
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<td>HIT2016 Database 1 12.5</td>
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<td>HIT2053 Software Development 3 12.5</td>
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MULTIMEDIA DOUBLE DEGREES

ZO32  Bachelor of Applied Science (Multimedia Technology) / Bachelor of Engineering (Telecommunications and Networks)

(No new intake)

ZO32  Bachelor of Applied Science (Multimedia Technology) / Bachelor of Engineering (Telecommunications and Internet Technologies)

1999 VTAC course codes: 34621 (F/T) 34623 (O/S Fee)

This double degree program provides in-depth specialist engineering knowledge of the international telecommunications industry and global networks and also of technical and creative aspects of multimedia systems. This is particularly relevant to the continued convergence of multimedia systems and communications networks, currently typified by the World Wide Web.

The core specialist studies are in creative design of multimedia graphics, computer software development with emphasis on human computer interaction, graphics, games and virtual reality, the psychology of human learning and design of interactive learning systems, computer systems hardware and electronics, including image and audio processing, electronic communications techniques, broadband interactive telecommunications networks, computer networks and internetworking, teletraffic analysis, information theory, mobile and personal communications and the role and regulation of telecommunications technology in society.

This course includes an optional Industry Based Learning (IBL) segment, in which students are placed in paid, supervised employment as part of their degree program. Industry based learning, as this scheme is known, gives students practical experience to add to their academic studies, and is a proven advantage in the graduate job market. All industry based learning placements are subject to availability and require suitable English language skills.

Location
Hawthorn campus.

Career opportunities
Potential career and market opportunities include: creation, development and technology management’s roles in interactive multimedia within the advertising; instructional design, business promotion, training, education and on-line entertainment industries, as well as technology integration of telecommunications systems; computer networks, broadband interactive on-line networks, integrated computer and communication infrastructures for global networking.

Professional recognition
Graduates will be eligible for membership of The Institution of Engineers, Australia and the Australian Computer Society.

Course duration
The duration of the course will normally be five years full-time.

Structure
To qualify for the award of Bachelor of Applied Science/Bachelor of Engineering (Multimedia Technology/Telecommunications and Internet Technologies), students must accumulate a minimum of 500 credit points (100 credit points per full-time academic year). Students undertaking the optional IBL component accumulate 600 credit points. Passes may be accumulated over more than one year.

Entry requirements
Applicants who do not have a Year 12 qualification or who have a non-competitive Year 12 score and no other tertiary study, and have at least five years related work experience, may be considered for admission if they can demonstrate motivation and ability to succeed.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC).

Further information
Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859. Information sessions are held annually in December. Attendance at one of these sessions is highly recommended for prospective students.

J032  Bachelor of Multimedia (Networks and Computing)/ Bachelor of Engineering (Telecommunications and Internet Technologies)

New course in 1999

This double degree program provides in-depth specialist engineering knowledge of the international telecommunications industry and global networks and also of technical and creative aspects of multimedia systems. This is particularly relevant to the continued convergence of multimedia systems and communications networks, currently typified by the World Wide Web.

The core specialist studies are in creative design of multimedia graphics, computer software development with emphasis on human computer interaction, graphics, games and virtual reality, the psychology of human learning and design of interactive learning systems, computer systems hardware and electronics, including image and audio processing, electronic communications techniques, broadband interactive telecommunications networks, computer networks and internetworking, teletraffic analysis, information theory, mobile and personal communications and the role and regulation of telecommunications technology in society.

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For students commencing prior to 1998:

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Entry requirements
Applicants must have satisfactorily completed the Victorian Certificate of Education (VCE) or its equivalent, with Units 3 and 4 passes in English, Mathematical Methods, and Physics. Passes may be accumulated over more than one year.

Semester 4

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Industry based learning, as this scheme is known, gives students practical experience to add to their academic studies, and is a proven advantage in the graduate job market. All industry based learning placements are subject to availability and require suitable English language skills.

**Location**
Hawthorn campus.

**Career opportunities**
Career opportunities abound including: working for yourself - start your own business; developing CD-ROM based and World Wide Web applications; developing special effects for the film and television industry; managing company computing and intranet infrastructures; interacting with teams of specialists, such as designers, audio engineers and film producers; developing mass communication media such as electronic newspapers and magazines, advertising copy and catalogues; developing new forms of electronic hardware, such as hand-held mobile vide phones and intelligent personal organisers.

Potential career and market opportunities include: creation, development and technology management’s roles in interactive multimedia within the advertising, instructional design, business promotion, training, education and on-line entertainment industries, as well as technology integration of telecommunications systems; computer networks, broadband interactive on-line networks, integrated computer and communication infrastructures for global networking.

**Professional recognition**
Graduates will be eligible for membership of the Institution of Engineers, Australia and the Australian Computer Society.

**Course duration**
Five years full-time.

**Structure**
To qualify for this award, students must accumulate a minimum of 500 credit points (100 credit points per full-time academic year). Students undertaking the optional IBL component accumulate 600 credit points and will be presented with a testamur indicating their successful completion of the IBL component.

Four subjects will generally be undertaken in each academic semester, with a total of approximately 22 hours per week contact time (including lectures, classes, tutorials and laboratory sessions).

**Course Subjects**

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<td>HET314 Communications Principles</td>
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Subject Details

How to find subjects

All subject descriptions are contained in this chapter. All subjects are allocated an alphanumeric code and are listed here in code order.

The alpha code is made up of two or three letters which indicates the discipline area, followed by three or four numbers. A guide to these alpha codes and the relevant page number is listed below.

The numeric code is made up of three or four digits, the first of which indicates the academic level: Stage 1 subject, Stage 2, Stage 3 and Stage 4. Any higher number indicates subjects at postgraduate level.

Subject length

Unless otherwise stated all subjects are semester subjects.

Textbooks

Texts or textbooks are material essential to the subject.

Recommended reading

Because of the frequency with which individual publications become out-dated, and are superseded, textbooks and recommended reading are not listed for all subjects.

Students are advised not to purchase textbooks or reference books until classes commence unless they have previously consulted the lecturer in charge of the subject.

In most subjects a detailed reading guide will be issued during the first week of classes.

Students wishing to carry out preliminary reading in a subject should consult the lecturer in charge of that subject for guidance.

Subject codes

Subjects are listed in numerical order within the following alpha-codes:

Higher Education Division (Hawthorn/Prahran)

Note: In 1999 all subjects offered by the Higher Education Division (Hawthorn/Prahran) will have the letter ‘H’ added to the alphanumeric code indicating the Division to which the subject belongs eg. all subjects codes commencing with the letter ‘L’ are offered by Swinburne at Lilydale Division.

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Swinburne at Lilydale Division

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Swinburne Graduate School of Integrative Medicine

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Swinburne University of Technology | 1999 Higher Education Handbook
AA119  Post-War Italy

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Assessment: Essays; Seminar Presentation; Texts

A subject in the Bachelor of Arts - elective only (not part of the Italian major) and the Bachelor of Business.

Aims and objectives

The program aims to develop students' proficiency in oral and written standard Italian. Students are exposed to an introduction to modern Italian literature (twentieth-century short stories) in order to develop students' reading ability and their understanding of contemporary Italian civilization.

Textbooks


AA185  Advanced Italian 1B

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AA184 or approved equivalent • Corequisites: AA185 or approved equivalent • Assessment: Continuous; Examinations

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian)

Aims and objectives

The program aims to develop appropriate linguistic competence so that students can deal with a variety of topics in the written and spoken language. This will be achieved through a study of grammatical structures, newspaper articles, a collection of authentic texts and contemporary literature. The subject also develops in students an understanding of contemporary Italy through an historical perspective of the society and culture of modern Italy.

Textbooks


AA181  Italy and Its Language 1

12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AA181 or approved equivalent • Corequisites: AA183 (for the language major) or approved equivalent • Teaching methods: • Assessment: Continuous; Examinations

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian)

Aims and objectives

This subject extends the work carried out in AA181. The course provides an historical perspective of the society and culture of modern Italy and provides an appreciation of the development of Italy as a technologically-advanced industrialised nation. The language component develops the students’ conversational and grammatical ability and enhances their communicative competence.

Textbook


AA182  Italy and Its Language 2

12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AA181 or approved equivalent • Corequisites: AA183 (for the language major) or approved equivalent • Assessment: Continuous; Examinations

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian)

Aims and objectives

This subject extends the work carried out in AA181. The course aims to provide a practical introduction to the Italian language. It develops students' conversational and grammatical ability and enhances their communicative competence.

Textbook


AA183  Italian for Beginners

12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AA181 or approved equivalent • Corequisites: AA182 (for language major) or approved equivalent • Assessment: Continuous; Examinations

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian)

Aims and objectives

The aims of the course are to extend the work undertaken in AA182 and provide students with a sound basic grammatical competence. The four macro skills (aural and written reception, oral and written production) will be strongly developed by systematic review and extension of grammatical competence with the assistance of computer-assisted learning. A wide range of materials is used to enhance the communicative competence and provide socio-cultural insights.

Textbook


AA184  Advanced Italian 1A

12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: VCE Italian or approved equivalent • Assessment: Continuous; Examinations

A subject in the Bachelor of Arts and Bachelor of Business/Bachelor of Arts (Italian)

Aims and objectives

The program has been planned in order to develop students' proficiency in oral and written standard Italian. Students are exposed to an introduction to modern Italian literature (twentieth-century short stories) in order to develop students' reading ability and their understanding of contemporary Italian civilization.

Textbooks


AA186  Advanced Italian 1C

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AA184 or approved equivalent • Corequisites: AA185 or approved equivalent • Assessment: Continuous; Examinations

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian)

Aims and objectives

The program aims to enhance the linguistic skills developed in AA185. This will be achieved through a study of grammar, newspaper articles, a collection of authentic texts and contemporary literature.

Textbooks


AA281  Italian 2X

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AA182 and AA183 or approved equivalent • Corequisites: AA282 • Assessment: Continuous; Examinations

A subject in the Bachelor of Arts and Bachelor of Business/Bachelor of Arts (Italian)

Aims and objectives

The program has been planned in order to develop students' proficiency in oral and written standard Italian. Students are exposed to an introduction to modern Italian literature (twentieth-century short stories) in order to develop students' reading ability and understanding of contemporary Italian history.

Textbooks


AA282  Italian 2Y - Introductory Business Italian

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AA182 and AA183 • Corequisites: AA281 • Assessment: Continuous; Examinations

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian)

Aims and objectives

The course provides students with basic proficiency in the linguistic register which is used for operating in the Italian business and trade environments.
Emphasis is placed on the development of appropriate linguistic competence so that students can deal with a variety of topics in the written and spoken language. This will be achieved through a study of grammatical structures, newspaper articles, a collection of authentic texts and contemporary literature. The subject also develops an understanding of contemporary Italy through the study of Italian history which covers the period from the unification of Italy to present day Italy.

Aims and objectives

The course aims to consolidate and develop students' language skills and to develop these further through the study of appropriate literature and related studies and by the study of nineteenth and early twentieth century narrative and drama (Verga, Svevo, Pirandello).

Reference


AA287 Post-War Italy

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AA281 and AA282 or AA284 and AA285 • Corequisites: AA283 or AA286 • Assessment: Essays; Seminar Presentations; Texts

A subject in the Bachelor of Arts (only for students studying an Italian Major) and the Bachelor of Business/Bachelor of Arts (Italian)

Aims and objectives

This subject explores some of those influences - internal, European and international - which have shaped the development of Italy into a modern industrial nation. It develops an understanding of contemporary Italy by tracing its social, political and economic history from the defeat of Fascism through to its entry into the European Union and the Euro Monetary system.

References


AA288 European Union

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: any stage one subject • Corequisites: Teaching methods: Flexible delivery (on-line delivery including some class contact) • Assessment: Continuous; Examinations

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian)

Note: Students enrolled in these courses prior to 1998 should use the old subject code AA212.

Aims and objectives

The aim of this course is for students to acquire an understanding of the process of economic integration in Western Europe. The course aims to analyse the social, political and economic changes in Europe, particularly since the mid 1980s. The subject will critically analyse the structure, operation and policies of the institutions of the European Union and discuss the significance of the Single European Act and the Maastricht Treaty for European unity. The course will also consider the unique structure of the EU as a regional trading block.

References

Archer, C., Organizing Europe, University of Aberdeen, UK, 1994
Harrison, D.M., The Organization of Europe, Routledge, 1995
Jovanovich, M., European Economic Integration, Tourledge, 1997

AA306 Advanced Italian 3A

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AA207 or approved equivalent • Assessment: Continuous; Examinations

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian) for students enrolled prior to 1998.

Aims and objectives

The course aims to consolidate and develop students proficiency by advanced language studies and by the study of nineteenth and early twentieth century narrative and drama (Verga, Svevo, Pirandello).

AA307 Advanced Italian 3B

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AA306 or approved equivalent • Assessment: Continuous; Examinations

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian) for students enrolled prior to 1998.

Aims and objectives

The course continues to develop students' proficiency by advanced language studies and by the study of twentieth century narrative (Pavese, Bassani, Sciascia).

AA309 Italian 3X

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AA210 or approved equivalent • Assessment: Continuous; Examinations

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian) for students enrolled prior to 1998.

Aims and objectives

The main objectives of Italian 3X are to consolidate students’ language skills and to develop these further through the study of appropriate literature and related
grammars; to develop their oral skills through conversation and discussion in Italian.

Textbook

**AA310 Italian 3Y**
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AA309 or approved equivalent • Assessment: Continuous; Examinations
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian) for students enrolled prior to 1996.

Aims and objectives
The main objectives are to consolidate students’ advanced level language skills and to develop these further through a study of appropriate literature; to develop their oral skills through conversation and discussion in Italian; to develop in the students an understanding of contemporary Italy through the study of Italian history which is complemented by contemporary documents on present day Italy and appropriate films and other media.

**AA313 Contemporary Italy**
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AA207 or AA210 • Assessment: Continuous; Examinations
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian) for students enrolled prior to 1996.

Aims and objectives
The subject aims to expose students to specific types of Italian sectoral language e.g., socio-economic, environmental phraseology, through work on texts taken from Italian newspapers, magazines, journals and books.

**AA377 International Business in the Italian Context**
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: stage one Business subjects and stage two Italian subjects or equivalent • Assessment: Continuous; Examinations
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian) for students enrolled prior to 1996.

Aims and objectives
This subject is designed to make students familiar with the contemporary Italian business environment and to develop students’ proficiency in business Italian language with the support of a computer-assisted language learning program. Emphasis is placed on the development of speaking, reading and writing skills relevant to business and trade. A wide range of authentic materials is used to expose the students to different types of business language registers.

**AA384 Individual Project**
12.5 Credit Points • Hawthorn • Prerequisite: AA286 or equivalent and AA287 • Assessment: seminar presentation and assignment
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian)

Aims and objectives
The subject aims to give students the opportunity to undertake a project in an Italian organization or business enterprise in Australia in order to further develop their linguistic and cultural competence and develop contacts with the Italian community in Australia. Students will be required to spend time in a selected organization and will be required to report regularly to the subject convenor.

References


**AA375 Work Experience in Europe**
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AA212 and AA284 • Corequisites: AA286 and AA287 • Assessment: partly continuous; partly by examination
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian)

Aims and objectives
The course aims to expose students to specific types of Italian sectoral language e.g., socio-economic, environmental phraseology, through work on texts taken from Italian newspapers, magazines, journals and books.

Textbook

**AA388 Contemporary Italy**
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AA381 or AA384 • Corequisites: AA387 • Assessment: seminar presentation; examination
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian)

Aims and objectives
The course aims to expose students to specific types of Italian sectoral language e.g., socio-economic, environmental phraseology, through work on texts taken from Italian newspapers, magazines, journals and books.

Textbook

**AA389 Work Experience in Europe**
12.5 Credit Points • Prerequisite: AA212/AA286 and AA287/AA382. Basic competence in a second language is recommended. • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Italian) Note: Students enrolled in these courses prior to 1998 should use the old subject code AA375.

Aims and objectives
The objective of this elective is to provide students with a two/three month experience of living in a European country and working in a European company as a regular employee. The Work Experience subject aims to provide students with the linguistic skills and cultural competence critical to the international trade
environment. The subject provides an opportunity for students to gain that essential hands-on experience in the European Union business world by exposing the students to the commercial environment of the European market place.

Recommended reading

AA390 Study Tour to the European Union
12.5 Credit Points  •  Study tour of approximately four weeks conducted in November/December  •  Prerequisite: all stage one subjects completed. AA119 and AA288 (recommended)  •  Assessment: Continuous
A subject in the Bachelor of Arts.
Note: Students enrolled in the Bachelor of Arts prior to 1998 should use the old subject code AA376.

Aims and objectives
This unit aims to expose students to the cultural, political and regulatory environment that currently constitutes the European Union. The basis of the course is a four-week study tour to several selected European countries. Students will visit European business enterprises and the institutions of the European Union (such as the European Parliament, the European Investment Bank, the European Court of Justice and the offices of the European Commission). Continuous training is provided throughout the tour, and formal training is provided by EU universities. The tour is preceded by three briefing sessions.

References
EuropeanDocumentationSeries,OfficialPublicationsoftheEuropeanUnion,Luxembourg

AA392 European Union - Business Context
12.5 Credit Points  •  Hawthorn  •  Prerequisite: Any stage two Business or Arts subject. AA288 is recommended.  •  Teaching methods: Flexible delivery (on-line delivery including some class contact)  •  Assessment: Continuous
A subject in the Bachelor of Arts.

Aims and objectives
To provide an overview of the main features of the European Single Market regulatory environment. To analyse the EU in the global trading environment and comparatively as a regional trading entity; to consider the individual economies of the EU in terms of the European integration process; to identify opportunities and threats affecting trade between Australia and Europe; to analyse EU external relations with Asia and in particular with Australia; to familiarise students with online international business research in the European markets.

References
Australian EU Trade & Investment, Towards 2000, DFAT, 1996

AH101 History of Ideas
12.5 Credit Points  •  2.5 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Assessment: Assignments; Tutorials
A subject in the Bachelor of Arts and the Bachelor of Social Science.

Aims and objectives
This subject is an introduction to the history of ideas. By using a particular intellectual focus or theme it seeks to show how our contemporary understanding of ourselves and our relationship to the world has been shaped by important developments in the past.

Content
The content usually concerns human, social and/or ecological development from an evolutionary perspective, but variations are possible from year to year.

Recommended reading
To be advised

AH103 Critical Thinking
12.5 Credit Points  •  2.5 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: Assignments; Tutorials
A subject in the Bachelor of Arts and the Bachelor of Social Science.

Aims and objectives
The aim of this course is the development of critical reasoning skills which students will find very useful in both academic and everyday contexts. The course focuses on the study of argumentation.

A variety of practical skills are taught. For example, how to distinguish claims from evidence, and assess claims in the light of the supporting evidence, identify fallacies; organise material in logically coherent patterns; identify problematic uses of language; critically evaluate extended arguments, and write evaluative essays. Such skills are central to the effective completion of academic assignments, as well as to good reasoning in everyday life.

Recommended reading
Please consult with lecturer before buying.

AH209 Philosophy of Culture
12.5 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: One stage one philosophy subject or approved equivalent  •  Corequisites: Nil  •  Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Social Science.

Aims and objectives
This subject is designed to provide students with the historical and philosophical background to current research in the study of culture, to examine the assumptions underlying the major theoretical developments and major schools of cultural studies and thereby to show the relationships between the different dimensions of culture, to reveal the practical implications of such research, and to consider what are the most promising lines of research for the future.

Content
The subject examines Marxist, hermeneuticist, structuralist, post-structuralist and other European approaches to culture, and the conflicts between the proponents of these different approaches.

Recommended reading
Please consult with lecturer before buying.

AH219/ Philosophical Psychology
AH319
12.5 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: As stage two option: One stage one philosophy subject or approved equivalent. As stage three option: One stage two philosophy subject or approved equivalent.  •  Corequisites: Nil  •  Assessment: Continuous
A subject in the Bachelor of Arts and Bachelor of Social Science.
### Aims and objectives

The aim of this subject is to show how philosophical thinking can broaden and deepen our understanding of what is at issue in psychological theory and research. To this end, several key themes at the interface of the two disciplines are critically examined. The content may vary from semester to semester. But the issues considered are likely to include: Psychology as a science; traditional and recent perspectives; major psychological theories and their guiding presuppositions; the quantitative-qualitative distinction in theory and research; the explanation-understanding distinction; varieties of qualitative theorising; images of the person in psychological theory and research; and future directions in philosophical psychology.

#### Recommended reading

Please consult with lecturer before buying.


### AH220/ Social and Political Philosophy

#### AH320

12.5 Credit Points  • 3 hours per week  • Hawthorn  • Prerequisite: As stage two option: One stage one philosophy subject or approved equivalent. As stage three option: One stage two philosophy subject or approved equivalent.  • Corequisites: Nil  • Assessment: Continuous

A subject in the Bachelor of Arts and Bachelor of Social Science.

#### Content

An introduction to key issues and debates in contemporary social and political theory. The particular set of issues considered may vary from semester to semester. But the content is likely to include some of the following: Political legitimation, power and political order, reason and the rationalisation of society, democratic decision making and its social and political conditions of emergence, postmodernism; pluralism; and the justification of social and political norms.

#### Recommended reading

Please consult with the lecturer before recommended readings.


### AH221/ Rationality

#### AH321

12.5 Credit Points  • 3 hours per week  • Hawthorn  • Prerequisite: As stage two option: One stage one philosophy subject or approved equivalent. As stage three option: One stage two philosophy subject or approved equivalent.  • Corequisites: Nil  • Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Social Science.

#### Aims and objectives

What does it mean to be rational? Why be rational? These questions are central to this subject, which critically appraises recent accounts of rationality, and explores the possibility of forging a new approach, more adequate to our contemporary needs.

#### Content

Discussion will focus on such issues as: the challenges to rationality posed by our status as situated human agents; the treats to rationality posed by paradigm disputes in science; the problem of relativism; the links between western rationality and the rationality of other cultures; and the relationship between rationality and human well-being.

#### Recommended reading

Please consult with lecturer before buying.

- Ullin, R., Understanding Cultures. Austin, University of Texas Press, 1984

### AH222/ Practical Ethics

#### AH322

12.5 Credit Points  • 3 hours per week  • Hawthorn  • Prerequisite: As stage two option: One stage one philosophy subject or approved equivalent. As stage three option: One stage two philosophy subject or approved equivalent.  • Corequisites: Nil  • Assessment: Continuous

A subject in the Bachelor of Arts and Bachelor of Social Science.

#### Aims and objectives

This subject attempts to develop an understanding of the process of moral decision making, with a view to improving the ability of participants to form ethical judgements and to be tolerant of the judgements of others.

#### Content

Presently, the two main areas of discussion are the moral value of human beings and environmental ethics. Further areas may be added in future years.

#### Recommended reading

Please consult with lecturer before buying.

- Elliot, R. & Gane, A., Environmental Philosophy, Brisbane, University of Queensland Press, 1983
- Gane, A., Nihilism Incorporated Canberra, Eco-Logical Press, 1993
- MacIntyre, A. After Virtue. 2nd edn, Notre Dame, University of Notre Dame, 1984

### AH223/ Environmental Philosophy

#### AH323

12.5 Credit Points  • 3 hours per week  • Hawthorn  • Prerequisite: As stage two option: One stage one philosophy subject or approved equivalent. As stage three option: One stage two philosophy subject or approved equivalent.  • Corequisites: Nil  • Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Social Science.

#### Aims and objectives

The global destruction of the environment is perhaps the most serious crisis humanity has ever had to confront. This course examines the cultural, social and economic roots of this crisis, with specific reference to Australia, and considers what courses of action are open to us. While ethics and political philosophy are considered, the major focus of the course is on economic theory and policy formation. The assumptions of prevailing economic thought and prevailing forms of policy analysis are critically examined, and then the new approaches to economics and policy formation designed to take into account energetic and ecological processes and to provide the basis for an environmentally sustainable society are investigated.

#### Recommended reading

Please consult with lecturer before buying.

- Daly, H. and Cobb, J. For the Common Good Redefining the Economy Toward Community, the Environmental, and a Sustainable Future. 2nd edn, Boston, Beacon Press, 1994

### AH316 Approaches to Culture

#### AH316

16.6 Credit Points  • 3 hours per week  • Hawthorn  • Prerequisite: One stage two philosophy subject or AA209 or approved equivalent.  • Corequisites: Nil  • Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Social Science.

#### Aims and objectives

Contemporary approaches to the study of culture draw on the European philosophical traditions of phenomenology, hermeneutics and structuralism.

#### Content

In this subject, we explore some key themes in these traditions. Themes include the notions of meaning and interpretation in relation to consciousness, signs and texts; different ways of understanding the contrasting methodologies of the natural and human sciences; different models that are proposed for the purpose of interpreting cultural phenomena; the interconnections between disciplines and the problematic nature of discipline boundaries.

#### Recommended reading

Please consult with lecturer before buying.

AJ102 Introduction to Japan - A Cultural Overview

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Assessment: Continuous
A subject in the Bachelor of Arts and Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
This subject introduces historical and cultural topics of direct relevance to the development of Japanese art forms, culture and society. The recommended reading texts used in the subject are in English.

Textbook

Recommended reading
Sasson, G.B., Japan: A Short Cultural History. 2nd Edn, New York, Meredith, 1943, Repr. 1962
Seidensticker, E.G., Low City, High City. New York, Knopf, 1983

AJ107 Introductory Japanese 1A

12.5 Credit Points • 6 hours per week • Hawthorn • Prerequisite: Nil • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To provide students with basic knowledge of the language, including basic literacy skills. Emphasis is placed on correct pronunciation, acquisition of vocabulary and the fundamentals of grammar.

Content
The course includes 4 components: basic grammar, reading/writing of the kana scripts and kanji, aural comprehension and oral expression. Hiragana and katakana (the two syllabaries) and approximately 150 kanji (Chinese characters) are sequentially introduced.

Textbook/Reference
Machida, T. and Skoutarides, A, NIHONGO - Reading and Writing. Vols 1-3, Melbourne, Swinburne Press, 1988
Japanese Section, NIHONGO-Dialogues and Aural Comprehension 1A, Melbourne, Swinburne Press, Revised Edition 1998

AJ108 Written Japanese 1B

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AJ107 or equivalent • Corequisites: AJ109 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To continue extending students' basic knowledge of the written language through introduction of more complex grammar patterns and reading texts. Emphasis is placed on extension of literacy skills through introduction of further 350 kanji (Chinese characters).

Content
The course includes 3 components: basic grammar, reading and writing.

Textbook/Reference
Skoutarides, A. and Machida, T., NIHONGO - Reading and Writing, Vols 4-5, Swinburne Press, Melbourne, 1986

AJ109 Spoken Japanese 1B

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AJ107 or equivalent • Corequisites: AJ108 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To extend students' basic knowledge of the spoken language through introduction of more complex grammar patterns and aural comprehension texts. Emphasis is placed on development of oral skills for a limited range of inter-personal interactions.

Content
The course includes 2 main components: aural comprehension and oral expression. Grammar patterns are also included in support of the two components.

Textbook/Reference
Japanese section, NIHONGO-Dialogues and Aural Comprehension 18, Melbourne, Swinburne Press, Revised edition 1998

AJ110 Advanced Japanese 1A

12.5 Credit Points • 6 hours per week • Hawthorn • Prerequisite: VCE Japanese or equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To consolidate students' knowledge of grammar and script acquired through prior study at the secondary level. To expand this knowledge through introduction of a wider range of basic grammar patterns and reading texts (including approximately 350 new kanji) and more adult conversation topics.

Content
The course includes 4 components: grammar, reading/writing (approximately 350 kanji), aural comprehension and oral expression.

Textbook/Reference
Skoutarides, A. and Machida, T., NIHONGO - Reading and Writing, Vols 4-5, Melbourne, Swinburne Press, 1986
Japanese section, NIHONGO - Dialogues and Aural Comprehension 18, Melbourne, Swinburne Press, Revised edition 1998
AJ111  Advanced Written Japanese 1B
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AJ110 or equivalent • Corequisites: AJ111 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)
Aims and objectives
To continue extending students' competence in the written language through introduction of more complex grammar patterns and reading texts. Literacy skills are expanded through introduction of further 350 kanji (Chinese characters).
Content
The course includes 2 components: aural comprehension and oral expression. Grammar patterns are also included in support of the two components.
Textbook/Reference
Skitarides, A. and Machida, T., NIHONGO - Dialogues and Aural Comprehension 2, Melbourne, Swinburne Press, 1995

AJ112  Advanced Spoken Japanese 1B
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AJ110 or equivalent • Corequisites: AJ111 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)
Aims and objectives
To extend students' competence in the spoken language through introduction of more complex grammar patterns and aural comprehension texts. Emphasis is placed on development of oral skills for a range of everyday situations.
Content
The course includes 2 main components: aural comprehension and oral expression. Grammar patterns are also included in support of the two components.

AJ202  Communication in Japanese
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AJ108 and AJ109 or AJ111 and AJ112 • Assessment: Assignments; Participation; Texts
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)
Aims and objectives
This subject introduces topics relevant to language and effective communication. It aims at acquainting students with the differences between English and Japanese communication patterns. Students are encouraged to establish contact with Japanese people and to use data collected from interviews with them in the writing of essays and research assignments. The contact scheme is an important component of this subject as it provides the student with the opportunity to converse in Japanese and to become familiar with Japanese attitudes and customs.
Textbook
Neustupny, J.V., Communicating with the Japanese, Tokyo, The Japan Times, 1987
Recommended reading
Cherry, K., Woman's word: What Japanese Words say about Women, Tokyo, Kodansha International, 1988
Mizutani, O. and N., How to be Polite in Japanese, Tokyo, Japan Times, 1987
Suzuki, T., Japanese and the Japanese Words in Culture, Tokyo, Kodansha, 1976
A comprehensive list of other references is available from the subject coordinator.

AJ211  Advanced Written Japanese 2B
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AJ219 or equivalent • Corequisites: AJ212 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)
Aims and objectives
To continue extending students' competence in the written language through reading of unabridged non-fiction texts. The writing component provides training in different writing styles and includes formal introduction of further 350 kanji (Chinese characters) as well as exposure to an extensive range of kanji compounds.
Content
The course includes 2 components: reading (unabridged texts) and writing (approximately 1350 kanji) focussed on different writing styles (eg reports, essays, formal letters etc) aural comprehension (video or radio programs) and oral expression with emphasis on correct use of honorifics.
Textbook/Reference
A Japanese Section, Japanese Reader Vol 1, Melbourne, Swinburne Press, 1992
Fukushima, N., Signs and Ads, Melbourne, Swinburne Press 1993

AJ212  Advanced Spoken Japanese 2B
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AJ219 or equivalent • Corequisites: AJ211 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)
Aims and objectives
To extend students' competence in the spoken language through exposure to unabridged aural comprehension texts. Emphasis is placed on further development of oral skills for an extended range of communicative situations and on correct usage of different speech registers.
Content
The course includes 2 main components: aural comprehension (video or radio programs) and oral expression focussed on correct usage of situationally appropriate speech registers.
Textbook/Reference
Fukushima, N., Japan and Australia, Melbourne, Swinburne Press 1992
Fukushima, N., Signs and Ads, Melbourne, Swinburne Press 1993

AJ215  Intermediate Japanese 2A
12.5 Credit Points • 8 hours per week • Hawthorn • Prerequisite: AJ108 and AJ109 or equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)
Aims and objectives
To continue extending students' competence in the written and spoken language through introduction of more complex grammar patterns, reading texts and aural comprehension texts.
Content
The course includes 5 main components: grammar, reading, writing, aural comprehension and oral expression. Literacy skills are expanded through introduction of further 350 kanji (Chinese characters). Emphasis is placed on development of oral skills for a range of everyday situations.
Textbook/Reference
Skitarides, A. and Machida, T., NIHONGO - Reading and Writing, Vols 6-7, Melbourne, Swinburne Press, 1987
Japanese section, NIHONGO - Dialogues and Aural Comprehension 2, Melbourne, Swinburne Press, 1995
AJ217 Written Japanese 2B
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AJ215 or equivalent • Corequisites: AJ217 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)
Aims and objectives
To continue extending students’ competence in the written language through introduction of advanced grammar patterns and unabridged reading texts.
Content
The course includes 3 components: grammar, reading and writing. Literacy skills are expanded through introduction of further 350 kanji (Chinese characters).
Textbook/Reference
Skoutarides, A. and Machida, T., NIHONGO - Reading and Writing, Vols 8-10, Melbourne, Swinburne Press, 1987

AJ218 Spoken Japanese 2B
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AJ215 or equivalent • Corequisites: AJ217 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)
Aims and objectives
To extend students’ competence in the spoken language through introduction of unabridged aural comprehension texts. Emphasis is placed on development of oral skills for an extended range of communicative situations and correct usage of honorifics.
Content
The course includes 2 main components: aural comprehension and oral expression. Grammar patterns are also included in support of the two components.
Textbook/Reference
Japanese Section, NIHONGO - Dialogues and Aural Comprehension 2B, Melbourne, Swinburne Press, 1995

AJ219 Advanced Japanese 2A
12.5 Credit Points • 6 hours per week • Hawthorn • Prerequisite: AJ111 and AJ112 or equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)
Aims and objectives
To continue extending students’ competence in the written and spoken language through introduction of advanced grammar patterns, unabridged reading and aural comprehension texts.
Content
The course includes 5 components: grammar, reading, writing, aural comprehension and oral work. Literacy skills are expanded through introduction of further 350 kanji (Chinese characters). Emphasis is placed on development of oral skills for an extended range of communicative situations and on correct usage of honorifics.
Textbook/Reference
Skoutarides, A. and Machida, T., NIHONGO - Reading and Writing, Vols 8-10, Melbourne, Swinburne Press, 1987
Japanese Section, NIHONGO - Dialogues and Aural Comprehension 2B, Melbourne, Swinburne Press, 1995

AJ302 Work Experience in Japan
12.5 Credit Points • Prerequisite: minimum three years of double degree Business/Arts (Japanese) studies including satisfactory completion of stage 3 subjects of the Japanese major • Assessment: Participation
This elective subject is only available to students undertaking the double degree Business/Arts (Japanese) course.

Aims and objectives
The objective of this elective subject is to provide students with a six months experience of living in Japan and working in a Japanese company as a regular employee.
Preliminary coursework: AJ202 Communication in Japanese. Students who wish to take this subject should consult the subject leader.
Recommended reading
Neustupny, J.V., Communicating with the Japanese. Tokyo, The Japan Times, 1987

AJ303 Japanese 3C
12.5 Credit Points • 6 hours per week • Hawthorn • Prerequisite: AJ204 or approved equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese) for students enrolled prior to 1998
Aims and objectives
This subject continues systematically to extend the students’ use of spoken and written Japanese. Emphasis is placed on the correct use of an extended variety of syntactical and lexical items, colloquial and idiomatic expressions, intonations, etc., appropriate to a given situation and speech level.
Textbooks
Japanese Section, Japanese Reader Vol. 1, Melbourne, Swinburne Press, 1998
Fukushima, N., Japan and Australia. Melbourne, Swinburne Press, 1992
Fukushima, N., Signs and Ads. Melbourne, Swinburne Press, 1993

AJ304 Japanese 3D
12.5 Credit Points • 6 hours per week • Hawthorn • Prerequisite: AJ303 or approved equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese) for students enrolled prior to 1998
Aims and objectives
This subject continues expansion of students’ knowledge of spoken and written Japanese. Emphasis is placed on analysis of factors which determine selection of speech registers appropriate to a variety of communicative situations.
Textbooks
Japanese Section, Japanese Reader Vol. 2, Melbourne, Swinburne Press, 1999
Fukushima, N., Japan and Australia. Melbourne, Swinburne Press, 1992

AJ305 Advanced Japanese 3C
12.5 Credit Points • 6 hours per week • Hawthorn • Prerequisite: AJ206 or approved equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese) for students enrolled prior to 1998
Note: If insufficient student numbers enrolled in this course - an alternative course of study will be provided.
Aims and objectives
This subject continues to develop skills in spoken and written Japanese with particular attention to communication styles appropriate to different situations.
Textbooks
Fukushima, N., Japan and Australia. Melbourne, Swinburne Press, 1991

AJ306 Advanced Japanese 3D
12.5 Credit Points • 6 hours per week • Hawthorn • Prerequisite: AJ305 or approved equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese) for students enrolled prior to 1998
Aims and objectives
This subject consolidates all language skills acquired in previous stages of the Advanced Japanese major. Three modules (for instance ‘Dietary Life in Japan’, ‘Education in Japan’ and similar) form the basis for extensive reading of reference literature, writing of reports in Japanese and oral class presentation in Japanese.
Students will spend approximately sixty-six hours per semester in class and the remaining 18 hours conducting field work among the Japanese community in Melbourne. Classwork will be utilised for reading of reference material, lectures by specialists in the particular research area (Japanese) and discussion/debates of the field work findings (in Japanese).

Textbooks

AJ307 Reading Japanese Newspapers
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: Credit or above in AJ204, AJ205 or approved equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese) for students enrolled prior to 1998

Aims and objectives
This subject deals with a number of issues pertaining to contemporary Japan which students study through reading of relevant newspaper articles in Japanese and discussion. Japanese language is used exclusively in class.

Textbooks

AJ308 Japanese for Tourism and Hospitality
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AJ204, AJ206 or approved equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and Bachelor of Business/Bachelor of Arts (Japanese) for students enrolled prior to 1998

Aims and objectives
This subject is focused on development of spoken language suitable for interaction with Japanese customers/clients in a variety of service situations. Emphasis is placed on training in appropriate honorifics. A mandatory ‘work experience’ component is included in the course. Students are placed in hotels, souvenir shops and similar venues and their performance in the work situation is assessed by the ‘work experience’ provider.

Textbooks

AJ310 Japanese for Business and Industry
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: credit or above in AJ204, AJ206 or approved equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Business) for students enrolled prior to 1998. The double degree Business/Arts (Japanese) students are strongly recommended to enrol in this subject.

Aims and objectives
This subject concentrates on development of suitable written and spoken language for interaction in business spheres. Emphasis is placed on writing of business letters and other documents and reading of business-related texts. Thorough training in honorifics is also emphasised. Japanese businessmen participate as guest speakers and consultants to the course.

Textbooks

AJ318 Written Japanese 3A
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AJ317 and AJ218 or equivalent • Corequisites: AJ319 • Assessment: Continuous
A subject in the Bachelor of Arts and Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To continue extending students’ competence in the written language through reading of unabridged non-fiction texts. The writing component provides training in different writing styles and includes formal introduction of further 350 kanji (Chinese characters) as well as exposure to an extensive range of kanji compounds.

Content
The course includes 2 components: reading (unabridged texts) and writing (approximately 1350 kanji) including different writing styles.

Textbook/Reference

AJ319 Spoken Japanese 3A
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AJ218 and AJ219 or equivalent • Corequisites: AJ318 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To continue extending students’ competence in the spoken language through exposure to unabridged aural comprehension texts. Emphasis is placed on further development of oral skills for an extended range of communicative situations and on correct usage of different speech registers.

Content
The course includes 2 components: aural comprehension (video or radio programs) and oral expression with emphasis on situationally appropriate use of different speech registers.

Textbook/Reference
Fukushima, N., Japan and Australia. Melbourne, Swinburne Press 1992
Fukushima, N., Signs and Ads, Melbourne, Swinburne Press 1993

AJ320 Reading Japanese Newspapers
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AJ318/AJ325 and AJ319/AJ326 or equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To introduce students to journalistic written styles with particular emphasis on kanji compounds used in newspaper reporting and to extend the range of oral work by discussion of a variety of current affairs topics.

Content
The course includes 2 components: reading of unabridged newspaper articles and discussion of topics covered in the reading class.

Textbook/Reference

AJ321 Japanese for Tourism and Hospitality
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AJ318/AJ325 and AJ319/AJ326 or equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To train students in honorific language appropriate to interaction with Japanese personnel in a variety of service situations.

Content
The course is focussed on the development of oral skills with special emphasis on honorific language suitable for a variety of service situations. Work experience in a tourism/hospitality sector is an integral component of the course.

Textbook/Reference
Aims and objectives
To train students in written and spoken language as well as behavioural etiquette appropriate to a variety of business interactions.

Content
The course includes 4 components: reading and writing of business correspondence (additional 100 kanji), aural comprehension and oral expression focused on job interviews, negotiations and similar business practices, Japanese word processing, and business etiquette.

Textbook/Reference

AJ323 Written Japanese 3B

12.5 Credit Points  • 4 hours per week  • Hawthorn  • Prerequisite: AJ318 and AJ319 or equivalent  • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To continue extending students' knowledge of the language through introduction of unabridged reading texts and extension of literacy skills through introduction of further 350 kanji (Chinese characters). The writing component focuses on different writing styles, note taking and summarising.

Content
The course includes 2 components: reading (unabridged texts) and writing (approximately 1700 kanji) including note taking and summarising.

Textbook/Reference

AJ324 Spoken Japanese 3B

12.5 Credit Points  • 4 hours per week  • Hawthorn  • Prerequisite: AJ318 and AJ319 or equivalent  • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To continue extending students' competence in the spoken language through introduction of a variety of unabridged aural comprehension text (video or radio programs) and training in oral expression with emphasis on correct use of the full range of speech registers.

Content
The course includes 2 components: aural comprehension (unabridged texts) and oral work with emphasis on correct use of the full range of speech registers.

Textbook/Reference
Fukushima, N., Japan and Australia: Melbourne, Swinburne Press, 1992
Fukushima, N., Signs and Ads. Melbourne, Swinburne Press, 1993

AJ325 Advanced Written Japanese 3A

12.5 Credit Points  • 4 hours per week  • Hawthorn  • Prerequisite: AJ211 and AJ212 or equivalent  • Corequisites: AJ326  • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To continue extending students' knowledge of the language through introduction of unabridged reading texts and extension of literacy skills through introduction of further 350 kanji (Chinese characters). The writing component focuses on different writing styles, note taking and summarising.

Content
The course includes 2 components: reading (unabridged texts) and writing (approximately 1700 kanji) including note taking and summarising.

Textbook/Reference

AJ326 Advanced Spoken Japanese 3A

12.5 Credit Points  • 4 hours per week  • Hawthorn  • Prerequisite: AJ211 and AJ212 or equivalent  • Corequisites: AJ325  • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To continue extending students' competence in the spoken language through introduction of a variety of unabridged aural comprehension text (video or radio programs) and training in oral expression with emphasis on correct use of the full range of speech registers.

Content
The course includes 2 components: aural comprehension (unabridged texts) and oral work with emphasis on correct use of the full range of speech registers.

Textbook/Reference
Fukushima, N., Japan and Australia: Melbourne, Swinburne Press, 1992
Fukushima, N., Signs and Ads. Melbourne, Swinburne Press, 1993

AJ327 Advanced Written Japanese 3B

12.5 Credit Points  • 4 hours per week  • Hawthorn  • Prerequisite: AJ325 and AJ326 or equivalent  • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To continue extending students' competence in the written language through a wide variety of unabridged reading texts, extension of literacy skills through introduction of further 350 kanji (Chinese characters) and training in academic writing styles.

Content
The course is organised around 3 topics. Each topic requires reading of a prescribed number of unabridged texts (references), writing of questionnaire surveys for a field study project and written reporting of field study results.

Textbook/Reference
To be advised.

AJ328 Advanced Spoken Japanese 3B

12.5 Credit Points  • 4 hours per week  • Hawthorn  • Prerequisite: AJ325 and AJ326 or equivalent  • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Japanese)

Aims and objectives
To continue extending students' competence in the spoken language through extensive oral work with an emphasis on interview techniques and reporting on field study assignments.

Content
The course is organised around 3 topics. Each topic requires collection of empirical data through interviews (Japanese personnel) and an oral class presentation of the field study findings.

Textbook/Reference
To be advised.

AJ400 Japanese Society A

12.5 Credit Points  • 4 hours per week  • Hawthorn  • Prerequisite: Nil  • Assessment: Continuous
A subject in the Graduate Diploma in Japanese. This subject is not offered in 1999.
Aims and objectives

Students will be introduced to contemporary issues which exist in Japanese Society.

Content

This subject provides an introduction to contemporary issues in Japanese society. Topics include family problems, old age and social security, crime, suicide, gangster organisations, illegal immigrants, overseas students and female inequality. The program is based mainly on newspaper items but some media broadcasts are included and specialist lecturers lead seminars on certain topics.

Textbooks


Additional reading materials and reading guides are distributed to students enrolled in the course.

AJ401  Japanese Society B

12.5 Credit Points  •  4 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Assessment: continuous

A subject in the Graduate Diploma in Japanese. This subject is not offered in 1999.

Aims and objectives

Students will develop their oral skills through discussions about social issues in Japanese.

Content

Students extend their reading of topics introduced in Japanese Society A and also develop their oral skills through discussion in Japanese of a variety of social issues relevant to contemporary Japanese society.

Textbooks


Additional reading materials and reading guides are distributed to students enrolled in the course.

AJ402  Japanese Culture A

12.5 Credit Points  •  4 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Assessment: continuous

A subject in the Graduate Diploma in Japanese. This subject is not offered in 1999.

Aims and objectives

Students will be introduced to various aspects of contemporary Japanese culture.

Content

This subject provides an introduction to the changing aspects of Japanese culture. Topics include history, religion, education, arts, language and traditions.

Textbooks

Japanese Section, (Eds), Japanese Culture A. Melbourne, Swinburne Press, 1998

Additional reading materials and reading guides are distributed to students enrolled in the course.

AJ403  Japanese Culture B

12.5 Credit Points  •  4 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Assessment: continuous

This subject is not offered in 1999.

A subject in the Graduate Diploma in Japanese

Aims and objectives

Extension of reading and oral skills in culture related topics.

Content

This subject allows students to extend their reading of topics introduced in Japanese Culture A and to develop their conversational skills.

Textbooks

Japanese Section, (Eds.), Japanese Culture B. Melbourne, Swinburne Press, 1998

Additional reading materials and reading guides are distributed to students enrolled in the course.

AJ404  Japanese Business and Industry A

12.5 Credit Points  •  4 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Assessment: Continuous

A subject in the Graduate Diploma in Japanese

Aims and objectives

Students will gain knowledge and understanding of developments and problems associated with Japanese business and industry.

Content

This subject provides an introduction to the developments and problems associated with Japanese business and industry. Topics include employment and working conditions, advanced technology, structure of industry, trade friction, Japan and world trade, energy and tertiary industry.

Textbooks


Additional reading materials and reading guides are distributed to students enrolled in the course.

AJ405  Japanese Business and Industry B

12.5 Credit Points  •  4 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Assessment: Continuous

A subject in the Graduate Diploma in Japanese

Aims and objectives

Extension of reading and oral skills in business and industry related topics.

Content

Additional reading which extends the topics introduced in Japanese Business A is covered. The emphasis is placed on the comprehension and active use of spoken variety of Japanese.

Textbooks


Additional reading materials and reading guides are distributed to students enrolled in the course.

AJ406  Japanese Politics A

12.5 Credit Points  •  4 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Assessment: Continuous

A subject in the Graduate Diploma in Japanese

Aims and objectives

Students will be introduced to contemporary political issues in Japan.

Content

This subject provides an introduction to various aspects of the Japanese political system. Topics include political parties and elections, local governments, political scandals, international relations, defence policies and environmental protection.

Textbooks

Japanese Section, (Eds), Japanese Politics A. Melbourne, Swinburne Press, 1999

Additional reading materials and reading guides are distributed to students enrolled in the course.
AJ407 Japanese Politics B

12.5 Credit Points • 4 hours per week • Hawthorn • Assessment: Continuous
A subject in the Graduate Diploma in Japanese

Aims and objectives
These subjects cover reading and conversation which extends to topics introduced in Japanese Politics A.

Textbooks
Japanese Section, [Eds], Japanese Politics B, Melbourne, Swinburne Press, 1999
Halpem, J., New Japanese-English Character Dictionary, Tokyo, Kenkyusha, 1980

Additional reading materials and reading guides are distributed to students enrolled in the course.

AJ420 Japanese for Professionals 1A

12.5 Credit Points • 6 hours per week • Hawthorn • Assessment: Continuous
A subject in the Graduate Diploma in Japanese for Professionals.

Aims and objectives
Students will be introduced to the basic features of Japanese grammar. All students take this subject in first semester of first year. In addition to an introduction to the basic features of Japanese grammar, reading, speaking and writing covered in the language component a series of seminars on Japanese culture are included in the coursework. The language component is assessed by regular tests and assignments and all students must present a seminar paper or write a research essay for assessment of the culture component.

Recommended reading
Mizutani, O. and N., Nihongo Notes Vols. 1-2, Tokyo, Japan Times, 1977

Textbooks
Machida, T., Introduction to Japanese Writing, Melbourne, Swinburne Press, 1982

Objectives and content
Students take this subject in first semester of first year. In addition to an introduction to the basic features of Japanese grammar, reading, speaking and writing covered in the language component a series of seminars on Japanese society are included in the coursework. The language component is assessed by regular tests and assignments and all students must present a seminar paper or write a research essay for assessment of the culture component.

Recommended reading
Mizutani, O. and N., Nihongo Notes Vol 1-2, 3, Tokyo, Japan Times, 1977

Textbooks
Japanese Section, Dialogues and Aural Comprehension 1A, Melbourne, Swinburne Press, 1996
Japanese Section, Dialogues and Aural Comprehension 2A, Melbourne, Swinburne Press, 1996
Machida, T. and Skoutarides, A., Nihongo, Reading and Writing Vol 6-7, Melbourne, Swinburne Press, 1996

AJ421 Japanese for Professionals 1B

12.5 Credit Points • 6 hours per week • Hawthorn • Prerequisite: AJ420 • Assessment: Continuous
A subject in the Graduate Diploma in Japanese for Professionals.

Aims and objectives
This subject is a continuation of AJ420. It continues training in grammar, writing, reading, conversion and listening comprehension. Variety of audio visual materials are used to supplement the written texts, Cassette tapes for each lesson can be purchased. In addition to the language component a series of seminars on Japanese society are included in the coursework. The language component is assessed by regular tests and assignments and all students must present a seminar paper or write a research essay for assessment of the society component.

Recommended reading
Mizutani, O. and N., Nihongo Notes Vol 1-2, Tokyo, Japan Times, 1977

Textbooks
Machida, T., Introduction to Japanese Writing, Melbourne, Swinburne Press, 1982

Objectives and content
Students take this subject in first semester of first year. In addition to an introduction to the basic features of Japanese grammar, reading, speaking and writing covered in the language component a series of seminars on Japanese society are included in the coursework. The language component is assessed by regular tests and assignments and all students must present a seminar paper or write a research essay for assessment of the society component.

Recommended reading
Mizutani, O. and N., Nihongo Notes Vol 1-2, 3, Tokyo, Japan Times, 1977

Textbooks
Japanese Section, Dialogues and Aural Comprehension 1A, Melbourne, Swinburne Press, 1996
Japanese Section, Dialogues and Aural Comprehension 2B, Melbourne, Swinburne Press, 1996
Japanese Section, Dialogues and Aural Comprehension 2B, Melbourne, Swinburne Press, 1996
Machida, T. and Skoutarides, A., Nihongo, Reading and Writing Vol 6-7, Melbourne, Swinburne Press, 1996

AK102 Traditional Korea

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean).

Objectives and content
This subject provides an introduction to pre-modern Korea of particular relevance to the understanding of modern Korean society. The subject deals with the structure of politics and society of the Chosen Period (1392-1910), with particular attention paid to developments in Neo-Confucian thought during the period.

Textbooks

Recommended reading
Kim, Key-Hiuk, The Last Phase of the East Asian World Order, Berkley, University of California, 1989
Palais, James B. Politics and Policy in Traditional Korea, Harvard University Press, 1975

The above sources will be supplemented by a variety of specialist journal articles.
AK105 Introductory Korean 1A
12.5 Credit Points • 6 hours per week • Hawthorn • Prerequisite: Nil • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)
Aims and objectives
To introduce students to the Korean language and to give them a secure command of its basic structures. Emphasis is placed on correct pronunciation, acquisition of vocabulary and the fundamentals of grammar.
Content
The course entails instruction in language patterns, grammar, reading, writing, aural comprehension and oral expression.
Textbook/Reference
Buzo, A. and Shin, G.H., Learning Korean: New Directions - Vocabulary Index (Units 1-20), Melbourne, Swinburne Press, 1994
Seo, W., Work Book for Introductory Korean 1, Melbourne, Swinburne Press, 1997

AK106 Written Korean 1B
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AK105 or equivalent • Corequisites: AK107 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)
Aims and objectives
To extend students' competence in the written language through introduction of more complex grammar patterns and reading texts. Literacy skills are expanded through introduction of further 100 hanja (Chinese characters).
Content
The course includes 3 components: basic grammar, reading and writing.
Textbook/Reference
Buzo, A. and Shin, G.H., Learning Korean: New Directions - Vocabulary Index (Units 1-20), Melbourne, Swinburne Press, 1994
Seo, W., AK106 Written Korean 1B - workbook, Melbourne, Swinburne Press, 1998

AK107 Spoken Korean 1A
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AK105 or equivalent • Corequisites: AK106 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)
Aims and objectives
To extend students' basic knowledge of the spoken language through introduction of more complex grammar patterns and aural comprehension texts. Emphasis is placed on development of oral skills for a limited range of interpersonal and group interactions.
Content
The course includes 2 main components: aural comprehension and oral expression. Grammar patterns are also included in support of the two components.
Textbook/Reference
Buzo, A. and Shin, G.H., Learning Korean: New Directions 2 - Vocabulary Index (Units 1-20), Melbourne, Swinburne Press, 1994
Seo, W., AK107 Spoken Korean 1A - Dialogues and Aural Comprehension, Melbourne, Swinburne Press, 1997

AK110 Advanced Korean 1A
12.5 Credit Points • Hawthorn • Prerequisite: VCE Korean or equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)
Aims and objectives
To extend students' competence in the written language through introduction of more complex grammar patterns and reading texts. Literacy skills are expanded through introduction of approximately 100 Hanja (Chinese characters).
Content
The course includes 5 components: grammar, reading, writing, aural comprehension and oral work.
Textbooks/References
Seo, W., AK209 Intermediate Korean 2A - Workbook, Melbourne, Swinburne Press, 1998
Seo, W., AK209 Intermediate Korean 2A - Dialogues and Aural Comprehension, Melbourne, Swinburne Press, 1997

AK111 Advanced Written Korean 1B
12.5 Credit Points • Hawthorn • Prerequisite: AK110 or equivalent • Corequisites: AK112 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)
Aims and objectives
To extend students' competence in the spoken language through introduction of more complex grammar patterns and aural comprehension texts. Emphasis is placed on development of oral skills for a range of everyday situations.
Content
The course includes 3 components: grammar, reading, writing, aural comprehension and oral work.
Textbooks/References
Buzo, A., Learning Korean Hanja Book 1, Melbourne, Swinburne Press, 1990
AK211 Written Korean 2B - Text, Korean Section, Melbourne, Swinburne Press, 1998
sold together with
AK211 Written Korean 2B - Workbook, Korean Section, Melbourne, Swinburne Press, 1998

AK112 Advanced Spoken Korean 1B
12.5 Credit Points • Hawthorn • Prerequisite: AK110 or equivalent • Corequisites: AK111 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)
Aims and objectives
To extend students' competence in the spoken language through introduction of more complex grammar patterns and aural comprehension texts. Emphasis is placed on development of oral skills for an extended range of communicative situations and correct usage of honorifics.
Content
The course includes 2 main components: aural comprehension and oral expression. Grammar patterns are also included in support of the two components.
Textbooks/References
AK211 Written Korean 2B - Text, Korean Section, Melbourne, Swinburne Press, 1998
AK212 Spoken Korean 2B - Dialogues and Aural Comprehension, Korean Section, Melbourne, Swinburne Press, 1998

AK209 Intermediate Korean 2A
12.5 Credit Points • 6 hours per week • Hawthorn • Prerequisite: AK106 and AK107 or equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)
Aims and objectives
To continue extending students' competence in the written language through introduction of more complex grammar patterns and reading texts. Literacy skills are expanded through introduction of approximately 100 Hanja (Chinese characters).
Content
The course includes 3 components: grammar, reading, writing, aural comprehension and oral work.
Textbooks/References
Seo, W., AK209 Intermediate Korean 2A - Workbook, Melbourne, Swinburne Press, 1998
Seo, W., AK209 Intermediate Korean 2A - Dialogues and Aural Comprehension, Melbourne, Swinburne Press, 1997
more complex grammar patterns and aural comprehension texts. Emphasis is placed on development of oral skills for a range of everyday situations.

**Content**
The course includes 5 components: grammar, reading, writing, aural comprehension and oral work.

**Textbook/Reference**


**AK211 Written Korean 2B**

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AK209 or equivalent • Corequisites: AK212 • Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)

**Aims and objectives**
To continue extending students' competence in the written language through introduction of advanced grammar patterns and unabridged reading texts.

**Content**
The course includes 3 components: grammar, reading and writing.

**Textbook/Reference**


AK211 Written Korean 2B Text, Korean Section, Melbourne, Swinburne Press, 1998

sold together with:

AK211 Written Korean 2B - Workbook, Korean Section, Melbourne, Swinburne Press, 1998

**AK212 Spoken Korean 2B**

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AK209 or equivalent • Corequisites: AK211 • Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)

**Aims and objectives**
To extend students’ competence in the spoken language through introduction of unabridged aural comprehension texts. Emphasis is placed on development of oral skills for an extended range of communicative situations and correct usage of honorifics.

**Content**
The course includes 2 main components: aural comprehension and oral expression. Grammar patterns are also included in support of the two components.

**Textbook/Reference**

AK212 Written Korean 2B - Text, Korean Section, Melbourne, Swinburne Press, 1998

AK212 Spoken Korean 2B - Dialogues and Aural Comprehension, Korean Section, Melbourne, Swinburne Press, 1998

**AK213 Korean Society**

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: nil, except in the case of students taking an Asian Studies major, who must have any stage one political studies subject or equivalent. For those enrolled in the double degree course the prerequisite is AK102 • Assessment: Continuous

A subject in the Bachelor of Arts and an elective subject in the Bachelor of Business/Bachelor of Arts (Korean)(mandatory subject for students enrolled in the double degree prior to 1998)

**Aims and objectives**
Over the past 100 years or so, Korea has passed through periods of social upheaval and foreign encroachment to its present status as a divided country. Often referred to as ‘another Japan’, Korea nevertheless retains an ancient and highly individual civilisation that is under-studied and poorly understood in the West. This subject deals with aspects of Korean society since 1876, including topics such as intellectual history, the Japanese Colonial experience, religion in modern Korean society, rural-urban migration, and women’s issues.

**Recommended reading**


Koo, Hagen (ed.), *State and Society in Contemporary Korea*, Ithaca, N.Y., Cornell University Press, 1993

The above sources will be supplemented by a variety of specialist journal articles.

**AK214 Korean Politics and Economy**

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil, except in the case of students taking an Asian Studies major, who must have any stage one political studies subject or equivalent. For those enrolled in the double degree course the prerequisite is AK102 • Corequisites: Nil • Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean).

**Objectives and content**
The objective is to analyse the political, social and economic sources of Korea’s remarkable transformation in the postwar era.

The subject investigates the role of the Korean state, big business and labour in the process of industrialisation. It also assesses the role of external conditions, such as Korea’s position in the world economy and its relations with other powers, may have had on the shaping of Korea’s development course. Areas examined include DPRK-ROK relations, ROK-US relations, Korea’s role in the Pacific Rim and APEC with special emphasis on Australia-Korea relations.

**Recommended reading**

Cotton, James (ed.), *Korea under Roh Tae-woo: Democratisation, Northern Policy and Inter-Korean Relations*, St Leonards, NSW, Allen and Unwin, 1993


The above sources will be supplemented by a variety of specialist journal articles.

**AK215 Advanced Korean 2A**

12.5 Credit Points • Hawthorn • Prerequisite: AK111 and AK112 or equivalent • Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)

**Aims and objectives**
To continue extending students’ competence in the written and spoken language through reading of unabridged non-fiction texts and exposure to aural comprehension texts. The writing component provides training in different writing styles and includes formal introduction of further 100 Hanja (Chinese characters). Emphasis is also placed on further development of oral skills for an extended range of communicative situations and correct usage of different speech registers.

**Content**
The course entails instruction in language patterns, grammar, reading, writing, aural comprehension and oral expression.

**Textbook/Reference**

To be advised.

**AK216 Advanced Written Korean 2B**

12.5 Credit Points • Hawthorn • Prerequisite: AK215 or equivalent • Corequisites: AK217 • Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)

**Aims and objectives**
To continue extending students’ knowledge of the language through extensive reading of unabridged texts, extension of literacy skills through introduction of further 100 hanja (Chinese characters) and training in academic style of writing.

**Content**
The course includes 2 components: reading (unabridged texts) and writing including note taking and summarising.
Aims and objectives
To continue extending students’ knowledge of the language through a broader range of conversation topics with special emphasis on appropriate use of the full range of speech registers.

Content
The course includes 2 components: aural comprehension and oral expression with emphasis on correct use of the full range of speech registers.

Textbook/Reference
To be advised.

AK217 Advanced Spoken Korean 2B
12.5 Credit Points • Hawthorn • Prerequisite: AK215 • Corequisites: AK216 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)

Aims and objectives
To continue extending students’ knowledge of the language through a broader range of conversation topics with special emphasis on appropriate use of the full range of speech registers.

Content
The course includes 2 components: aural comprehension and oral expression with emphasis on correct use of the full range of speech registers.

Textbook/Reference
To be advised.

AK306 Written Korean 3A
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AK211 and AK212 or equivalent • Corequisites: AK306 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)

Aims and objectives
To continue extending students’ competence in the written language through reading of unabridged non-fiction texts. The writing component provides training in different writing styles and includes formal introduction of further 100 hanja (Chinese characters) as well as exposure to more complex grammar patterns and composition skills.

Content
The course includes 3 components: grammar, reading (including hanja in texts) and writing.

Textbook/Reference
To be advised.

AK307 Spoken Korean 3A
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AK211 and AK212 or equivalent • Corequisites: AK306 • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)

Aims and objectives
To extend students’ competence in the spoken language through exposure to unabridged aural comprehension texts. Emphasis is placed on further development of oral skills for an extended range of communicative situations and on correct usage of different speech registers.

Content
The course consists of 2 components: aural comprehension and oral expression with emphasis on situationally appropriate use of different speech registers.

Textbook/Reference
To be advised.

AK308 Reading Korean Newspapers
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AK306 and AK307 or equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)

Aims and objectives
To introduce students to journalistic written styles through authentic materials containing hanja used in newspaper reporting and to extend the range of oral work by discussion of a variety of current affairs topics.

Content
The course includes 2 components: reading of unabridged newspaper articles and discussion of topics covered in the reading class.

Recommended reading
AK308 Reading Newspapers Text, Korean Section, Melbourne, Swinburne Press, 1998

AK309 Written Korean 3B
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AK306 and AK307 or equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)

Aims and objectives
To continue extending students’ knowledge of the language through extensive reading of unabridged texts, expansion of literacy skills through introduction of further 100 hanja (Chinese characters), and training in academic style of writing.

Content
The course includes 2 components: reading (unabridged texts) and writing including note taking and summarising.

Textbook/Reference
To be advised.

AK310 Spoken Korean 3B
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AK306 and AK307 or equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)

Aims and objectives
To continue extending students’ knowledge of the language through a broader range of conversation topics with special emphasis on appropriate use of the full range of speech registers.

Content
The course includes 2 components: aural comprehension and oral expression with emphasis on correct use of the full range of speech registers.

Textbook/Reference
To be advised.

AK311 Korean for Business and Industry
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AK306 and AK307 or equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)

Aims and objectives
To train students in spoken and written language applicable to a variety of business situations.

Content
The course includes 4 components: reading and writing of business correspondence, aural comprehension and oral expression focused on job interviews, negotiations and similar business practices, Korean word processing, and business etiquette.

Textbooks/Reference
To be advised.

AK312 Advanced Written Korean 3A
12.5 Credit Points • Hawthorn • Prerequisite: AK216 & AK217 or equivalent • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean)

Aims and objectives
To continue extending students’ knowledge of the language through the reading of unabridged texts. The writing component focuses on different writing styles, note taking and summarising.

Content
The course includes 2 components: reading and writing, including note taking and summarising.

Textbook/Reference
To be advised.
AK313  Advanced Spoken Korean 3A
12.5 Credit Points  Hawthorn  Prerequisite: AK216 and AK217 or equivalent  Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Business/Bachelor of Arts (Korean).

Aims and objectives
To continue extending students' competence in the spoken language through the introduction of a variety of unabridged aural comprehension text (video and radio programs) and training in oral expression with emphasis on correct use of the full range of speech registers.

Content
The course includes 2 components: aural comprehension and oral work with emphasis on correct use of full range of speech registers.

Textbook/Reference
To be advised.

AK400  Korean Society A
12.5 Credit Points  4 hours per week  Hawthorn  Prerequisite: BA in Korean  Assessment: Continuous
A subject in the Graduate Diploma in Korean

Aims and objectives
This subject provides an introduction to issues of significance in Korean society. The program is based mainly on newspaper items but some media broadcasts are included.

Recommended reading
Reading materials and reading guides will be distributed to students prior to commencement of the course

AK401  Korean Society B
12.5 Credit Points  4 hours per week  Hawthorn  Prerequisite: AK400 or equivalent  Assessment: Continuous
A subject in the Graduate Diploma in Korean

Aims and objectives
Students extend their reading of topics introduced in AK400 and also develop their conversational skills in this subject.

Recommended reading
Reading materials and reading guides will be distributed to students prior to commencement of the course

AK402  Korean Culture A
12.5 Credit Points  4 hours per week  Hawthorn  Prerequisite: BA in Korean  Assessment: Continuous
A subject in the Graduate Diploma in Korean

Aims and objectives
In this subject topics covering various aspects of modern Korean culture are studied.

Recommended reading
Reading materials and reading guides will be distributed to students prior to commencement of the course

AK403  Korean Culture B
12.5 Credit Points  4 hours per week  Hawthorn  Prerequisite: AK402 or equivalent  Assessment: Continuous
A subject in the Graduate Diploma in Korean

Aims and objectives
This subject allows students to extend their reading of topics introduced in AK402 and to develop their conversational skills.

Recommended reading
Reading materials and reading guides will be distributed to students prior to commencement of the course

AK404  Korean Business and Industry A
12.5 Credit Points  4 hours per week  Hawthorn  Prerequisite: BA in Korean  Assessment: Continuous
A subject in the Graduate Diploma in Korean

Aims and objectives
This subject covers topics related to business, for example, employment and working conditions; advanced technology; structure of industry. Korea and world trade; energy and tertiary industry. Most of the material on which the program is based is selected from newspapers but some media broadcasts are also included. Emphasis is placed on the acquisition of vocabulary, and practice in translation and precis writing.

Recommended reading
Reading materials and reading guides will be distributed to students prior to commencement of the course.

AK405  Korean Business and Industry B
12.5 Credit Points  4 hours per week  Hawthorn  Prerequisite: AK404 or equivalent  Assessment: Continuous
A subject in the Graduate Diploma in Korean

Aims and objectives
Additional reading which extends the topics introduced in AK404 is covered. Emphasis is placed on comprehension and development of conversational skills in this subject.

Recommended reading
Reading materials and reading guides will be distributed to students prior to commencement of the course.

AK406  Korean Politics A
12.5 Credit Points  4 hours per week  Hawthorn  Prerequisite: None  Assessment: Continuous
A subject in the Graduate Diploma in Korean

Aims and objectives
In this subject students are introduced to various aspects of the Korean political system through the reading of newspaper articles supplemented by some media broadcasts. Topics include political parties and elections, defence, anti-nuclear movements, administration, and environmental protection.

Recommended reading
Reading materials and reading guides will be distributed to students prior to commencement of the course.

AK407  Korean Politics B
12.5 Credit Points  4 hours per week  Hawthorn  Prerequisite: AK406 or equivalent  Assessment: Continuous
A subject in the Graduate Diploma in Korean

Aims and objectives
This subject covers reading and conversation which extends students' ability in topics introduced in AK406.

Recommended reading
Reading materials and reading guides will be distributed to students prior to commencement of the course.

AK420  Korean for Professionals 1A
12.5 Credit Points  6 hours per week  Hawthorn  Prerequisite: applicants must have a degree, or equivalent, from a recognised university, college or institute  Assessment: Continuous
A subject in the Graduate Diploma in Korean for Professionals

Aims and objectives
All students take this subject in the first semester of first year. In addition to an introduction to the basic features of Korean grammar, reading, speaking and writing covered in the language component, a series of seminars on Korean culture and history are included in the coursework. The language component is assessed by regular tests and assignments and all students must present a
A list of references for the culture and history component is available from the course coordinator.

Aims and objectives
The subject is taken in the second semester of the first year. All students will continue their study of basic Korean grammar, reading, speaking and writing. The language component is assessed by regular tests and assignments. The non-language component consists of seminars on contemporary Korean society.

Recommended reading

A list of references for the contemporary Korean society component is available from the course coordinator.

**AK421 Korean for Professionals 1B**

12.5 Credit Points • 6 hours per week • Hawthorn • Prerequisite: AK420 • Assessment: Continuous

A subject in the Graduate Diploma in Korean for Professionals

Aims and objectives
The subject is taken in the first semester of the first year. The language component includes advanced grammar classes and a reading and conversation module tailored to suit students’ professional language needs. The non-language component consists of seminars on Korean politics.

Recommended reading

A list of references for the Korean politics component is available from the course coordinator.

**AK422 Korean for Professionals 2A**

12.5 Credit Points • 6 hours per week • Hawthorn • Prerequisite: AK421 • Assessment: Continuous

A subject in the Graduate Diploma in Korean for Professionals

Aims and objectives
This subject is taken in the first semester of the second year. The language component includes advanced grammar classes and a reading and conversation module tailored to suit students’ professional language needs. The non-language component consists of seminars on Korean politics.

Recommended reading

A list of references for the economy component is available from the course coordinator.

**AK423 Korean for Professionals 2B**

12.5 Credit Points • 6 hours per week • Hawthorn • Prerequisite: AK422 • Assessment: Continuous

A subject in the Graduate Diploma in Korean for Professionals

Aims and objectives
This subject is the continuation of AK422 Graduate Diploma in Korean for Professionals 2A with similar content and Assessment: for both the language and background components. The background component deals with the economy of contemporary Korea.

Recommended reading

A list of references for the economy component is available from the course coordinator.

**AL103 Writing Fiction**

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Continuous

A subject in the Bachelor of Arts and Bachelor of Social Science

Aims and objectives
This subject will introduce students to the range of skills required of the professional writer of fiction. A series of workshop exercises will develop skills in creating character, dialogue and dramatic tension. Point of view, voice, form, style, plot, tone, and description, and their place in building a story will be explored. The importance of revision, listening to criticism and developing a self-critical stance will be stressed, together with techniques for developing these personal skills.

Content
An introduction to techniques of critical and creative thinking will be provided; for example, plugging into both rational and irrational processes; the role of conjectural thinking, intuition and luck; the use of analogies, metaphors, and associative thinking; perceiving and creating relationships. Emphasis is placed on the participant as writer and critic.

Recommended reading


**AL209 Australian Writing and Cultural Change**

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: ALM104 or approved equivalent, and API12 for students majoring in Australian Studies • Corequisites: Nil • Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Social Science. Subject to accreditation.

Aims and objectives
This subject is an examination of the changing face of Australian literature and cultural culture. It takes a contemporary issues approach to the study of social and cultural debates within Australian life, and how writing contributes to and/or reflects these debates.

Content
Issues to do with the “theory wars” of the 1980s, multiculturalism and indigeneous politics, feminism and queer theory, will be explored. The impact of information technology on the formation of new social spaces (such as the virtual community), as well as changing notions of identity and cultural politics, will also be addressed.

Recommended reading


**AL309 Renaissance Literary Culture**

16.6 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Two stage two literature subjects or approved equivalents • Corequisites: Nil • Assessment: Continuous

A subject in the Bachelor of Arts and Bachelor of Social Science

Aims and objectives
This subject is designed to promote the theoretical investigation of the changing face of communications at the end of the twentieth century. Specifically, issues relating to the convergence from a literate to an electronic culture will be explored.

Content
This subject will introduce students to the range of skills required of the professional writer of fiction. A series of workshop exercises will develop skills in creating character, dialogue and dramatic tension. Point of view, voice, form, style, plot, tone, and description, and their place in building a story will be explored. The importance of revision, listening to criticism and developing a self-critical stance will be stressed, together with techniques for developing these personal skills.
writing and tele-writing, and to explore the ways in which this shift has altered notions of social interaction, community, space and identity.

**Recommended reading**

**ALM104 Texts and Contexts**

12.5 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Social Science.

This subject is compulsory for all students taking Media Studies and/or Literature majors.

**Content**
How do we represent ourselves in contemporary society? How do we make sense of these representations? In an age increasingly dominated by electronic art and communications, how do we understand the complex inter-relationships between traditional representational forms (such as novels and plays), mass-media forms (film, television and radio) and emergent new media (hypertext and interactive multi-media)?

Through an examination of texts drawn from literature, film, television, video and new media forms, this subject aims to introduce students to key concepts that are central to both literary, film and media studies. Our interest in studying these texts is not to establish their worth, or otherwise, as to draw attention to their cultural conditions of meaning, to our work as readers, to the ways in which we produce meanings from (or are confused by) texts, and to the values they embody in their representations.

**Recommended reading**

**ALM200 Reading, Writing and Criticism**

12.5 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: ALM104 or approved equivalent  •  Assessment: essay; folio and participation in seminars and workshops

A subject in the Bachelor of Arts and Bachelor of Social Science.

**Aims and objectives**
This subject is an exploration of the relationship between various theories and practices of writing.

**Content**
Combining modern literary and critical theories, practical workshop writing, and the examination of a range of literary models, it actively involves students in a dynamic investigation of what writing is, how it is produced and how it operates within a changing culture.

**Recommended reading**

**ALM201 Media Voices, Media Style: The Process of Journalism**

12.5 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: ALM104 or AM105 and any stage two media studies subject or equivalent, competency in Word for Windows 6  •  Corequisites: Nil  •  Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Social Science.

**Aims and objectives**
Newspapers, radio and television all report the news. However, while they may report the same events, each medium has a different ‘news voice’ resulting from its particular set of institutional practices and constraints which shape how events are reported.

**Content**
This subject takes both a theoretical and practical approach to news writing by looking at the different reporting strategies and practices of newspapers, radio, television and online journalism.

**Recommended reading**
Media in the New Millenium, Macquarie University Press (available in the bookshop)

**ALM316 Electronic Writing**

16.6 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: two stage two literature subjects, one of which must be ALM204 or two stage two media subjects, one of which must be ALM201  •  Corequisites: Nil  •  Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Social Science.

**Aims and objectives**
The purpose of this subject is to introduce students to the convergence of print with electronics, and to the status of writing in the contemporary world of electronic communication technologies.

Far from being outmoded, writing continues to be at the forefront of electronic cultural technologies. This subject will include consideration of the impact of what computer techniques offer, and then demand from the reader/writer. It offers students the opportunity to consider the most advanced state, so far, in the transformation of the word. At the same time, it will focus on the links between traditional forms and conceptions of text, as well as the literacies with which we approach different writing technologies (such as the book, desk top publishing software, hypertext and hypermedia, which combine written words, images and sound).

**Content**
Students will access to Internet and will develop writing skills designed for the electronic environment, using desk top publishing packages and authoring software.

**Recommended reading**

**ALM317 Literature/Media Project**

16.6 Credit Points  •  15 days or equivalent  •  Hawthorn  •  Prerequisite: 5 Literature/Media subjects, including AL204 or AL209 and ALM310  •  Corequisites: Nil  •  Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Social Science.

**Aims and objectives**
In this subject, students undertake a literature project, a work placement in industry or a combination of both. Students undertaking a literature project are supervised in both the design and implementation of a product of their choice (for example, an electronic journal; a multi-media presentation; a research report) targeted and delivered to a client. Students undertaking work attachment will be placed at one of a variety of institutions and will be required to report on that institution as part of their assessment.

Alternatively, students can negotiate a combination of work attachment and project with their supervisor.

The other option for this unit is exclusive to Literature students, and involves an independent research project, conducted over a semester, under the supervision of a member of the Literature staff. Once again, numbers will be limited, and students must have a proven, ongoing work in progress that will form the basis of their Literature project.

Eligibility for this program will depend upon the student having a project on which they have been previously working (say, a book of poems, a novel, a critical essay), and which has been approved by the subject convenor. The subject is designed to develop a work to completion, and prepare it for publication, or at least submit it for publication. This work can be of a critical nature, and students will be expected to work closely with a supervisor throughout the semester.

**AM105 The Media in Australia**

12.5 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Social Science.

**Aims and objectives**
This subject is an introduction to some of the major historical and contemporary
issues about broadcasting as a medium of mass communication, primarily in an Australian context.

Content
This subject examines the political context of broadcasting institutions, public and private, and their relationship with other social institutions. Key political, social and ethical issues associated with the media are canvassed, such as the ownership and control of radio, television stations, newspapers and Pay-TV, the regulatory climate, accountability in programming, relationships to audiences, and journalistic practices and ethics. Vexed issues, such as media freedom and reform, public participation in ownership and programming, regulatory changes in broadcasting, and professional journalistic standards are discussed from a range of perspectives.

Recommended reading

AM210 Popular Culture
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: ALM104 or AMT05 • Corequisites: Nil • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Social Science.

Aims and objectives
The central aim of the subject is to encourage students to engage in a critical analysis of the culture around them. Students will be able to draw on their own experiences of culture and critically examine their own constructions of meaning, and the pleasures of involvement.

Content
This subject will introduce issues and debates in contemporary culture and cultural analysis. It will investigate the diversity of images, ideologies, meanings and practices which comprise popular culture. Issues such as shopping, fashion, advertising, drugs, pornography, gambling, music and sport will be analysed. Special emphasis will be placed on the role and significance of the media and its representations of popular culture. The subject will also consider the commercial and institutional imperatives shaping popular culture and its multiple relations to political processes.

Major theoretical reference points in this subject will include Marxist, feminist, post-modern and structuralist analysis of late capitalism. Consideration will be given to the ongoing debates which surround cultural meanings and practices in the current Australian context.

Recommended reading
Simmel, O. • An Introduction to the Theories of Popular Culture, Routledge, London, 1995
Connor, S. • Postmodernist Culture: An Introduction to Theories of the Contemporary (2nd edition), Baikewell, 1997
Docker, J. • Postmodernism and Popular Culture, Cambridge University Press, 1994
Forke, J. • Understanding Popular Culture, Boston, Unwin Hyman, 1989

AM211 New Media: The Telecommunications Revolution
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: ALM104 and AMT05, and AP112 for students majoring in Australian Studies • Corequisites: Nil • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Social Science.

Aims and objectives
This subject examines the convergence of broadcasting and telecommunications in the context of political, economic and social change associated with new media. It is widely asserted that we are now living through an information revolution and the context of political, economic and social change associated with new media. The subject will also consider the commercial and institutional imperatives shaping popular culture and its multiple relations to political processes.

Major theoretical reference points in this subject will include Marxist, feminist, post-modern and structuralist analysis of late capitalism. Consideration will be given to the ongoing debates which surround cultural meanings and practices in the current Australian context.

Recommended reading

AM312 Cinema Studies
16.6 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AMT104 and any two stage two media studies subjects or equivalent • Corequisites: Nil • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Social Science.

Aims and objectives
The viewing material for this subject is a selection of films arranged generically (e.g. the romantic comedy, or the horror film, or the science-fiction film), thematically (the journey film, or the domestic drama), or stylistically (the films noirs, or the problems of realism. These films will provide study samples for a pursuit of ideas introduced during the previous two years of the course into a systematic analysis of film. The emphasis is upon the practice of film criticism.

Recommended reading
Grant, B.K., (ed.) Film Genre Reader. Austin, University of Texas Press, 1986

Cook, P., (ed.) • Film Studies, vol 1: An Introduction, BFI, 1999

AM313 Radio Production and Criticism
16.6 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AMT105 and AMT104 and any other stage two media studies subject or equivalent • Corequisites: Nil • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Social Science.

Aims and objectives
This course aims to introduce students to the theory and practice of radio in Australia. Students are introduced to the theoretical constructs and debates which have directed the development of government policy, radio content and programming. We also examine the historical factors which have helped to shape the radio industry in Australia. We consider the impact that radio has had on the lives of both communities and individuals during the past seventy years. We examine those aspects of radio which have set it apart from other media _ its ephemeral quality, its reliance on orality and its intimate relationship to its audience. For example, Potts in Radio in Australia argues that any human society establishes itself by imposing form on the world of natural noise. He points out that the aural space occupied by radio has continually shrunk throughout the twentieth century to the point where the complete privatisation of sound via the Walkman has rendered sound consistent with the individualisation of post-industrial society. Other theorists, such as Marshall McLuhan, saw radio as having the ability to "tribalise" its listeners making it a potential agent for great political change. We examine these and other theories as they relate to the radio medium itself.

Recommended reading


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of production skills is an essential part of the course, the broader context of how those skills can be applied is always kept in mind.

**Recommended reading**

- **Strauss, N., Radiotext(e), Semiotext(e), Columbia University, New York, 1993**
- **Potts, J., Radio in Australia, NSW University Press, Sydney, 1989**
- **Hicks, M., Radio on Radio. Swinburne, 1985 (Audio tapes)**
- **Ong, W., Orality and Literacy. London, Methuen, 1982**

**AM314 Professional Attachment Program**

16.6 Credit Points  •  equivalent one semester subject  •  Hawthorn  •  Prerequisite: 5 media studies subjects  •  Corequisites: Nil  •  Assessment: continuous (AM314 is a pass/fail only subject)

A subject in the Bachelor of Arts and the Bachelor of Social Science.

**Aims and objectives**

This subject is available during semester two to a limited number of students. Those selected will be attached, after consultation, to a variety of media organisations. There they will be required to work under the direction of the supervising staff member. The program will be overseen by a member of the media and communications staff, and students will be required to keep a diary account of their attachment.

**Recommended reading**

- **Armstrong, Mark, Molinar, Helen (1998) Control and ownership of Australian communications, Melbourne : Media and Telecommunications/Policy Group**
- **Nieuwenhuizen, John (1997) Asleep at the Wheel: Australia on the Information Superhighway, ABC Books for the ABA**

**AM315 Information Society: A Global Perspective**

16.6 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: ALM104 or AM105 and two stage two media studies subjects or equivalent  •  Assessment: Continuous

A subject in the Bachelor of Arts and the Bachelor of Social Science.

**Aims and objectives**

This subject is an examination of media and communications in the context of a post-industrial or information society.

Key questions about the contemporary technological revolution are addressed, such as who decides about new technologies, and how, whose interests are served, how national policies are fashioned, and whose information needs will be met by these technologies of abundance.

Crucial here is a variety of political, social and ethical issues, including vexed territory such as ownership and control of information systems, privatisation and de-regulation of broadcasting and telecommunications, corporate and community information systems and international information transfer. Considerable emphasis is placed on the methodology of investigation, analysis of reports and government inquiries, and the presentation of data and information. Students are encouraged to present their work in a form that will enable it to be available to the community.

**Recommended reading**

- **Armstrong, Mark, Molinar, Helen (1998) Control and ownership of Australian communications, Melbourne : Media and Telecommunications/Policy Group**

**AM402 Radio Production and Criticism**

12.5 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: production exercises (80%); participation (20%)

A subject in the Graduate Certificate/Diploma of Arts in Applied Media.

**Aims and objectives**

The subject aims to introduce students to the theory and practice of radio in Australia. We examine those aspects of radio which have set it apart from other media - its ephemeral quality, its reliance on orality and its intimate relationship to its audience.

**Content**

AM402 is a production course and aims to equip students with the skills necessary for successful participation in radio production - sound recording, editing, panel operation, voice production and interviewing are all covered. While the acquisition of production skills is an essential part of the course, the broader context of how those skills can be applied is always kept in mind.

**Recommended reading**

- **Strauss, N., Radiotext(e), Semiotext(e), Columbia University, New York, 1993**
- **Potts, J., Radio in Australia, NSW University Press, Sydney, 1989**
- **Ong, W., Orality and Literacy. London, Methuen, 1982**

**AM404 Writing for the Media**

12.5 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: production of a script, exercises and seminar participation.

A subject in the Graduate Certificate/Diploma of Arts in Applied Media.

**Aims and objectives**

The aim of this subject is to explore the developing area of designing and writing for the World Wide Web. How do you repurpose material from other media in a way that takes advantage of the new medium? What are the characteristics and potentials of the medium which make writing for this environment unique to other media?

**Content**

Drawing on the expertise of industry professionals, students will explore the above questions in a series of forums. They will then learn HTML (Hyper Text Markup Language) through Macromedia's Dreamweaver for the purpose of designing and constructing their own website.

**Recommended reading**

- **Ong, W., Orality and Literacy: The Technologizing of the Word. London, Methuen, 1982**

**AM410 Electronic Writing**

12.5 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: research essay (30%); project (55%); participation (15%)

A subject in the Graduate Certificate/Diploma of Arts in Applied Media.

**Aims and objectives**

The purpose of this subject is to introduce students to the convergence of print with electronics, and to the status of writing in the contemporary world of electronic communication technologies.

Far from being outmoded, writing continues to be at the forefront of electronic cultural technologies. This subject will include consideration of the impact of what computer techniques offer in terms of reading and writing. It offers students the opportunity to consider the most advanced state, so far, in the transformation of the word. At the same time, it will focus on the links between traditional forms and conceptions of text, as well as the literacies with which we approach different writing technologies (such as the book, desk-top publishing software, hypertext and hypermedia, which combine written words, images and sound).

**Content**

Students will access the Internet and will develop writing skills designed for the...
AM411 Globalisation: Media and Telecommunications

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Assessment: seminar paper (40%); final report (60%) • A subject in the Graduate Certificate/Diploma of Arts in Applied Media.

Aims and objectives

This subject examines the international market, policy and cultural trends in many fields of communications, with special attention to broadcasting, cinema, and telecommunications industries. It will examine many complex forces for change, particularly the increasing international trend towards privatisation, mega-amalgamation, liberalisation and deregulation. Special attention will be given to debates about international networking, cultural imperialism and globalisation, especially for television and cinema. Contemporary policy debates about the future of broadcasting, and the complex issues involved in the introduction of new communications technologies and about the associated institutional pressures, especially on public broadcasters, will be highlighted.

Recommended reading


AM412 Media Project

25 Credit Points • 2 hours per fortnight over two semesters • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: project (80%); production journal (20%) • A subject in the Graduate Certificate/Diploma of Arts in Applied Media.

Aims and objectives

Students undertaking a media project are supervised in both the design and implementation of a product of their choice (for example, a radio documentary or an electronic journal) targeted and delivered to a client. This subject is designed to extend the skills acquired by students in radio and electronic writing and to provide an opportunity for students to gain experience in the workplace and to work independently as freelance practitioners. Attention will be paid to the presentation and marketing of the project.

Recommended reading

World Wide Web resources.

AM413 Multimedia Authoring 1

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: production exercises (80%); participation (20%) • A subject in the Graduate Certificate/Diploma of Arts in Applied Media.

Aims and objectives

The aim of this subject is to provide students with competencies in a range of production skills to enable them to use these skills in the production of a stand-alone multimedia project.

Content

Students will be introduced to digital audio production and analogue and digital video recording and editing. They will also be instructed in the use of scanning and image manipulation and animation. As part of this subject, students will also be asked to consider a number of issues relating to multimedia production such as intellectual property and copyright, government policy in regards to multimedia and funding of multimedia production. Attention will also be paid to issues relating to the presentation and marketing of a multi-media product.

Recommended reading

Fenwick, P., Instructional Multimedia Applications, 1997


Luther, A., Authoring Interactive Multimedia, AP Professional, 1994

AM414 Multimedia Authoring 2

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AM413 Multimedia Authoring 1, other than by special arrangement with subject convenor • Corequisites: Nil • Assessment: multimedia project (80%); participation (20%) • A subject in the Graduate Certificate/Diploma of Arts in Applied Media.

Aims and objectives

In this subject, students are expected to integrate the skills they have acquired into a multimedia project. They may begin a project which can then be used as part of their work for AM412 Media Project.

Content

They will be introduced to a multimedia authoring package, such as Macromedia Director or Asymetrix Toolbook, and asked to develop a piece which demonstrates their understanding of and competencies in the use of the technologies addressed in Multimedia Authoring 1. They will also learn how to combine these discrete elements into a whole. Attention will also be paid to issues relating to the presentation and marketing of a multi-media product.

Recommended reading

Fenwick, P., Instructional Multimedia Applications, 1997


Luther, A., Authoring Interactive Multimedia, AP Professional, 1994

AM441 Radio in Australia

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Case Studies • A subject in the Graduate Diploma of Arts in Commercial Radio.

This subject is not available to students in degree programs.

Aims and objectives

This subject aims to provide an historical and current overview of Radio in Australia, including Commercial, Government and Public stations and the ownership and control regulations currently in place.

Content

The employment structure and roles of staff are examined in detail, as are the technical operations and programming philosophies. Methods of audience surveying and analysis are studied and related to the radio station's programming and promotional activities. This subject will also explore the nature and detail of current broadcast legislation and regulations and the legal issues faced by owners and broadcasters relating to defamation and contempt of court. Methods of staff selection and management, including awards and union interests, will be examined. The impact of new technologies, including satellite services, cable, narrowcast and in-store radio will be examined, along with the applications and improvements in computer systems and Digital Audio technology.

Recommended reading

Arnold Josie, Gleeson, Fran and Peterson, Chris, Moving into Management, Swinburne University Press, 1992

ABC All Media Law Handbook, ABC Enterprises, 1990

Determination of Planning Priorities, Australian Broadcasting Authority, Canberra, 1993

Keith, Michael, Radio Programming, Focal Press, Boston, 1987


Higgins, Christine, and Moss, Peter, Sounds Read, QUP, Queensland, 1982

Potts, John, Radio in Australia, NSW University Press, 1989

AM442 Radio Presentation

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Assignments • A subject in the Graduate Diploma of Arts in Commercial Radio.

This subject is not available to students in degree programs.

Aims and objectives

This subject aims to develop practical understanding of the radio presentation...
process, gaining the skills to use broadcasting equipment and to effectively communicate with an audience.

**Recommended reading**
- Ollie, Andrew, *On Interviewing*, ABC Enterprises, Sydney, 1992
- Welch, Deb and Hicks, Max, *Swinburne Radio Production Notes*, Swinburne University Press, 1991

**AM443 Radio Journalism**

12.5 Credit Points  • 3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: Assignments; Oral Presentation

A subject in the Graduate Diploma of Arts in Commercial Radio.

This subject is not available to students in degree programs.

**Aims and objectives**

This subject aims to examine in detail the role and responsibilities of a radio news journalist. It will develop in students an understanding of the sources of news and skills in researching information, interviewing and editing news programs.

**Content**

Students will gain experience in writing concise news stories, with an understanding of the conventions of writing for the ear. News bulletins will be prepared and broadcast at defined times, as part of an in-house broadcasting service, incorporating live and pre-recorded interviews.

This unit will then further explore and develop the role of a radio news journalist. It will direct students to extend their skills in researching, interviewing and editing news programs and to develop their contacts. Students will gain experience in writing and presenting current affairs reports, incorporating live and pre-recorded interviews.

**Recommended reading**
- Hogan, Tom, *Radio News Workbook*, Resources Unit, Australian Film and TV School, 1985

**AM444 Radio Marketing and Promotions**

12.5 Credit Points  • 3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: Case Studies

A subject in the Graduate Diploma of Arts in Commercial Radio.

This subject is not available to students in degree programs.

**Content**

This subject explores basic marketing concepts from a radio perspective, understanding the key concepts of the business-customer relationship and the role of marketing. Major topics will include the marketing of a radio station to its clients and audience, the different approaches for selling radio air time and an analysis of the aims of station promotions. Themes to be explored will include positioning a radio station in a competitive media market, strategic planning, and the 22 immutable laws of marketing and their application to radio. There will be detailed study of audience research information gathering and analysis and diagnostic business analysis and advertising techniques.

**Recommended reading**

**AM445 Advertising Copywriting**

12.5 Credit Points  • 3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: Assignments

A subject in the Graduate Diploma of Arts in Commercial Radio.

This subject is not available to students in degree programs.

**Aims and objectives**

This subject is designed to explore, understand and master the processes involved in writing radio commercials. Structured assignments will lead the student through a process of interacting with an advertising client and gaining the skills to understand and interpret the needs of that client.

**Content**

Students will develop the creative writing ability to condense the information into a script of pre-determined time length that will effectively communicate the message to its intended target and layout the script ready for client approval and recording. Integral to this process is the development of a clear understanding of the nature of the listening audience and their interaction with the radio medium to effectively deliver the advertising message.

**Recommended reading**

**AM446 Radio Production**

12.5 Credit Points  • 3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: Assignments

A subject in the Graduate Diploma of Arts in Commercial Radio.

This subject is not available to students in degree programs.

**Aims and objectives**

This subject will develop skills to identify the structures of sound and the nature of human auditory responses. Students will develop basic recording and editing skills, progressing to advanced multi-track recording and digital recording and editing. Students will be able to record commercials, promotional scripts and programs to a professional standard ready for broadcasting.

**Recommended reading**

**AM447 Radio Broadcasting Practice**

12.5 Credit Points  • equivalent of 80 hours broadcasting  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: Participation; Report

A subject in the Graduate Diploma of Arts in Commercial Radio.

This subject is not available to students in degree programs.

**Aims and objectives**

This subject is designed to allow students to undertake broadcasting with commercial radio formats to establish and consolidate practical radio broadcasting skills. As well as providing students with valuable experience, this subject aims to encourage students to critically evaluate broadcasting practices in the radio industry implementing the skills under development in the other units of this program.

**AM448 Radio Industry Placement**

12.5 Credit Points  • two week placement of 80 hours or equivalent  •  Hawthorn  •  Prerequisite: AM444 and AM447  •  Corequisites: Nil  •  Assessment: Participation; Report

A subject in the Graduate Diploma of Arts in Commercial Radio.

This subject is not available to students in degree programs.

**Aims and objectives**

This subject is designed to allow students to undertake an extended workplace experience in the commercial radio industry. As well as providing students with valuable contacts within the industry, this subject aims to encourage students to critically examine workplace practices in the radio industry at a time of significant technological and cultural change.

**AM500 Globalisation: Media and Telecommunications**

25 Credit Points  • 3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Assessment: presentation of research proposal (50%); final presentation (50%)

A subject in the Master of Arts in Communications.

**Recommended reading**
AM501 Communication Environments

25 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: presentation of research proposal 50% final report 50%
A subject in the Master of Arts in Communications.

Aims and objectives

The notion of an information society has different meanings for different cultures. This subject examines the nature and outcomes of increased convergence of media, telecommunications and information technology in the context of political, economic and social changes, in Australia and Asia. Key questions are addressed about the communications revolution, such as who decides, and how, what choices are available, whose interests are served, and whose needs are met and unmet by these "technologies of abundance." The interplay of communications, culture and international economic imperatives is central to the work in this semester.

Recommended reading


“A National Policy Framework for structural adjustment within the new Commonwealth of Information,” A Report to the Minister for Communications and the Arts, August 1997

AM502 Asian Communications

25 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: seminar paper 40%; final paper 60%
A subject in the Master of Arts in Communications.

Recommended reading

Jussawalla, M. and Hukill, M. Structural Change of Telecommunications in South Eastern Asia, in Media Asia, vol 19, No. 1, 1992
Peterson, N., Asian News Values: Challenges and Change, in Media Asia, vol 19, No. 1, 1992

AM504 Professional Production

25 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: production of a radio program or short film or television script
A subject in the Master of Arts in Communications.

Aims and objectives

This subject is aimed at students including those working in the industry who have above average radio and print media skills. It has three areas of focus - radio, writing for the print media, and writing for film and television.

Content

The radio stream consists of a series of seminars dealing with key management issues including station operations, audience research and analysis, marketing, human resources, the impact of new technology, and broadcast policy issues. Students taking the radio stream may produce broadcast quality programs during the semester. This could be, for example, a major documentary or drama, or a multi-track production which draws on the student's production, research and writing skills, and creative ability.

The print stream will focus on advanced investigative reporting and feature writing skills. Students taking the film and television stream will develop a script proposal, and a script for a short film or television program.

Students taking either the print or the film and television writing streams will also attend seminars which address different forms of writing.

Recommended reading

Ong, W., Chality and Literacy: the Technology of the Word. London, Methuen, 1982


AM505 Workplace Practice

25 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: presentation of workplace proposal 40%; final report 60%
A subject in the Master of Arts in Communications.

Aims and objectives

This subject aims to give students in the final stages of the Masters the opportunity to undertake a detailed analysis of the institutional and professional processes of a media organisation. Students can nominate which organisation they wish to be placed in, and they will be required to consult with management when working out the details of the study.

Content

It would be expected that students will produce a detailed case study which addresses issues such as the media model under which the organisation operates, management structures, staffing and human resources, training, technology, target audiences and programming. Students can also negotiate with the media organisation to undertake a consultancy: for example, to research the feasibility of a particular project such as the conversion of radio equipment from analogue to digital, the implementation of a program to increase Aboriginal and Torres Strait Islander employment, or to examine the impact of new broadcast regulations on the organisation.

AM506 Thesis (Part-time)

50 Credit Points • one semester full-time, two semesters part-time • Hawthorn • Prerequisite: AM501, AM502, AM504 and AM505 • Corequisites: Nil • Assessment: to be advised
A subject in the Master of Arts in Communications.

Content

Students are required to write a minor thesis, of approximately 20,000 words, as a mandatory course requirement. The conceptual and methodological underpinning for the thesis will centre on the two core subjects: AM500 Globalisation: Media and Telecommunications and AM503 Interrogating texts: Cultural Dreaming, though thesis topics may also emerge from AM501, AM502, AM504 and AM505. International students will have the opportunity to pursue topics related to their country of origin or explore comparative research subjects.
There may be the possibility of electronic access to national and international databases for research. Supervision of these may be conducted with electronic means to support the supervisory-student interaction.

AM512 Writing for the Media

25 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: production of a script; exercises and seminar participation.
A subject in the Master of Arts in Communications.

Aims and objectives

The aim of this subject is to explore the developing area of designing and writing for the World Wide Web. How do you repurpose material from other media in a way that takes advantage of the new medium? What are the characteristics and potentials of the medium which make writing for this environment unique to other media?

Content

Drawing on the expertise of industry professionals, students will explore the above questions in a series of forums. They will then learn HTML (Hyper Text Markup Language) through Macromedia's Dreamweaver for the purpose of designing and constructing their own website.

Recommended reading

Ong, W., Chality and Literacy: the Technology of the Word. London, Methuen, 1982

AM513 Textuality and Discourse

25 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AM500 Globalisation • Corequisites: Nil • Assessment: essay and seminar presentation.
A subject in the Master of Arts in Communications.
Aims and objectives
This subject is a critical exploration of communications in the transition from print to electronic culture. Focussing on the word as the basic unit of communication, it traces the gradual technologizing of the word as it moved beyond the immediacy of speech and social community, to the mediation of writing and its initiation of remote telecommunications. Central to the formation of an electronic culture is the issue of convergence, in which new modes of communication, such as hypertext, combine formerly discrete forms to create powerful communications environments. Such environments require new literacies, which in turn transform the way in which we construct the world into meaning. Textuality and Discourse also seeks to evaluate the impact of new social formations (such as cyberspace) that are being constructed on the basis of these literacies, assessing the degree to which virtual communities are changing the nature of social interaction, and modifying traditional notions of identity, space, location and meaning.

Recommended reading
McKeigh, M., & Tofts, D., Memory Trade. A Prehistory of Cybertecture, Sydney, 21C/ Interface, 1998

AM514 Multimedia Authoring 1
25 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Participation; Project
A subject in the Master of Arts in Communications.

Aims and objectives
The aim of this subject is to provide students with competencies in a range of production skills to enable them to use these skills in the production of a stand-alone multimedia project.

Content
Students will be introduced to digital audio production and analogue and digital video recording and editing. They will also be instructed in the use of scanning and image manipulation and animation. As part of this subject, students will also be asked to consider a number of issues relating to multimedia production such as intellectual property and copyright, government policy in regards to multimedia and funding of multimedia production.

Attention will also be paid to issues relating to the presentation and marketing of a multimedia product.

Recommended reading
Fenwick, P., Instructional Multimedia Applications, 1997
Luther, A., Authoring Interactive Multimedia, AP Professional, 1996

AM515 Multimedia Authoring 2
25 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AM514 Multimedia Authoring 1, other than by special arrangement with subject convenor • Corequisites: Nil • Assessment: Participation; Project
A subject in the Master of Arts in Communications.

Aims and objectives
In this subject, students are expected to integrate the skills they have acquired into a multimedia project.

Content
Students will be introduced to a multimedia authoring package, such as Macromedia Director or Asymetrix Toolbook, and asked to develop a piece which demonstrates their understanding of and competencies in the use of the technologies addressed in Multimedia Authoring 1. They will also learn how to combine these discrete elements into a whole. Attention will also be paid to issues relating to the presentation and marketing of a multi-media product.

Recommended reading
Fenwick, P., Instructional Multimedia Applications, 1997
Luther, A., Authoring Interactive Multimedia, AP Professional, 1994

AM516 Electronic Writing
25 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Participation; Project; Research Paper
A subject in the Master of Arts in Communications.

Aims and objectives
The purpose of this subject is to introduce students to the convergence of print with electronics, and to the status of writing in the contemporary world of electronic communication technologies.

Far from being outmoded, writing continues to be at the forefront of electronic cultural technologies. This subject will include consideration of the impact of what computer techniques offer in terms of reading and writing. It offers students the opportunity to consider the most advanced state, so far, in the transformation of the word. At the same time, it will focus on the links between traditional forms and conceptions of text, as well as the literacies with which we approach different writing technologies (such as book, desk-top publishing software, hypertext and hypermedia, which combine written words, images and sounds).

Content
Students will access the Internet and will develop writing skills designed for the electronic environment, using desk-top publishing packages and authoring software.

Recommended reading

AP100 Australian Politics
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Essays; Tutorials
A subject in the Bachelor of Social Science and the Bachelor of Arts.

Aims and objectives
This subject is an introduction to Australian politics. Its first objective is to provide students with an understanding of the institutional framework of government in Australia, and the historical context in which it developed, looking at the constitution, parliament, cabinet and the public service, the electoral system, interest groups and political parties. It also examines a number of issues central to contemporary Australian politics in relation to this framework. Its second objective is to assist students in developing skills in gathering information, analysing it, and effective personal communication.

Recommended reading

AP117 International Politics
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Assignments; Essays; Tests
A subject in the Bachelor of Social Science and the Bachelor of Arts.

Aims and objectives
The subject provides students with an overview of the development of world politics, it introduces analytical approaches to the subject and explores a broad range of contemporary issues.

Content
It deals with the politics of non-nation states, and the traditional diplomacy and security issues based upon them. However, it also emphasises the emerging structures of global political economy and international organisations, and their impact on nation-states. The subject highlights many issues relevant to the conduct of Australian foreign affairs and trade policies.

Recommended reading

AP220 Modern Japan
AP320
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Essays; Examinations
A subject in the Bachelor of Social Science and the Bachelor of Arts.

This subject is normally undertaken as a Stage 2 subject (AP220) but may also be taken as a Stage 3 subject (AP320) with appropriate adjustment to the assessment.
Content
Discussion centres around the problems of Japanese nationalism reflected in the nature of Japan's modernisation, the consequences of her emergence as a world power, her defeat, and re-emergence as an economic power. An examination of the social configuration of Japanese society will shed light on what are claimed to be the characteristic features which distinguish contemporary Japan from other industrialised societies, especially in politics, education, business operations and employer-employee relations.

Recommended reading

AP221/ Modern Australia
AP321
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Essays; Participation
A subject in the Bachelor of Social Science and the Bachelor of Arts.
This subject is normally undertaken as a Stage 2 subject (AP221) but may also be taken as a Stage 3 subject (AP321) with appropriate adjustment to the assessment.

Aims and objectives
This subject explores the patterns of change that have shaped contemporary Australia.

Content
It starts by looking at the attempts to build a fairer society at the turn of the century, and at the modern social institutions which emerged from that process. It next considers the impact of the Great War, of prosperity in the 1920s and depression in the 1930s on the manner in which wealth and power were shared. It then examines how the experience of those thirty years shaped the grand plans to establish a more just and secure nation after the Second World War. Through a survey of the long post-war boom, it analyses the effects of Australia’s relations with its major allies on domestic and foreign policies. The subject concludes with a study of the ways in which recent governments have tried to adapt national interests to a rapidly changing world.

Recommended reading

AP224/ The Emergence of Modern Asia
AP334
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Essays; Tests
A subject in the Bachelor of Social Science and the Bachelor of Arts.
This subject is normally undertaken as a Stage 2 subject (AP224) but may also be taken as a Stage 3 subject (AP324) with appropriate adjustment to the assessment.

Aims and objectives
This subject provides an introduction to the political and economic development of East and Southeast Asia, with an emphasis on contemporary issues, and on the international context.

Content
It examines the impact of the West, nationalism and communism, decolonisation and post-independence developments. It examines the emergence of two rival ‘models’ of development produced by China and Japan, the international framework within which this occurred, and their adoption by other countries, and the problems they have run into. It examines the relationship between political and military power and economic development in East and Southeast Asia, and the arguments between supporters of the ‘developmental state’ approach, communism and free enterprise. It concludes with an examination of the East Asia economic crisis of the late 1970s and its political consequences.

Recommended reading

AP225/ Australia and Asia
AP325
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Essays; Tests
A subject in the Bachelor of Social Science and the Bachelor of Arts.
This subject is normally undertaken as a Stage 2 subject (AP225) but may also be taken as a Stage 3 subject (AP325) with appropriate adjustment to the assessment.

Aims and objectives
As a small, open and relatively affluent nation, Australia's success in many spheres of activity depends on its relations with the outside world. While modern Australia is mainly British in origin, it has in recent decades been seeking to integrate more with the Asia Pacific region. The Howard government has affirmed that this will remain the top priority in Australian foreign relations.

Content
This subject examines the evolution of Australian foreign policy towards the region, the processes through which it is made, and Australia's policies on major issues including defence and security, trade, development assistance, human rights, refugee settlement, and Australia's role on bodies such as the UN and APEC. It also appraises Australia's relations with particular countries, in particular Japan, China, Indonesia and the Mekong region (Burma [Myanmar], Thailand, Laos, Vietnam and Cambodia).

Recommended reading
Evan, G and Grant, B., Australia's Foreign Relations in the World of the 1980s, 2nd ed, Melbourne, Melbourne University Press, 1995
Mediansky, F., Australian Foreign Policy: Into the Millennium, South Melbourne, Macmillan, 1997

AP323/ Development and Democratization in AP223 East Asia
AP223
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Essays; Tests
A subject in the Bachelor of Social Science and the Bachelor of Arts.
This subject is normally undertaken as a Stage 2 subject (AP223) but may be taken as a Stage 2 subject (AP223) with appropriate adjustment to the assessment.

Recommended reading
Osborne, M., Southeast Asia: An Introductory History, 6th ed, Sydney, Allen and Unwin, 1997

AS100 Sociology 1A
( Introductory Sociology)
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: nil, but note that AS100 and AS101 are normally taken in the one year • Corequisites: Nil • Assessment: one essay and examination
A subject in the Bachelor of Social Science and the Bachelor of Arts.

Content
Sociology is the study of human social life, groups and societies. Sociology 1A examines basic principles of human social life, including cultural diversity, socialisation, types of society, social interaction and everyday life, gender and sexuality, ethnicity and race, and stratification and class structure. More generally, the course is constructed around the themes of the world in change, the globalising of social life, and the relationship between the social and the personal. The course also introduces the methods and theories used by sociologists in conducting social research.

Recommended reading

AS101 Sociology 1B
(Social Policy and the Family)
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AS100, other than by special application to course convenor • Corequisites: Nil • Assessment: Essays; Examinations
A subject in the Bachelor of Social Science and the Bachelor of Arts.
Content
Sociology 1B builds on the concepts and theories introduced in Sociology 1A and applies them to two specific fields of study: social policy and the family. The first part of the course focuses on the way that ideology affects the formulation and application of social policies, and how this finds its expression in different social policy systems. Australian social policy is compared to other western countries. The second part of the course addresses theories of the family, the social context in which families operate, and the core relationships in contemporary families, including different family types. It also examines broad processes of family change as it has unfolded in various countries in Western Europe, North America, East Asia and Oceania. At critical points connections are made between families and social policies.

Recommended reading
George, V. and Taylor-Gooby, P. (eds.)., European Welfare Policy. Squaring the Circle, MacMillan, Hampshire

AS298 Sociology of Deviance and Social Control
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AS100 Sociology 1A and AS101 Sociology 1B • Corequisites: Nil • Assessment: Continuous
A subject in the Bachelor of Social Science and the Bachelor of Arts.

Aims and objectives
The study of deviant behaviour and social control raises questions about the nature of social order and the use of knowledge and power by some groups in society to reinforce their positions of dominance and control. This subject deals with persons and actions defined as socially unacceptable and the attempts to control, reform or eliminate them.

Content
The first part of the subject examines the contributions a variety of sociological perspectives have made to the understanding of deviant behaviour and the social responses it evokes. Three main arenas of control: the criminal justice system, the medical, psychiatric, or therapeutic system and the welfare system will be analysed in the second section of the course.

Finally, the ways in which a sociological approach can inform policy and practice in a number of specific social problem areas such as child abuse, corporate crime, domestic violence and AIDS will be identified.

Recommended reading
Edwards, A., Regulation and Representation, Sydney, Allen Unwin, 1995

AS299 Sex and Gender in Society
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AS100 and either AS101 or AP116 for students majoring in Australian studies • Corequisites: Nil • Assessment: Essay; Examinations
A subject in the Bachelor of Social Science and the Bachelor of Arts.

Aims and objectives
Sex and Gender in Society examines the ways in which the biological differences between men and women are socially structured to produce gender differences within and between societies. It analyses arguments about male-female differences, gender identity and sexual identity.

Content
The subject examines key social institutions and practices, including work, family, sexuality, and violence. There is a focus upon recent developments and controversies, including sexual harassment, transsexuality, technology, body image and the men’s movement. The course concentrates upon gender relations in Australian society, but makes regular comparisons with gender relations in other societies.

Recommended reading
Hughes, K.P. ed., Contemporary Australian Feminism, Melbourne, Longman Cheshire, 1994

AS310 Sociology of Organisations
16.6 Credit Points • 3 hours per week • Hawthorn • Prerequisite: for students majoring in Sociology, three stage two sociology subjects • Corequisites: Nil • Assessment: Essays; Examinations
A subject in the Bachelor of Social Science and the Bachelor of Arts.

Aims and objectives
The twentieth century is the age of the large organisation. In particular, it is distinguished by the emergence of giant multi-divisional corporations, often impersonally owned and bureaucratically managed, and global in their operations.

Content
Sociology of Organisations examines the major explanations of large organisational structures. It then considers aspects of organisations, including organisational culture, gender patterns, technology, corporate networks and power. It addresses organisational restructuring, the emergence of new corporate forms and the resurgence of small businesses in the late twentieth century.

Recommended reading

AS311 Environment and Population
16.6 Credit Points • 3 hours per week • Hawthorn • Prerequisite: For students majoring in sociology, three stage two sociology subjects Corequisites: Nil • Assessment: Continuous
A subject in the Bachelor of Social Science and the Bachelor of Arts.

Content
This subject analyses the effects of different forms of social organisation on the natural environment, concentrating on the degree to which environmental stress is caused by population growth and the degree to which it is caused by inappropriate use of resources. It compares specific problems in Australia with the global situation.

The subject is organised on a seminar basis and emphasises student participation.

Recommended reading
Commoner, B., Making Peace with the Planet, New York, Pantheon Books, 1990
Harding, G., Living Within Limits, New York, Oxford University Press, 1993

AS540 Public Health Policy
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: seminar paper (40%); assignment (60%)
A subject in the Master of Arts in Health Psychology.

Aims and objectives
This subject aims to develop a critical awareness of policy issues in the health care system. The subject reviews major theoretical and ideological approaches to public health policy and examines the impact of social, political and economic factors on the development and implementation of health policy.

Students are introduced to key processes in policy making including problem identification, policy implementation, program evaluation and monitoring. The subject also seeks to compare Australian health policy to health policy developments in a number of other societies.

Content
Topics include:
• Types of Health Care Systems
• Public Policy Analysis and Health Care
• Policy Implementation
• Mental Health
• Ageing and Health
• Technology and Health
• Disease Prevention and Health Promotion
• Occupational Health and Safety

Recommended reading
ASM200 Cyber Cities

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AS100 and AS101 • Corequisites: Nil • Assessment: Continuous
A subject in the Bachelor of Arts and the Bachelor of Social Science.

Aims and objectives
This subject is about the future of cities. By the next century the greater bulk of the world's population will live in cities and the management of such cities will represent one of the greatest challenges facing human kind. This course is about one of the key processes shaping urban form and urban life, ie, changes in technology and particularly information technology. The aim of the course is to introduce students to the nature of that technology and to develop various frameworks by which we can analyse and debate the likely implications of such technology on urban form. The subject itself is a symbol of the subject matter it purports to teach as much of the way it is taught reflects the new technology such as computer games, architectural simulations and the world wide web.

Content
The course is offered in web format supplemented by conventional teaching methods.

Recommended reading
Castells, M.(1996), The Rise of the Network Society. The Information Age: Economy, Society and Culture: Volume 1, Blackwells, Massachusetts
Sandercock, L.,(1998), Towards Cosmopolis, John Wiley and Sons, Chichester

ASM300 Sociology of the Electronic Age

16.6 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Three Stage two sociology or politics subjects • Corequisites: Nil • Assessment: Assignments; Examinations
A subject in the Bachelor of Social Science and the Bachelor of Arts.

Aims and objectives
This subject deals with the social issues raised by the growth of information and telecommunications technologies (ICTs) and their applications in real social settings. It looks at the social context in which such technologies have been designed and developed as well as the impact of the technologies on the way people conduct business and interact with each other. It considers the social structures which have developed around ICTs and the implications this has for standards of living, distribution of wealth and political activity.

Content
Major topics covered include:
- information technology, the economy and work
- the Internet
- electronic commerce
- privacy and surveillance
- social theories of the ‘Information Age’

Recommended reading
Webster, F.,(1995) Theories of Information Society, London, RKP

ASP300/ Public Policy in Australia

ASP200

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Continuous
A subject in the Bachelor of Social Science and the Bachelor of Arts. This subject is normally undertaken as a Stage 3 subject (ASP300) but may be taken as a Stage 2 subject (ASP200) with appropriate adjustment to the assessment.

Content
This subject examines the decision and policy-making structures and processes of the Australian Federal Government. While the focus is on the Federal Government, the role of other institutions and actors is covered, including state governments, business and labour organisations, and other pressure groups. The key issues are approached through a critical evaluation of the Keating and Howard governments. Lectures and workshops deal with selected areas of policy. Students are able to specialize in a particular subject area and are required to submit a policy case study at the end of the semester.

Recommended reading

ASP301/ Work in Australia

ASP201

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: nil • Corequisites: Nil • Assessment: Essays; Participation; Seminar
A subject in the Bachelor of Social Science and the Bachelor of Arts.

This subject is normally undertaken as a Stage 3 subject (ASP301) but may be taken as a Stage 2 subject (ASP201) with appropriate adjustment to assessment.

Content
This subject examines the politics of labour markets and employment in Australia. It traces the changing patterns of blue and white collar work, the role of business, government and unions and the industrial relations system in shaping the workplace. It gives attention to the influence of gender, ethnicity and age, and to the impact of globalization, technological change and unemployment. Particular attention is paid to the causes and consequences labour market reform and deregulation.

Recommended reading
Foa, C., Working Australia, St Leonards, Allen & Unwin, 1991

ASP302 Methodology of Social Research

16.6 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Three stage two sociology or politics subjects • Corequisites: Nil • Assessment: Continuous.
A subject in the Bachelor of Social Science and the Bachelor of Arts.

Note: This subject must be undertaken by students completing a major in sociology.

Aims and Objectives
This subject provides an understanding of the range of methodologies that link sociological theory with social research practices, and offers an opportunity for practical experience in research by using different methods and designs.

Content
The subject has a strong applied focus and examines the relationship between theory, research design and policy. Students are introduced to a range of methods of data gathering, data analysis and presentation of results, using both quantitative and qualitative strategies. Each student will carry out a substantial piece of independent research under staff supervision.

Recommended reading
Neuman, W. L. Social Research Methods, 3rd edn, Boston, Allyn and Bacon, 1997
Bettis, K. and Seitz, A. Writing Essays and Research Reports in the Social Sciences, Melbourne, Thomas Nelson, 1994

ASP304 Sociology and Social Policy

16.6 Credit Points • 3 hours per week • Hawthorn • Prerequisite: At least two stage two sociology or politics subjects • Corequisites: Nil • Assessment: Continuous.
A subject in the Bachelor of Social Science and the Bachelor of Arts.

Content
This subject reviews major theoretical and ideological approaches to social policy and introduces students to key policy issues, such as problem identification, policy implementation, evaluation and monitoring. Particular attention is given to the analysis of health policy in a number of key areas such as women’s health, mental illness, ageing, medical technology, chronic illness and disability. The subject also
seeks to compare Australian health policy to health policy developments in a number of other societies.

**Recommended reading**

**ASP305 Models of Social Analysis**
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AS100 and AS101, and AP116 for students majoring in Australian Studies • Corequisites: Nil • Assessment: Assignments; Examinations
A subject in the Bachelor of Social Science and the Bachelor of Arts.

**Aims and objectives**
No application of sociological techniques can be productive without an understanding of the theoretical issues which inform social explanation. This subject is designed to help students consolidate and extend their knowledge of social theory and to explore the ways in which social theory is useful in addressing practical issues in social policy and research.

**Content**
This subject examines the most influential social theories, their sources in nineteenth century thought and their influence on present-day social thinking. The works of Marx, Weber and Durkheim and contemporary writings which build on their ideas are discussed. Feminist and post-modern theories are also examined. Theories are analysed for their core assumptions, ideological foundations and approaches to knowledge. Class discussions are designed to enable students to link these theoretical debates to current social issues and to practical strategies of social research.

**Recommended reading**

**AT116 Linguistics 1**
3 hours per week • Hawthorn • Prerequisite: Nil • Assessment: Continuous
A subject in the Bachelor of Arts

**Aims and objectives**
In this subject, basic linguistic concepts are introduced which are necessary to the understanding of the mechanics of language. The topics studied include sound systems of human speech, the combination of sounds into words, the rules for combining words into sentences, the study of meaning, the role of discourse, and language usage within a social system. Although most of the examples are taken from the English language, their applicability to Japanese, Korean, Italian and other languages is also explained. Students undertaking foreign language majors are highly recommended to include this subject in their course. It is also available to students not studying languages.

**Recommended reading**

**AT199 Academic Communication Skills**
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: continuous; and will be based on classwork; a journal and essay
A subject in the Bachelor of Arts and the Bachelor of Social Science.
This subject is strongly recommended for all first year international students.

**Aims and objectives**
This subject is designed specifically for international students. It seeks to explicitly teach techniques in academic skills which aid in the transition to Australian tertiary academic life.

**Content**
The course incorporates classes in advanced reading, research techniques, essay writing, discussion skills analysis and criticism. These skills are taught within a framework of English as a second language. It is taught through several themes which examine cultural issues and values in the Australian setting. As well it seeks to orient students to different disciplinary thinking by viewing these themes from different subject perspectives.

**Recommended reading**

**AT160 Mandarin Chinese for Native Speakers of Cantonese 1A**
12.5 Credit Points • Hawthorn • Prerequisite: Nil • Assessment: Continuous
A subject in the Bachelor of Arts.

**Aims and objectives**
This subject, offered as an elective, is designed specifically to provide speakers of Cantonese with competence in spoken Mandarin Chinese. Students admitted to the program are expected to be fully competent in written Chinese.

**Content**
The coursework is based on a variety of unabridged texts (academic, business and similar) to provide training in Mandarin Chinese pronunciation and appropriate Mandarin Chinese vocabulary.

**Textbook**

**AT161 Mandarin Chinese for Native Speakers of Cantonese 1B**
12.5 Credit Points • Hawthorn • Prerequisite: AT160 or equivalent • Assessment: Continuous
A subject in the Bachelor of Arts

**Aims and objectives**
This subject, offered as an elective, is designed specifically to provide speakers of Cantonese with competence in spoken Mandarin Chinese. Students admitted to the program are expected to be fully competent in written Chinese.

**Content**
The coursework is based on a variety of unabridged texts (academic, business and similar) to provide training in Mandarin Chinese pronunciation and appropriate Mandarin Chinese vocabulary.

**Textbook**

**AY100 Psychology 100**
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: MA103 Statistics and Research Methods 1 (Previously SM103) • Assessment: Examinations; Pracs; Practical Examination
A subject in the Bachelor of Social Science, Bachelor of Arts and Bachelor of Applied Science.

**Aims and objectives**
AY100 and AY101 are designed to introduce students to the content and method of psychology.

**Content**
Topics introduced in AY100 include psychology as a science, ethics in research, biological foundations of behaviour, sensation, perception and consciousness, emotion and learning.

Students wishing to familiarise themselves with concepts in psychology could read any recent introductory psychology text available from most regional libraries.

Details will be provided in the first lecture in AY100.
AY101 Psychology 101
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AY100 Psychology 100
MA103 Statistics and Research Methods 1 (Previously SM103) • Corequisites: MA103 Statistics and Research Methods 1 (Previously SM103) may also be co-requisite. • Assessment: Essays; Examinations; Pracs
A subject in the Bachelor of Social Science, Bachelor of Arts and Bachelor of Applied Science.

Aims and objectives
This subject concentrates on various aspects of cognition such as memory, thinking, language, intelligence and problem solving. Other topics covered include personality, sexuality, stress and coping and psychopathology. Students are also introduced to social and developmental psychology.

Content
Students wishing to familiarise themselves with concepts in psychology could read any recent introductory psychology text available from most regional libraries. Details will be provided in the first lecture.

AY205 Cognition and Human Performance
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AY100 Psychology 100 and AY101 Psychology 101, MA278 Design & Measurement 2A (Previously SM278) • Corequisites: Nil • Assessment: Practical Examination
A subject in the Bachelor of Social Science, Bachelor of Arts and Bachelor of Applied Science.

Aims and objectives
This subject examines theories of cognitive functioning and processes, including perception, attention, memory, action, categorisation, language, problem-solving and decision making. The aim is to provide up-to-date coverage of recent theoretical and methodological advancements in cognitive psychology.

Content
Students will be introduced to the three major perspectives that define current cognitive psychology: experimental cognitive psychology, cognitive science, and cognitive neuropsychology. In addition, some contemporary issues and applications of the theories will be considered. The teaching program involves two lectures, a tutorial/practical session and an average of one hour of project work per week.

Recommended reading

AY206 Developmental Psychology
12.5 Credit Points • 4 hours per week • Hawthorn • Prerequisite: AY100 Psychology 100 and AY101 Psychology 101 • Corequisites: MA278 Design and Measurement 2A (Previously SM278) • Assessment: Examinations; Reports
A subject in the Bachelor of Social Science, Bachelor of Arts and Bachelor of Applied Science.

Aims and objectives
This subject focuses on development and maturation in the early periods of life from infancy and childhood through to adolescence. The emphasis is on social, emotional, cognitive and intellectual development with a comprehensive experiential and experimental program supporting the theoretical material. The teaching program consists of two lectures, a practical session and/or a tutorial class per week.

Recommended reading

AY207 Social Psychology
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AY100 Psychology 100 and AY101 Psychology 101, MA278 Design & Measurement 2A (Previously SM278) • Corequisites: Nil • Assessment: Essays; Examinations; Pracs
A subject in the Bachelor of Social Science, Bachelor of Arts and the Bachelor of Applied Science.

Aims and objectives
This subject involves the scientific study of behaviour in social context. The aim is to introduce students to the key theories and research methods used by social psychologists to explain and predict people’s thoughts, feelings and actions in social situations.

Content
Some areas to which social psychological knowledge is often applied, such as culture, health and law, are also covered.

Recommended reading

AY308 The Psychology of Personality
16.6 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AY202 Cognition and Human Performance, AY203 Developmental Psychology, AY204 Social Psychology, MA278 Design & Measurement 2A (Previously SM278) • Corequisites: MA278 Design & Measurement 3 (Previously SM278) • Assessment: Examinations; Research Paper
A subject in the Bachelor of Social Science, the Bachelor of Arts, and the Bachelor of Applied Science.

Aims and objectives
This subject focuses on the behaviour and experience of the individual as a whole person. Theory and research from other fields of psychology such as development, social interaction, learning, motivation, cognition, and emotion are considered specifically from the viewpoint of integrating such contributions to increase our understanding of ourselves and others as persons.

Content
Four major perspectives on personality are examined: psychodynamic, dispositional, cognitive/behavioural, and phenomenological. Issues such as methods of personality assessment and research strategies are considered. Selected contemporary issues are also examined including developments in psychodynamic theory and cognitive, social and narrative views of self.

Recommended reading

AY309 Psychological Measurement
8.3 Credit Points • 2 hours per week • Hawthorn • Prerequisite: AY202 Cognition & Human Performance, AY203 Developmental Psychology, AY204 Social Psychology • Assessment: Tests
A subject in the Bachelor of Social Science, the Bachelor of Arts, and the Bachelor of Applied Science.

Equivalent value of one half-semester subject (8.3 credit points) in 1999.

Will be 12.5 credit points from 2000.

Aims and objectives
The aim of this subject is to help students to develop a greater appreciation of the psychological and measurement foundations of tests and other assessment procedures.

Content
In this subject, students will be involved with the practical aspects of psychometrics design, construction, validation and evaluation of assessment techniques. Approximately the first hour of most of the two hour sessions will be devoted to information input and the latter hour to laboratory exercises.

Recommended reading

AY321 Abnormal Psychology
8.3 Credit Points • 2 hours per week • Hawthorn • Prerequisite: AY312 Psychology of Personality • Corequisites: Nil • Assessment: Essays; Examinations
A subject in the Bachelor of Social Science, the Bachelor of Arts, and the Bachelor of Applied Science.

Equivalent value of one half-semester subject (8.3 credit points) in 1999.

Will be 12.5 credit points from 2000.
Aims and objectives
AY321 is designed to introduce students to the ways in which human behaviour patterns have been conceptualised as ‘abnormal’ or dysfunctional. In examining such abnormal behaviours students are introduced to major systems of classifying mental disorders, in particular the multiaxial systems adopted in DSM-IV and ICD-10. The course then focuses on major examples of mental disorders in terms of their phenomenology and nosology as well as theories about aetiology.

Content
The general approach taken to understanding disorders is multidimensional seeking to integrate information from biological, sociocultural and psychological research. Specific disorders examined may include: schizophrenia, affective disorders, anxiety disorders, eating disorders, substance related disorders, disorders first diagnosed in childhood and adolescence, dissociative disorders, intellectual disability or personality disorders. Additional topics covered may include suicide and violent behaviours, mental disorders and the law.

Recommended reading

AY431 Thesis A
10 Credit Points • 2 hours per week for five weeks; mini conference participation • Hawthorn • Prerequisite: Nil • Assessment: Course presentations
A subject in the Graduate Diploma of Social Science in Psychology.

Aims and objectives
The aim of the subject is to facilitate students to design and develop their 4th-year thesis project.

Content
After an introductory lecture that provides an overview of research process and different research paradigms, workshops will help students familiarise themselves with a wider variety of research designs and analytical tools that are currently available for basic and applied researchers, including meta-analysis, structural equation modelling, and qualitative designs. The goal is to gain some basic understanding of these methods and to consider possible ways to use these methods in students’ own research. In order to pass the subject, students are also required to present their thesis project at the mini-conference.

Recommended reading

AY432 Advanced Quantitative Methods
10 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: classroom test 60%; workbook 40%
A subject in the Graduate Diploma of Social Science in Psychology.

Aims and objectives
This subject provides a conceptual framework for understanding multivariate analysis and interpretation of psychological data, and an opportunity to become familiar with the use of a range of multivariate techniques. These include interrupted time series analysis, analysis of variance and covariance, multiple regression analysis, multiple and logistic regression techniques, cluster and factor analysis, discriminant function analysis, path analysis, and structural equation modelling.

Content
Both lecture presentation and laboratory work involve practical analyses of the real data sets using SPSS. Students are expected to achieve a high level of competence in multivariate analyses, which allows them to analyse the complex data sets in their final research projects.

Recommended reading

AY433 Psychological Assessment
10 Credit Points • 2 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Case Studies; Examinations; Reports
A subject in the Graduate Diploma of Social Science in Psychology.

Aims and objectives
This subject equips students with the knowledge and skills required to carry out limited psychological assessments of individuals in human services and human resources settings under appropriate professional supervision.

Content
Topics covered in the subject include:
- history of psychological assessment, ethical issues in the use of psychological tests;
- assessment as a decision making process; base rates, outcome expectancies, prediction, risk assessment;
- the foundations of assessment, reliability, validity, utility (normative comparison);
- eliciting information by means of interviews;
- assessing abilities and aptitudes;
- assessing interests;
- conceptualising and assessing personality;
- reporting assessments;
- selected special issues, including career assessment.

Recommended reading

AY434 Applied Social Psychology
10 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Assignments; Reports
A subject in the Graduate Diploma of Social Science in Psychology.

Content
This subject provides an overview of contemporary applications of social psychology in the fields of educational psychology, cross-cultural psychology, forensic psychology and counselling psychology. This is illustrated by an overview of the current research and theories relevant to practical applications of social psychology. The methodological questions relevant to research and measurement in social psychology are critically analysed. Lecture materials are supplemented by interactive analyses of classic or contemporary readings in social psychology, presented in seminars following the lecture.

Recommended reading

AY435 Organisational Psychology
10 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Oral presentation 10%; written assignment 50%; examination 40%
A subject in the Graduate Diploma of Social Science in Psychology.

Not offered in 1999.

Aims and objectives
To familiarise students with the major theories and research in organisational psychology.

Content
This subject is concerned with the role of the psychologist within organisations. It reviews contemporary theory, research and practice in regard to the psycho-social aspects of interrelationships and roles within organisations. It will examine: leadership, motivation, organisational climate and culture, stress and well-being, organisational change and development. It aims to familiarise participants with
the dynamics of individual interactions and behaviours in work settings. It reviews contemporary theory, research and practice in regard to the psycho-social aspects of inter-relationships and roles within organisations. It will examine perceptions, values and attitudes of individuals, culture, power and influence; communication networks.

**Recommended reading**

**AY436 Research Project and Report**
10 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Written report (max. 10,000 words), oral presentation
A subject in the Graduate Diploma of Social Science in Applied Psychology. Independent research under supervision.

**Recommended reading**
- *Swinburne Psychology Department, Graduate Diploma in Applied Psychology Report Requirements*. Melbourne, Swinburne Press, 1993
- *Swinburne Psychology Department, Statement on Research Ethics*. Melbourne, Swinburne Press, 1986

**AY437 Ethical and Professional Issues**
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Class presentations; Essays; Participation; Tests
A subject in the Psychology Honours program and the Graduate Diploma of Social Science in Applied Psychology.

**Content**
Topics will be selected from the following list:
- Psychology as a profession;
- Requirements for registration in the State of Victoria and the Australian Psychological Society;
- Confidentiality;
- Report writing and supervision;
- Philosophical and professional issues morality and ethicals professional problems;
- Psychology and the law, forensic psychology, and the psychologist as expert witness.

**Recommended reading**

**AY438 Counselling Psychology**
10 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Assignments; Examinations
A subject in the Graduate Diploma of Social Science in Applied Psychology.

**Content**
- Contemporary theory and research in counselling psychology.
- Models of training in counselling and interviewing.
- Experiential training in counselling.
- Counselling service delivery systems.
- Evaluating and monitoring counselling service programs.
- Contemporary theory and practice in small group psychology; group facilitation skills.

**Recommended reading**

**AY444 Foundations of Counselling**
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Practical Examination
A subject in the Graduate Diploma of Social Science (Human Services - Counselling).

**Aims and objectives**
The aim of this subject is to provide students with knowledge of counselling theory and practice; counselling skills training; establishing and operating counselling services; evaluating counselling services.

Students are encouraged to develop their awareness of the impact of attitudes, beliefs, and ideologies in the counselling process and to improve their interpersonal communication skills accordingly.

The emphasis of the subject is on experiential learning so as to provide students with the opportunity to acquire skills which will enable them to be helpful to people experiencing concerns about a variety of issues.

**Content**
Topics include:
- Introduction to Counselling
- Effective helping; basic skills
- Listening and attending
- Empathy and relationship building
- The initial interview
- Interventions; behavioural, cognitive-behavioural, affective, systems and groups
- Special issues in Counselling; Counselling across cultures; Counselling settings
- Counselling evaluation

**Recommended reading**

**AY445 Ethical and Social Issues for Counsellors**
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Case Studies; Oral Presentation
A subject in the Graduate Diploma of Social Science (Human Services - Counselling).

**Aims and objectives**
The aim of this subject is to examine ethical and social issues which confront the counsellor working in the Human Services.

Drawing on the ethical codes of several professions (eg. psychologists, social workers and nurses) this subject emphasises becoming aware of, and applying in practice, good ethical principles and procedures.

Because the students in this program are not necessarily affiliated with any professional organisation, particular emphasis is placed on establishing a personal code of conduct and the difficulties that can arise when the practices of the individual workplace contradict that code. Case studies and discussion are used to exemplify these ethical dilemmas.

**Content**
Topics include:
- Ethical principles; competence, integrity, respect for dignity, beneficence / maleficence, social responsibility.
- Values in the counselling process
- Ethical decision making
- Confidentiality
- Report writing/record keeping/testing
- Managing boundaries and multiple relationships
- Multicultural issues
- The Counsellor in the community
Recommended reading

AY446 Advanced Counselling: Assessment and Behaviour Change
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: AY444 • Corequisites: Nil • Assessment: Practical Examination; Report
A subject in the Graduate Diploma of Social Science (Human Services - Counselling)

Aims and objectives
This course is designed to build on the curriculum provided in Foundations of Counselling and introduces a range of issues and life problems to which counselling interventions can be applied.

Assessment issues such as suicide and dangerousness, child abuse, clinical decision making and psychiatric disturbance are covered. A range of appropriate interventions are introduced including the use of social supports and other resources.

Content
Topics include:
- Assessment issues; single-session therapy
- Depression
- Anxiety
- Anger management
- Stress management
- Psychiatric disturbance
- Couple and group counselling
- Community based interventions
- The referral process

Recommended reading

AY447 Issues for Special Population Groups
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Oral Presentation; Report
A subject in the Graduate Diploma of Social Science (Human Services - Counselling)

Aims and objectives
This subject focuses on lifespan developmental and adaptational issues.

Students are introduced to the special issues related to working with children, adolescent and geriatric clients. In particular, it examines current research and practice concerning the assessment and treatment of these client groups.

Content
Topics include:
- Lifespan development
- Counselling of children and young people; working with families
- Counselling with young adults; career development
- Counselling in mid-life issues; counselling in the workplace
- Counselling with older adults; working with caregivers
- Counselling people with a disability

Recommended reading

AY448 Special Application Subject: Trauma, Loss and Grief
25 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Assignments; Practical Examination
A subject in the Graduate Diploma of Social Science (Human Services - Counselling)

Aims and objectives
This subject provides students with the skills necessary to assess and help those suffering from Post-traumatic stress disorder (PTSD) and with grief and bereavement issues. Students are trained in debriefing techniques and exposed to the extensive literature and practice of loss and grief counselling.

Content
The course confronts the fear of mortality, promoting self-awareness and self-nurturing in carers, recognising fear, anxiety and anger in those who have been abused or suffered grief and develops the skills necessary to help others work through this process.

Students are also taught to recognise that many professionals whose job involves working with trauma - police, fire, ambulance and medical staff and others - can themselves become traumatised and adequate support is essential to prevent secondary traumatisation from occurring in these industries.

Recommended reading

AY449 Special Application Subject: Addiction Counselling
25 Credit Points • 3 hours per week • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Assignments; Practical Examination
A subject in the Graduate Diploma of Social Science (Human Services - Counselling)

Aims and objectives
This course introduces students to the specialised counselling areas of smoking and alcohol abuse, drug abuse, eating disorders, gambling and other addictive behaviours.

It describes the history of theories of addictive behaviours and the shift from a disease model of addiction to the social learning theory perspective. The course discusses the stages of addiction in the context of this model and examines the similarities and differences between addictive behaviours.

There is an emphasis on the wide variety of treatment approaches applied to these problems and the evaluation of their effectiveness. This emphasis is reinforced by inviting guest lecturers to speak on a number of specialist treatment areas.

Content
Topics include:
- What is an addiction?
- Smoking
- Alcohol
- Eating and caffeine
- Prescription drugs
- Illegal drugs
- Gambling and other behavioural addictions; eg. Exercise, work, sex, shopping.

For each topic area the course will look at: initiating and maintaining the behaviour, the effects of cessation of the behaviour, relapse and treatment models.

Recommended reading
AY450 Supervised Practice A
AY451 Supervised Practice B

25 Credit Points  •  equivalent 40 counselling hours per subject  •  Hawthorn  •  Prerequisite: AY444, AY445  •  Corequisites: Nil  •  Assessment: Participation; Report

Subjects in the Graduate Diploma of Social Science (Human Services - Counselling).

Aims and objectives
The ‘practice’ subjects are designed as an optional alternative to the special application subjects, based on student’s individual needs and access to suitable placements. Only those students currently working in, or able to gain appropriate experience in counselling agencies are permitted to take a work placement in preference to coursework.

Content
The first placement is concerned primarily with helping students to make the transition from theory to practice. Students, after completing the Foundations of Counselling and Ethics subjects may be, according to skill, experience and access to suitable agencies, placed at counselling services where they are required to engage in general counselling activities and perhaps some administrative duties. Following the completion of the more advanced counselling subjects, students may be encouraged to gain experience in a particular area of interest (e.g. Education, health, drug and alcohol, community etc.) through a second placement which must substantially differ from the first in either client/agency type or nature of work involved. In addition to being supervised on the job, students meet regularly with a supervisor from Swinburne University for group case meetings.

AY510 Human Services Research and Evaluation

12.5 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: Class presentations; Research Paper

A subject in the Master of Arts in Counselling Psychology and the Master of Arts in Health Psychology.

Aims and objectives
This course will build upon knowledge and skills acquired during undergraduate study in areas such as research design and statistical analysis. The aim will be to equip graduates to design, conduct and report applications of psychological research methodologies in human services settings.

Content
Topics include:
- research design in field settings;
- measurement in human services research;
- qualitative research methodologies;
- meta-analysis;
- program evaluation methods and designs;
- collecting and analysing evaluation data;
- reporting research.

Recommended reading

AY512 Counselling Theory and Skills

12.5 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: Examinations; Practical Examination

A subject in the Master of Arts in Counselling Psychology and the Master of Arts in Health Psychology.

Aims and objectives
This subject is intended first to consolidate students’ counselling-related knowledge and skills acquired during undergraduate study. The second aim is to develop a high level of skill in those help-intended communication behaviours seen as fundamental to effective interpersonal helping. The third aim is to develop a basic level of competence in selected intervention techniques used frequently by counselling psychologists.

Content
Topics include:
- the development of counselling and counselling psychology;
- developments in counsellor education;
- models of the counselling process;
- behavioural model, the work of Egan. The client-counsellor relationship, goals of helping;
- developing competence in counselling skills through microcounselling skill-based training;
- assessment: problem-conceptualisation, selected interventions.

Recommended reading

AY513 Research Colloquium

12.5 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Assessment: presentation of a research proposal 50%; submission of literature review 50%

A subject in the Master of Arts in Counselling Psychology and the Master of Arts in Health Psychology.

Aims and objectives
This subject is designed to extend students’ appreciation of developments in research related to counselling psychology.

Content
Students in the program give brief presentations concerning their proposed individual research projects, and submit an extensive literature review related to their research project.

Recommended reading

AY515 Psychological Assessment

12.5 Credit Points  •  3 hours per week  •  Hawthorn  •  Prerequisite: Nil  •  Corequisites: Nil  •  Assessment: Practical Examination

A subject in the Master of Arts in Counselling Psychology and the Master of Arts in Health Psychology.

Aims and objectives
This subject builds upon knowledge of psychometrics gained from undergraduate study and is intended to equip graduates with skills in a selection of psychological assessment procedures.

Content
Topics include:
- a review of the foundations of psychological assessment including reliability, validity;
- procedures for establishing and improving the reliability and validity of assessment procedures;
- the assessment interview and Psychodiagnostic Systems (eg. DSM-IV);
- assessing abilities including the use of WISC-3 and WAIS-3;
- self-report and projective measures of personality functioning MMPI-2 Rorschach, TAT, CPI, 16PF;
- conceptualising client and social system dynamics;
- reporting psychological assessments.

Recommended reading
Bellack, A.S. and Hersen, M. (eds), Behavioral Assessment, 3rd edn, New York, Pergamon, 1988
Swinburne University of Technology

Croydon Campus
Norton Road, Croydon, Victoria 3136 Australia
Telephone: (03) 9210 1100
Facsimile: (03) 9725 8695

Hawthorn Campus
John Street, Hawthorn, Victoria 3122 Australia
Telephone: (03) 9214 8000
Facsimile: (03) 9819 5454

Healesville Campus
237 Maroondah Highway, Healesville, Victoria 3777 Australia
Telephone: (03) 5957 1800
Facsimile: (03) 5957 1899

Prahran Campus
High Street, Prahran, Victoria 3181 Australia
Telephone: (03) 9214 8000
Facsimile: (03) 9529 5294

Lilydale Campus
Melba Avenue, Lilydale, Victoria 3140 Australia
Telephone: (03) 9215 7000
Facsimile: (03) 9215 7070

Wantirna Campus
369 Stud Road, Wantirna, Victoria 3152 Australia
Telephone: (03) 9210 1100
Facsimile: (03) 9800 3369

Email: info@swin.edu.au
Website: www.swin.edu.au

How to use this Handbook

The Swinburne Handbooks, TAFE and Higher Education, are complete references for prospective and current students to the University’s academic programs and structures. This Handbook is ordered into four main areas: general Swinburne information; undergraduate course information; postgraduate course information and subject details.

To locate a specific course, consult the main contents page, opposite, and identify the course title and page reference you require. All subject details for all courses are contained in the final chapter in alphanumeric order. The subject details are followed by a subject index for quick reference.

General information

All general information about Swinburne services, facilities and administration is listed in the first chapter.

Course descriptions

Courses are listed in alphabetical order within the study level and area. Each course description outlines a course structure which includes a list of required subjects.

Subject details

All subjects or modules may be found in the final chapter of the Handbook. All subjects are allocated a code and are listed in this order. The code is made up of letters and/or numbers. Alternatively, if the subject title is known, consult the Subject Index at the end of the Subject Details section.

Note: In 1999 all subjects offered by the Higher Education Division (Hawthorn/ Prahran) will have the letter ‘H’ added to the alphanumeric code indicating the Division to which the subject belongs eg. all subjects codes commencing with the letter ‘L’ are offered by Swinburne at Lilydale Division.

Subject index

A Subject Index is located at the back of the Handbook for quick reference.

Policies and procedures

A separate publication, the 1999 Higher Education Student Guide, contains official policies, procedures and regulations relating to students. It is freely available from administration offices.

The Higher Education Handbook is published each year. Students should carefully read all official correspondence, the student newspaper 'The Swine', and University noticeboards to be aware of changes to this information.

Caution

While Swinburne University of Technology has used all reasonable care and skill in collating or presenting the information, the University cannot guarantee or take responsibility for the accuracy of the information provided. The information contained in this Handbook is as correct as possible at the date of publication, being December 1998.

The Freedom of Information Act 1982 ("the Act"), which came into force on 5 July 1983, applies to Swinburne University of Technology. The purpose of the Act is to extend the right of access to information to persons requesting a document held by an agency. Applicants are required to lodge their request in writing to the Freedom of Information Officer. It is the policy of the University to conform with the spirit and intent of the Act with regard to disclosure.

Swinburne University of Technology is committed to providing a learning and working environment that is based on equality of opportunity for all.

There has been a total ban on smoking in all University buildings and vehicles since 1 January 1991.
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  - Psychology/Biochemistry
  - Psychology/Physiology
- Bachelor of Health Science
  - Environmental Health Management
- Double Degrees
  - Bachelor of Applied Science (Medical Biophysics) / Bachelor of Engineering (Electrical and Electronic Engineering)
  - Bachelor of Applied Science (Research and Development) / Bachelor of Engineering (Electrical and Electronic Engineering)
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  - Environmental Health
  - Medical Biophysics
  - Psychophysiology

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    - Asian Studies
    - Australian Studies
    - Cultural Studies
    - European Studies
    - Italian Language and Culture
    - Japanese
    - Korean
    - Literature
    - Media Studies
    - Philosophy and Cultural Inquiry
- Bachelor of Arts (Media and Communications)
- Bachelor of Arts (Psychology and Psychophysiology)
- Dual Qualification
  - Bachelor of Arts/Diploma in Business (Administration)
- Honours Year
  - Bachelor of Arts (Honours)
- Bachelor of Social Science
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    - Politics
    - Psychology
    - Sociology
- Bachelor of Social Science (Psychology)
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    - Community Development
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    - Welfare Studies
- Business
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    - Accounting
    - Business Law
    - Business Modelling
    - Economics
  - Finance
  - Human Resource Management/Organisation Behaviour
  - Information Systems
  - International Business
  - Management
  - Manufacturing Management
  - Marketing
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- Bachelor of Business (Human Resource Management)
- Bachelor of Business (Marketing)
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  - Korean
- Honours Year
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  - Computing and Applied Statistics
  - Computing and Advanced Technologies
  - Mathematics and Computing
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- Bachelor of Information Technology
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The coat of arms, conferred on Swinburne by the College of Arms on 25 June 1969, is based on the coat of arms of the Swinburne family.

At a period during the 12th-13th centuries, when the northern counties of England were ruled by the Scots, a knight of France came to the aid of Queen Margaret of Scotland. She rewarded him with a grant of land in what is now Northumberland, on the banks of the Swin Burn, a small river that flows into the North Tyne, where he built a castle. He became known as William Swinburne and soon the county reverted to the crown of England.

The Swinburne family coat of arms in medieval times was silver with three boar’s heads in triangular formation. In the 17th century, during the wars between the Stuart Kings and the Parliament of England, the Swinburnes fought for the royalists. After the restoration of Charles II in 1660, the head of the family was created a baronet for his services. The crest became a baronet’s coronet, with the boar’s head rising from it and the coat of arms, divided horizontally red and silver, was charged three cinquefoils counter-charged.

Swinburne holds a unique place among educational institutions in Australia in the link that persists between it and the founder and his family. The conferring of a modification of the family’s coat of arms preserves and strengthens that link.

The arms: the basic colours of red and white, and the cinquefoils charged on the shield, commemorate the arms of the Swinburne family. The omission of the third cinquefoil which appears in the family coat and the addition of the Bordure and a Boar’s head and the coat of arms, divided horizontally red and silver, was charged three cinquefoils counter-charged.

The arms: the basic colours of red and white, and the cinquefoils charged on the shield, commemorate the arms of the Swinburne family. The omission of the third cinquefoil which appears in the family coat and the addition of the Bordure and the Mullet (Stars) are what are known heraldically as ‘differences’, which may often serve to indicate an association with another armorious body or family. The four Mullet in Cross symbolise the Southern Cross.

The crest: the demi-Boar and the cinquefoil perpetuate the Swinburne connection; the book is symbolic of learning.

The motto: the College of Arms’ translation of the motto is: 

Achievement through learning

A Proud History

The 1992 proclamation by the Parliament of Victoria of the Swinburne University of Technology Act marked not only recognition of its distinguished history, but the beginning of a new period of growth and innovation for Swinburne. From its establishment in 1908 in Melbourne’s eastern suburb of Hawthorn, Swinburne has grown from being a local provider of technical education into a multidisciplinary, multiampus provider of higher education of national and international significance.

Swinburne was established as the Eastern Suburbs Technical College by George Swinburne and the first students were enrolled in 1908, when classes began in carpentry, plumbing and blacksmithing. Soon afterwards, a boys’ junior technical school and the first girls’ technical school in Victoria, were established.

In 1913 the institution changed its name to Swinburne Technical College, to commemorate the Honourable George Swinburne, a former Mayor of Hawthorn and a member of the Parliament of Victoria who was responsible for the initial establishment of the college.

In 1965 Swinburne affiliated with the Victoria Institute of Colleges, which was established in that year by an Act of the Parliament of Victoria, to foster the development and improvement of tertiary education in technical, agricultural, commercial and other fields of learning (including the liberal arts and the humanities) in institutions other than in the universities of Victoria.

The range of courses and the various levels at which they were offered grew to such an extent that in 1989, the boys’ and girls’ technical schools were taken over by the Victorian Education Department while the college remained as an autonomous institution.

An extensive reorganisation of advanced education took place in Victoria in the period 1976-78 culminating in the passing of the Victorian Post-Secondary Education Act. Under the Act the Victorian Institute of Colleges was dissolved and the Victorian Post-Secondary Education Commission established. Under the new arrangements, Swinburne Council was given power to grant bachelor degrees. The first of these was awarded at a conferring ceremony held on Thursday 21 May 1981 at the Camberwell Civic Centre.

Swinburne University of Technology was proclaimed on 1 July 1992. Noted Australian businessman Mr Richard Pratt AO was installed as Swinburne’s Foundation Chancellor on 15 March 1993.

Swinburne Today

Swinburne has a strong reputation in Australia and overseas as a provider of career orientated education and as a university with a commitment to research. The University maintains a strong technology base and important links with industry, complemented by a number of innovative specialist research centres which attract a great deal of international interest.

A feature of many Swinburne undergraduate courses is the applied vocational emphasis and direct industry application through Industry Based Learning (IBL) programs. Swinburne was a pioneer of IBL, a program which places students directly in industry for vocational employment as an integral part of the course structure.

Swinburne now offers the range of courses from apprenticeships to PhDs. In keeping with this breadth of involvement, the University continues to play a leading role in creating new approaches to integration between sectors.

The creation of study pathways between sectors and courses is firmly in place at Swinburne. Current pathways involve moving either from the TAFE sector into Higher Education or from TAFE based VCE studies into full TAFE courses. A limited number of pathways are available for students to move from degree courses into TAFE studies, and this will increase in the future. This process of articulation provides students with greater flexibility to complete tertiary qualifications.

Teaching and learning enhancement is a strategic priority for the University, and Swinburne is committed to the transfer of lifelong learning skills.

Swinburne was founded to provide expanded and more accessible educational opportunities to the residents in the ‘outer east’ of Melbourne. Due to the amalgamation on 1 July 1998 with the former Eastern TAFE, Swinburne’s operations are now conducted at six campuses: Croydon, Hawthorn, Healesville, Lilydale, Prahran and Wantirna. While focusing on its regional responsibilities, Swinburne is heavily involved in international initiatives and plays a significant part in the internationalisation of Australia’s tertiary education system. In 1998 Swinburne established the Laem Chabang School of Engineering in Thailand providing VET programs in electrical/electronic and mechanical engineering, information technology and English language studies.
Mission Statement
Swinburne University of Technology's mission is to be a leading, intersectoral university offering high quality education, training, research and consultancy focused on the needs of industry, business, government and the local, national and international communities.

University Assembly
The University Assembly provides a regular open forum for the discussion of issues and ideas of significant interest to the University community.

The University statute formally establishing the University Assembly sets out its membership and terms of reference. Its membership includes all staff and students of the University.

Meetings of the University Assembly are normally held twice a year. Notice of each meeting and an invitation to submit items for discussion are conveyed to the University community at least one month before the meeting. Details are usually published in The Swine, the newspaper published by the Swinburne Student Union.

Teaching Sectors
Swinburne has two teaching sectors under the control of one Council: Higher Education and Technical and Further Education (TAFE).

Higher Education
The Higher Education Sector offers professional qualifications ranging from degrees of Bachelor to graduate qualifications (certificates, diplomas and degrees of Master and PhD).

The Higher Education Sector comprises two divisions: the Higher Education Division (Hawthorn / Prahran) and Swinburne at Lilydale Division.

A total of 11,221 students were enrolled in the Higher Education Sector in 1998, made up of 7,108 full-time students and 4,113 part-time students.

Technical and Further Education (TAFE)
The TAFE Sector offers courses at professional and para-professional level covering diploma, certificate, apprenticeship, VCE and access programs. A number of specialist courses are also provided for industry and the community.

The TAFE Sector comprises four Teaching Operations: Business and Industry; Community Services, Health and Access; Engineering Technology and Computing; Sciences, Hospitality and Arts.

A total of 27,903 students were enrolled into TAFE courses in 1997, made up of 6,065 full-time students and 21,838 part-time students.
Hawthorn Campus

John Street, Hawthorn, 3122
Melway ref: 45 E10
General enquiries: (03) 9214 8000

Hawthorn, Swinburne’s original campus, is home to the central administration, and the bulk of its undergraduate and postgraduate programs. It is also the site of many of Swinburne’s research and training centres.

The Hawthorn campus offers a wide variety of short courses through the Centre for Business Development and Training, and also through the various schools, departments and centres of the Higher Education and TAFE Divisions.

The campus has expanded from its original single building of 1908 to cover a sizeable area from Burwood Road to Park Street in the north, and across to Henry Street in the east. It boasts four impressive new TAFE buildings with excellent student computer laboratories, practical science laboratories and major engineering technological facilities.

In late 1999 a state-of-the-art Graduate School of Management building and further residential accommodation will open.

Both TAFE and Higher Education students enjoy the extensive four-storey library, the bookshop, cafeterias, sports centre, Student Union and other services. A student residence and carpark includes an 86 bedroom residential college, 38 two and three bedroom apartments and parking for 680 cars.

The Hawthorn Campus is located seven kilometres east of the city, and is easily accessible by train and tram. The campus is situated in the heart of Hawthorn and is close to restaurants, cafes and shops.
Prahran Campus

High Street, Prahran, 3181
Melways ref: 56 D6
General enquiries: (03) 9214 8000

Prahran campus (formerly Prahran College of TAFE) joined Swinburne University of Technology in 1992. It offers TAFE courses in business, social sciences and arts and houses the renowned National School of Design.

The School of Business and Information Systems and the School of Social Science and Arts offer diploma and certificate courses via full-time or part-time enrolment. The National School of Design offers a range of graphic, industrial and interior/exhibition design courses up to postgraduate level.

A large number of fee-for-service short courses are also offered in the areas of entertainment, arts, language, fitness, business, computing and information technology. External study options are also available through the Off-Campus Centre.

The campus is ideally situated in cosmopolitan Prahran close to the market, shops and cafes. It is small and friendly with a mixture of modern and historic buildings. Major redevelopments have been undertaken on the campus, including a refurbished National School of Design building, a new Performing Arts complex and a new building housing social sciences, library, student facilities and cafeterias. Only five kilometres south of Melbourne, Prahran campus is easily accessible by train, tram and bus.
Swinburne at Lilydale

Melba Avenue, Lilydale, 3140
Melways ref: 38 D7
General enquiries: (03) 9215 7000

The Lilydale Campus is set in a picturesque 24 hectare rural setting with panoramic views across the Lilydale Lake to the foothills and ranges of the Yarra Valley. The state-of-the-art campus has been established to provide for the higher education needs of Melbourne’s outer east. It is situated 40kms east of Melbourne and is located within 20 minutes walking distance of a transport hub with access to rail and bus networks. On campus parking is available.

The Swinburne at Lilydale Division offers undergraduate degree programs in the areas of Business, Applied Science and Social Science. Specialty fields of study include accounting, marketing, media, human resource management, economics, interactive multimedia, sociology, information technology, computing, management, psychology and tourism. Students are able to choose combinations from these various speciality fields of study, enabling them to tailor their own programs. In addition, all Swinburne at Lilydale students undertake four core subjects which are offered in the first year of all degree courses. The core subjects are Statistics and Research methods, Information Technology, Science, Technology and Society, and Learning and Communication Behaviour. The core subjects provide students with some of the skills employers want for graduates and help give students an ‘edge’ in looking for work upon graduation.

Multimodal learning is a feature of Swinburne’s educational provision. Traditional methods of learning are augmented by a range of independent learning methods designed to capitalise on the benefits offered by computer and media technology. The independent learner centred approach is complimented by state-of-the-art technology which allows students to learn largely at a time, place and pace to suit themselves.

The TAFE division (formerly Eastern TAFE’s Lilydale Lake campus) offers diplomas and certificates in business and management, information technology, agriculture and hospitality. It also runs short courses in art, business studies and computing, health and wellbeing, hospitality and tourism.

Lilydale campus also has several ‘dual award’ courses in business, and tourism and hospitality. This allows the student an added benefit of achieving a vocationally oriented diploma with a direct ‘pathway’ onto the degree.
TAFE (Only) Campuses

Croydon Campus
12-15 Norton Road, Croydon, 3136
Melway ref: 50 K5
General enquiries: (03) 9210 1100
Croydon campus (formerly Eastern TAFE) amalgamated with Swinburne’s TAFE Division on 1 July 1998.
Croydon offers diploma and certificate courses in the areas of business and management, computing and information technology, electronics, hospitality and tourism, and health and human services. It also offers pre-apprenticeship and apprenticeship course in building and construction, and a wide variety of short courses.
The campus is located a short walk from the Croydon station and shopping centre in the foothills of Mt Dandenong. Eastlands Shopping Centre is a five kilometre drive or a two-stop train journey away, providing extensive shopping, restaurants and cinema complex. The No.755 bus which services the area between Croydon and Ferntree Gully stations, passes by the door.
Croydon campus is home to the Industry Development Centre which is a high quality, purpose-built conference centre offering a wide range of meeting spaces, related services and equipment. It is available for hire by telephoning (03) 9213 6662.

Healesville Campus
237 Maroondah Highway, Healesville, 3777
Melways ref: 270 C12
General enquiries: (03) 5957 1800
Situated at the top end of the Yarra Valley, Swinburne’s campus at Healesville (formerly Eastern TAFE) offers the Diploma in Natural Resource Management and certificates in the areas of business and management, computing and information technology, and hospitality and tourism. A pre-apprenticeship program in horticulture is also available.
Small Business Victoria - First Place, a Victorian government initiative, is located at the Healesville campus providing a number of services for small business including information on licensing requirements, counselling, and a small business bookshop.

Wantirna Campus
369 Stud Road, Wantirna South, 3152
Melways ref: 63 J12
General enquiries: (03) 9210 1100
The Wantirna campus (formerly Eastern TAFE) houses the central administration of Swinburne’s TAFE Division. It offers diploma and certificate courses in the areas of art and design, automotive, business and management, computing and information technology, engineering and electronics, horticulture, and health and human services. Short courses in a wide range of subject areas are offered in either day or evening time slots.
Wantirna also offers an innovative approach to education via dual qualification programs; giving students the opportunity to achieve both a diploma and a degree.
The current courses available are the Advanced Diploma of Business Accounting and the Diploma of Business Marketing with direct entry into the final two years of the Bachelor of Business at the Lilydale campus.
Located just a short walk from the campus is the Knox City Shopping Centre where most facilities can be found including: extensive shopping, banks, a post office, restaurants, a cinema complex and bowling alley. The campus is easily accessible via the many buses that terminate at the Centre.
Governance Structure

Council

Statutory Boards of the University
- Academic Board
  - Higher Degrees Committee
  - Degree and Diploma Review Committee
  - Finance & Resources Committee
  - Academic Policy & Planning Committee
- Divisional Advisory Boards:
  - TAFE
  - Higher Education (Hawthorn/Prahran)
  - Swinburne at Lilydale
- Board of Technical Studies
- School Boards Academic Development Committee

Committees of Council
- Joint Planning and Resources (JPRC)
  - Finance
  - Staffing
  - Campus Planning & Building
  - Legislation
  - Executive
  - Search
  - Honorary Degrees
  - Professor Emeritus
  - Remuneration
  - Ethics Committees
University Structure

Council

Chancellery
Vice-Chancellor
Deputy Vice-Chancellor

Corporate Services

Graduate Research School

External Affairs

Information Resources and Learning Services

Graduate School of Integrative Medicine

Higher Education Division (Hawthorn/Prahran)

Swinburne at Lilydale Division

TAFE Division
Higher Education Division (Hawthorn/Prahran)

Council

Chancellery
  Vice-Chancellor
  Deputy Vice-Chancellor

Divisional Office
  Divisional Deputy Vice-Chancellor

Academic Board
  Academic Assembly

Advisory Committee

School of Biophysical Sciences and Electrical Engineering

School of Business

School of Design

School of Engineering and Science

School of Information Technology

School of Mathematical Sciences

School of Social and Behavioural Sciences

Swinburne Graduate School of Management

Brain Sciences Institute (BSI)

Centre for Applied Colloid and Biocolloid Science

Industrial Research Institute Swinburne (IRIS)

Institute for Social Research (ISR)
Swinburne at Lilydale Division

Council

Chancellery
- Vice-Chancellor
- Deputy Vice-Chancellor

Academic Board

Divisional Office
- Divisional Deputy Vice-Chancellor

Academic Assembly

Advisory Committee

Academic Programs
- Head of Study

Divisional Administration
- Divisional Manager
University Council

Membership as at July 1998

Chancellor
R. Pratt, AC

Appointed by the Governor-in-Council
W. Elms, FIA, AFIA
D. Eynon, BEd(Mon), MA(Melb)
R. Hodges, dipEng(Aero)(RMIT)
D. Watson, DipMS(Lon), FCIS, FAICD, FAIBF
S. Lipski, AM, BA(Melb)
One vacancy

Appointed by the Minister for Tertiary Education and Training
D.I. Allen, BCom, BEd(Melb), MA, EdD(UCL)

Appointed by the University Council
J. Austin, BA, DipEd(Sheff)
T.W. Brown, FCA (Deputy Chancellor)
J. King, BA(Mur)
P. Ting, BBus(SIT), DUniv(SUT), ACA, CPA, PA(M)
K.N. Watson, AM, BA, BEc(Melb)
One vacancy

Member ex officio
Professor J.G. Wallace, MA, MEd(Glas), PhD(Brist), FASSA (Vice-Chancellor)

Chair of the Academic Board
Professor H. Lueckenhausen, GradDip(Industrial Design)(RMIT), DipEd(Haw), MDOIA, AADM

Chair of the Board of Technical Studies
V. Simmons, BA, DipEd(Mon), GradDipEdAdmin(Haw)

Elected by Higher Education Academic Staff
P.J. Roberts, BE(Melb), MIEAust, CPEng

Elected by TAFE Academic Staff
J. Cashion, DipEd, DipCompSc, BSc(Melb), GradAIP

Elected by General Staff
V.C. Deeker, CMEchEng(SIT)

Elected by Higher Education Students
B. Smith, BA(Hons)(SUT)

Elected by TAFE students
A. McMullen

Council Secretariat

Secretary
F.G. Bannon, BCom(Melb), FCPA, ACIS, ACIM, LCA

Executive Officer
A.J. Miles, BSc(Melb), BEd(Mon)

Registrar
A.R. Grigg, BA(Hons), PhD(Otago)

Professors Emeritus
J.H. Perry, BSc(Tech)(NSW), PhD(Ston), appointed March 1985
J.G. McLean, BSc(Syd), HDip(Hons), PhD(Melb), ComplEust, appointed March 1997
W. Thompson, BScEng(Hons)(UK), GradDipEd(Haw), MEng(VIC), FiEust, CEng, appointed August 1997

Chancellor

Chancellor
R. Pratt, AC

Vice-Chancellor
Professor J.G. Wallace, MA, MEd(Glas), PhD(Brist), FASSA

Deputy Vice-Chancellor
F.G. Bannon, BCom(Melb), FCIA, ACS, ACIM, LCA

Deputy Vice-Chancellor (Higher Education Division) (Acting)
B. Cargill, BA(Melb), MAPsS, MA(Melb), MAHRI

Deputy Vice-Chancellor (Swinburne at Lilydale Division)
Professor B. van Ernst, AM, BA, MEd, PhD(LaT), TPTC, MACE

Deputy Vice-Chancellor (TAFE Division)
V. Simmons, BA, DipEd(Mon), GradDipEdAdmin(Haw)

Pro Vice-Chancellor, Research
Professor K.C. Pratt, BE(Chem), PhD(Melb), FICE, FiEust, FTS

Manager, Planning & Information Systems
R.D. Sharma, BSc(Tas), DipEd(Tas), GradDipOpsRes(RMIT), MEdAdmin(NewEng), PhD

Director, Internal Audit
J. Van der Pal, DipAccy(PTC), BBus(SIT), MEdAdmin(UNE), AASA, CPA, RCA

Executive Officer to the Vice-Chancellor
M.A. Tomkinson, BA(Hons)(Melb), MA(LaT), PhD(Camb)

Executive Officer to the Deputy Vice-Chancellor
S.P. Jervis, BA(Adel)

Legal Officer
K. Ziegler, BA, LLB, DipEd(Mon)

Freedom of Information Officer
S. Lusk

Senior Project Director
S. Murby, BSc(Hons)(LaT), GradDip Ed (Haw), FRSA

Corporate Services

Registrar’s Department
Registrar
A.R. Grigg, BA(Hons), PhD(Otago)

Finance Department

Director
P.F. Read, DipComm(FTI), AASA, CPA

Systems Accountant
J.F. Rayner, BSc(Melb), DipEd(Melb)

Accounting Manager
P. Hotchin, BSc(Hons)(Melb), GradDipBusAdmin(SIT), AASA, CPA

Facilities and Services Group

Director
G.W. Wickes, AssDipPA(RMIT), GradCertEntMan(SIT)

Manager Maintenance (Hawthorn/Lilydale)
N. Drago

Manager Maintenance (Prahran)
D. Baker

Manager, Property and Services
D. Sharp

Staff Architect
S. Bartlett, BArch (Melb), RIBA, ARAIA
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<th><strong>Equity Unit</strong></th>
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<tr>
<td><strong>Manager (Acting)</strong></td>
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<tr>
<td>E. Shave, BEd(Rusden), GradDipEOAdmin(SIT)</td>
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<th><strong>Human Resources Department</strong></th>
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<tr>
<td><strong>Director</strong></td>
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<td>S.J. Beall</td>
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<th><strong>Deputy Manager</strong></th>
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<tr>
<td>A. McFarland, BA(LaT), GradDipBus(HRM(VicColl))</td>
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<th><strong>Safety Coordinator</strong></th>
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<td>A. Skutnicki, BAppScFIT, GradDipIndHygne(Deakin)</td>
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<th><strong>Security Department</strong></th>
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<td><strong>Chief Security Officer</strong></td>
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<td>N. Burge</td>
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<th><strong>Student and Residential Services</strong></th>
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<tr>
<td><strong>Director</strong></td>
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<tr>
<td>Z. Burgess, BA(Mon), GradDipEdPsych(Mon), Med(AuT), MAPs, VAF, AIM</td>
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<th><strong>International Office</strong></th>
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<td><strong>Dean</strong></td>
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<td>I.A. McCormick, BComm(Melb), MAdmin(Mon)</td>
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<tr>
<th><strong>Manager, Offshore Business Education Programs</strong></th>
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<td>P. Di Virgilio, BBus(CIT), MBus(Mkt)(Mon)</td>
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<th><strong>External Affairs</strong></th>
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<tr>
<td><strong>Executive Director</strong></td>
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<tr>
<td>S. Davies, BA(Hons)(Leic), DipMktg(CIM), CPM</td>
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<th><strong>Director, Alumni and Development</strong></th>
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<td>Associate Professor B.C. McDonald, BCom, DipEd(Melb), FCFA</td>
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<th><strong>Manager, Swinburne Press</strong></th>
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<td>L. Scheuch-Evans, BS in Foreign Service(G’town)</td>
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<th><strong>Graduate Research School</strong></th>
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<td><strong>Pro Vice-Chancellor</strong></td>
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<td>Professor K.C. Pratt, BE(Chem), PhD(Melb), FICHE, FIEAust, FRACI, FTSE</td>
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<th><strong>General Manager, Research and Graduate Studies</strong></th>
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<td>R. Dawe BA, LLB (Mon), MEI (SUT)</td>
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<th><strong>Executive Officer, Strategic Planning</strong></th>
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<td>J. Baird, BA(Hons), BLitt(Melb), MBA(RMIT)</td>
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<th><strong>Information Resources and Learning Services</strong></th>
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<td><strong>Director and Head, Information Resources</strong></td>
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<tr>
<td>F. Hegarty, BA(UNeWEng), DiplLib(OIT), BEd(LaT), AALIA</td>
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<th><strong>Teaching and Learning Services</strong></th>
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<th><strong>Applications Management Services</strong></th>
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<td><strong>Manager</strong></td>
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<td>H.J. Uffindell, GradDipEdAdmin(Haw)</td>
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<th><strong>Office for Quality Education (QEd)</strong></th>
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<td><strong>Head</strong></td>
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<td>R. Carmichael, BA(Mon), BEd(LaT), TSTQ(MonTC)</td>
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<th><strong>Higher Education Division (Hawthorn/Prahran)</strong></th>
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<td><strong>Deputy Vice-Chancellor (Acting)</strong></td>
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<td>B.J. Cargill, BA(Melb), MEd(Melb), MAHRi</td>
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<th><strong>Academic Development, Dean</strong></th>
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<tr>
<td>E.P. Hauser, DipEE, BSc(Melb), MSc(Oxon), TTTC</td>
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<th><strong>Industry and Business Liaison Manager</strong></th>
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<td>J. Dunn, BA, DipEd, BEd(FG)(LTU)</td>
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<th><strong>Marketing Manager</strong></th>
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<td>J. MacAdam, BBus(SUT)</td>
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<th><strong>Planning and Resources Manager</strong></th>
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<td>M. Conway, BA(Griffith), GradDipTenEd, MEd(Hons)UNE</td>
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<th><strong>Student Administration Manager</strong></th>
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<td>J. Berry</td>
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<th><strong>Education Abroad Coordinator</strong></th>
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<td>M. Balsillie, TITC(Toorak)</td>
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<th><strong>School of Biophysical Sciences and Electrical Engineering</strong></th>
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<td><strong>Head</strong></td>
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<td>Associate Professor D. Murphy, BE(Mon), MSc(Lond), DPhil(Oxon), FIEAust, CEng</td>
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<th><strong>Associate Professors &amp; Principal Lecturers</strong></th>
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<tr>
<td>T.E. Hendtlass, MSc(Otago), PhID(Manseey), FIICA</td>
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| **J.F. Lambert, BE(Hons), MEngSc, PhD(Melb)**  |
| A.A. Sergeijew, BhumaniBio(Auck), MBChB(Auck)  |

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<th><strong>Senior Lecturers</strong></th>
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<tr>
<td>B.S. Adcock, DipEE(PTC), BEE(Melb), MEngSc(Mon)</td>
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| **P.S. Alabaster, BS(Melb), MSc(Manch), MSc, PhD(Manchester)**  |
| M. Bailes, BS(Hons)(Adel), PhD(ANU)  |

| **E.N. Bakshi, MSc(Odessas), PhD(Mon)**  |
| T.G. Edwards, BS(Lond), PhD(Lond), FRSC  |

| **S.T. Fennell, BEE(Elec)(Melb), MEngSc(Melb)**  |
| W. Lavery, BEE(Elec)(Hons)(Melb), DipEd(Haw), MEngSc(Melb), PhD(Melb)  |

| **C.S. Lee, BE(NU S’pore), MSc(NU S’pore), PhD(Necastle), MBA(Brunel)**  |
| P. Manuff, BSc(Hons), MPhch, PhD, MAPS  |

| **A.P. Mazzolini, BAppSc(Melb), PhD(Melb)**  |
| M.M. Mazzolini, BS(Hons)(Melb), PhD(Melb)  |

| **P. O’Donoghue, MAppSci(Elec)(Melb)**  |
| J. Patterson, MSc(Melb), PhD(Melb)  |

| **C.K.K. Stough, BSc(Hons)(Adel), PhD(Adel)**  |
| D. Ward-Smith, BSc(Hons)(Melb), DipEd(Melb), PhD(Melb)  |

| **A.W. Wood, BSc(Hons)(Bristol), PhD(Lond)**  |
| **Lecturers**  |
| R.G. Assadi, AssDipArt(Miami), BS(EE)Texas, MEng(SUT)  |

| **G.P. Banky, BE(Hons)(Elect)(Melb), MEngSci(Melb), GradDipCompStudies(RMIT)**  |
| A. Bartel, MSc(Melb)  |

| **P.J. Cadusch, BSc(Hons)(Melb), PhD(Melb)**  |
J. Ciorciari, BAppSc(SIT) Ph(DSUT)
P.D. Ciszewski, BAppSc(SIT)
A.L. Cricenti, BE(Hons)(Elect)(Melb), GradDipEd(Melb), MEng(SUT)
I. Hijazin, MSc(Elec)(Bradley)
D. Klimovski, BAppSc(Hons)(Elect)(Melb)
D. Liley, MHR(Hons)(Auck), MBiB(Auck), PhD(Auck)
L.H. Neoh, BE(Elec)(WA), PhD(WA)
M. Schier, BAppSc(SIT), MSc(Mon), Ph(DiMelb)

Computer Systems Officer
D. Spencer, BSc(RMIT)

Administration Manager
A. Chester, AssocDipBus(Accounting)(Prahran)

Administrative Officers
P. Armstrong
P. Barker
V. Branton, AssocDipBus
M. Fernandez
R. Yang
L. Young

Laboratory Manager
S. Burrows

Technical Staff
C. Anthony
W.A. Clune
C. Dunne
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General Information

General Information

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A. Hanich, F(DipM, BEngChem(NSW)

Teaching Fellows
A. Hanich, F(DipM, BEngChem(NSW)
B. Whan, BE(Hons)(NSW), PhD(NSW), MEIAus
R. Wood, BEng(Elec)(NSW), FIEAust

Lecturers
A. Calafatis, BBus, MEI, MIMC, AIMM
P. Galvin, BA(Hons), GDProMng, MEI, MIMC, MAIPM
M. Harrigan, BSc(Hons), GradCertAccounting, PhD
R. Pridham, MBus(Mkt), AFAIM, FAMI, MAICD, AHRI, NSAA, AMS
D. West, BEd, GradDipBus(HRD), GradDipAppPsych, MAPs

School Administration Staff

School Administration Manager
S. Parker, BA(Deakin)

Student Records Manager
P. Carrara, BA(Hons)(Melb)

Student and Course Administrators
A. Drr
G. Peters
A. Zimaris, GradCertBusAdmin(SUT)
Finance Officer  
L. De Sousa, BA(Bombay)

Executive Officer  
D. Briscoe

Personal Assistants  
B. Brasher  
S. Feinberg

*FAME = Foundation for Australian Manufacturing Management Education

The Graduate School of Management programs are conducted by academic staff also drawn from the other Schools within the University and by appropriate sessional staff.

Swinburne National School of Design

Head of School  
Professor H. Lueckenhausen, GradDip(Industrial Design)(RMIT), DipEd(Hav), FDIA, AADM

Deputy Head of School  
C.J. Austin, BA(Graphic Design)(SIT), MDIA

Professors  
A. Whitfield, BA(Hons), PhD(N/ci)

Senior Lecturers  
L. Anderson, BA(Hons)(Industrial Design)(Surrey),(MA(London)
J. Bassani, DipArt&Design(Prahran), GradDiPEd(Hav), MDIA  
R. Graha, AssociateTArt(GraphicDesign)(RMIT), DipArt(Advertising)(Bendigo), TTTC  
S. Huxley, DipArt&Design(Bristol), CGL, CertPictGraphics1and2(London), GradDiPEd(Hav)

A. Keen, BA(Arch.Studies)(N/ci), MAR(MIT),FCS3(DK)

J.B. Quantrell, DipArt&Design(Industrial Design)(Prahran), CertWoodTech, CertFineArt, AMDA

D.M. Whitehouse, AALA, BA(Hons)(LaTrobe), MA(LaTrobe)

Lecturers  
C. Barnes, BEd(Melb(ScV)), BA(Hons)(Melb), MA(Melb)
F.E. Blair, DipArtGraphic Design(RMIT), GradDiPEd(Hav)
N. Carter, DipArt(Photog.)(Philip Inst.), P.G.DipArt(Philip), BA(Latrobe), P.G.Dip Fine Art(Melbourne)

I.Y. Deering, BA(Hons)(Mon), DipEd(Mon), DipArt&Design(Fine Art)(CTI)

M. Englisch, BA(Tech)(ID)
A. Haig, BA(Graphic Design)(SIT)
J. Howell, DipCompArt(Adelaide)
A. Kean, DipArtGraphic Design(BCAE), GradDiPEdSec(LTUNV)
G. Kerrison, BA(Graphic Design)(SUT)

A.M. Lane, DipVisComm(RMIT)
S. Langdon, GradDipArtDesign(Industrial Design)(Prahran)
K.J. Mooney, DipArt&Design(Industrial Design)(Prahran)

B. Stering, BA(Industrial Design)(RMIT), MFA(RMIT)
T. Streader, BA(Graphic Design)(SIT)

T. Ward, DipAdvertDes(SCOT), TTTC

C. Winstanley, BDes(Industrial Design)(SUT)
D. Yang, BDes(Hons)(Graphic Design)(SUT)

L. Zeeng, DipAdvertDes(Photol), GradDiPEd(Melb), MVisComm(RMIT)

Co-ordinator, Corporate and Industrial Development (Design)  
B. Edwards, BA(Graphic Design), DipEd

Computer Systems Officer  
C. Higman

Workshop Technicians  
M. Hall  
A. Brittain

School Administration Manager  
E. Standley

Administrative Officers  
B. Giouris  
B. Heathcote  
B. Hunt  
I. Thomson

Research Institutes

Brain Sciences Institute (BSI)

Director  
Professor R. Silverstein, BSc(Hons)(Mon), PhD(Melb)

Professorial Fellow  
Professor P. Nunez, PhD(UCSB)

Associate Professor  
Dr A. Puce, BAppSc(SUT), MAAppSc(SUT), PhD(Melb)

Senior Lecturer  
Dr C. Stough, BSc(Hons), PhD(Adel), MapS

Postdoctoral Fellow  
Dr P. Nathan, BSc(Hons), PhD, AIBMS, MRACI, C Chem

Research Officers  
M. Farrow, BAppSc(SUT)
C. Hocking, BAppSc(SUT)
G. Nield, BAppSc(SUT)
A. Pipingas, BAppSc(Dist)(SUT)
D. Simpson, BAppSc(SUT)

Adjunct Appointments  
Professor S. Armstrong, BSc, MSc(Hons), PhD(UT)

Dr K. Nagata, Institute of Brain and Blood Vessels Research, Akita, Japan

Industrial Research Institute Swinburne (IRIS)

Executive Director  
E. Siores, BSc, MSc, Dip.Ed, MBA (Aus), PhD(UK), FWITA, FEANI, SenMTWI, MIQA, MAINDT, MAWS, MIEG.

Deputy Directors  
E. Harvey, BSc(Hons), PhD(Mon), GAIP, FIEEE
E. Shayan, BEng(Teh), GDipCompSci(Melb), MBA(GWU), PhD(GWU)
D. Toncich, BSc(B dynamic)(Hons)(Melb), MEng(SIT), PhD(SIT)

Research Leaders  
P. Iovenitti, MEngSc(Mon), GradIEng,Aust, RMIT, PhD(SIT)
S. Masood, BScEng(Hons)(Alig), PGDip(ProdEng)(IIT Delhi), MEng(NEWBrun), PhD(Ind)
R. Nagarajah, BScEng(Hons), MPhil(UK), PhD(SUT), SPIE
I. Sbarski, BScEng(Moscow), Ph.D(Moscow), Ph.D(RMIT)

Industry Training Manager  
B.J. Costello, BEng(SIT), GradDiPEd(HIE), CertManufEng

Senior Research Engineers  
K. Talwar, BScEng(ElTrinidal), MChemEng(USA), PhD(ChemEng)(USA)
A. Taube, BSc(Eng)(Moscow), DipEd(VUT), PhD(Ukr)

Research Engineers  
G.R. Cao, BE(Mech)(Hons)(China)
F. Costa, BE(Mech)(Hons)(Melb)
P. Douglas, BEng(Melb)
G. Frankish, BE(Mech)(Hons)(Melb)
D. Ghanayem, BEng(Elec)(UAE)
K. Jolic, BSc(Eng)(Hons)(Melb), PhD(SUT)

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Staff and Officers

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C.K. Ng, BSc(Elec)(Hon)(Melb), MEI(SUT)
V. Rajappakul, BTech(Eng)(MysoreIndia), M Tech(Eng)(IITIndia), Ph.D(ChemEng)(IITIndia)
P. Samararatne, BSc(Eng), MEng(AIT), Ph.D(Melb)
S. Stefan, BE(Elec)(Hons)(Melb), MEng(SUT)
D. Vukovic, BE(Elec)(Hons)(Belgrade), Ph.D(UNE)

Swinburne at Lilydale Division

Divisional Staff

Deputy Vice-Chancellor
Professor B. van Ernst, AM, BA(Mon), PhD(LaT), MACE

Divisional Manager
T. Kitsby BA(LaT), Grad Dip Ed Admin(Melb)

Director, Teaching and Learning Services
G. Arger, MEd(Melb)

Manager, Student Administration
J. E. Austin, BA(SUT)

Academic staff

Head of Studies
S.E. Weal, BAppSci(RMIT), MA(Lanc)

Associate Professor
H. Paterson, DipEd, BCom(Melb), MEd, PhD(LaT), CPA

Discipline Leaders

Accounting
J.B. Lourens, BBus(Acc)(CIT), Grad Dip Acc & Fin(CIT), Dip Ed(ScVH), MAAdmin(Mon), PhD(Mon), FCPA

Computing
B. Calway, Grad Dip Mgt Syst(SIT), MBAUT(SIT)

Core Subjects
J. Bryant, BA(Hons)(LaT), Dip Ed(Melb), MA(Mon)

Economics
R. Smith, BA(Hons), Dip Ed, Dip Com Ed(Une), Grad Dip BIT(SIT), MCom(NSW)

Enterprise Management
V. Power, BA(SUT), Grad Dip App Psych(SIT), MAppS

Human Resource Management
V. Power, BA(SIT), Grad Dip App Psych(SIT), MAppS

Information Technology
B. Calway, Grad Dip Mgt Syst(SIT), MBusIT(SIT), MACS

Interactive Multimedia
K. Vigo, BA(Melb)

Management
V. Power, BA(SIT), Grad Dip App Psych(SUT), MAppS

Marketing
M. Spark, BCA(VUW), MBA(CranIT), FAICD, AFAIM

Media
K. Vigo, BA(Melb)

Psychology
E. Ihsen, BSc(Hons)(Mon), PhD(Mon), MSRCD, MAAHDA

Social Statistics
K. Lipson, Dip Ed(HE), BSC(Melb)

Tourism
J. Kelly, BEd(Leth), Grad Dip Asian Studies/Armadale CAE, Grad Dip Tourism(JCU), MA(Glas), MA(Tas), MAUTHE

Senior Lecturers
J.J. Arnold, BA(Melb), Dip Ed(Melb), PhD(Deakin), MACE

Lecturers
J. Dickson, BA(Hons)(SIT), Dip Ed, Dip Sch Counts(UQ)
M. Hutchens, BA(Socio & Politics)(SUT)
B. Kome, BSc(Hons)(LaT), PhD(Chem)(LaT)
C. Langridge, BBus(SUT), Grad Dip Tax(RMIT), Grad Dip Ed(Mon), ASCPA(Taxation)
T. Lewis, BBus(Accounting), Grad Dip Computing(Deakin), PhD
S. Mariappandar, BApp Psych(Madras), Hon Dip Pers Mgmt & Ind Rel(Madras), MA App Psych(Madras), PhD App Psych(Madras)
A. Nankervis, Grad Dip Bus(Tourism Development)(VUT), MAITT
D. Plackov, BSc(Chem)(Skopje), Grad Dip Comp Sci(SUT), MSc(ChemEng)(Zagreb), PhD(ChemEng)(Zagreb)
J. Romagnesi, BA(Hons)(SUT)
G. Taibot, BA(Com Mgmt)(Deakin)
S. Theiler, BA(SIT), Grad Dip App Psych(SUT)
T. Tonkin, BBus(Accounting), Grad Dip Ed(LaT), AASCPA
M. Tucker, BEd(Hons)(LaT), MComm(Melb)

Swinburne Graduate School of Integrative Medicine

Foundation Head and Director of Research
Professor A. Sali, MBBS, PhD, FRACS, FACS, FACNEM

Lecturers
Lectures are presented by a number of highly qualified medical practitioners who have recognised expertise in their respective fields of practice.

Senior Research Scientist
L. Vitetta, BSc(Hons)(Mon), PhD(Melb)

Research Fellows
C. Miliotis, MBBS
I. Golden, DHom, N.D., B.Ec(Hon)
M. Ellis, BA(Hons), MBBS(Lond), MRCP(UK), DCH

School Administrator
A. Lahza, Ass Dip App Sci(OH&S)

TAFE Division

Divisional Deputy Vice-Chancellor/Director
V. Simmons, BA, Dip Ed, Grad Dip Ed Admin

Executive Director, Corporate Development
P. Lochert, BSc(Biol)(LaT)

Executive Director, Strategic Development
D. Burgeill, BEd(Mon), Dip Ed(Mon), BEd(Mon)

Director, Business Development
E. Spangher

Director, International
S. Poigfar, BA, Dip Ed, MEd

Director, Learning Innovation
S. Poppins, BA(Melb), Dip Ed(Melb)

Director, Training and Consulting
K. Manson, BEd(LaT)

Director, TAFE School of Arts, Hospitality and Sciences
H. Coats, BBus, Dip Ed, BEd

Director, TAFE School of Business and Commerce
J. Bissland, BA(Hons), Grad Dip ComDev, Grad Dip Ed, MA, MEd

Director, TAFE School of Engineering
P. Jones, BEd(Haw), BEd(Haw), Grad Dip Ed Admin(Haw)

Director, TAFE School of Social Sciences
J. Cashion, BSc(Melb), Dip Ed, Dip Comp Sc, Grad AIP
Research Institutes and Centres

In 1995, the University’s Board of Research and Graduate Studies adopted a three-tier structure for research development and support. Tier 1 comprises major research centres and institutes and Tier 2 comprises significant emerging research groups. Both Tier 1 and Tier 2 Centres receive central university infrastructure funding for their research. During 1995/96 two major research centres were granted the status of institutes and the establishment of the first Tier 2 centres was approved. The Centres have continued to develop their research activities, and in 1998 the Institute for Social Research was created through the amalgamation of a tier 1 (Centre for Urban and Social Research) and a tier 2 (Asia-Australia Research Centre) centre. More recently the University has undertaken some major research initiatives in the area of micro-machining, hemochemistry, confocal microscopy and astrophysics and cosmology. These initiatives will build on the formal research centre structure.

For further information on centres visit their websites at: http://www.swin.edu.au/sgrs/centres.htm

Tier 1 and 2 Research Centres and Institutes

Brain Sciences Institute (T1)
Centre for Applied Colloid and Biocolloid Science (T1)
Industrial Research Institute Swinburne (IRIS) (T1)
Institute for Social Research (T1)
Swinburne Computer Human Interaction Laboratory (SCHIL) (T2)

Brain Sciences Institute
(formerly the Centre for Applied Neurosciences est.1985)

Director
Professor R.B. Silberstein
Telephone: (03) 9214 8822
Fax: (03) 9214 5525
Email: bsl@email.scsn. swin.edu.au

The Institute’s primary purpose is to facilitate research into the relationship between human behavioural states and measured brain activity. The Institute also undertakes contract research in areas consistent with its primary purpose. The Institute has extensive collaborative research links with Australian and international research organisations.

The Institute is engaged in research to understand the relationship between cognitive processes and affective states, and the rhythms of electrical activity in the human brain.

Research is multidisciplinary and across four research streams:

- Basic neuroscience, primarily concerned with an understanding of the brain mechanisms that generate rhythmic activity.
- Cognitive neuroscience with a focus on the relationship between the brain’s electrical activity and normal higher cortical functions such as memory, planning and attention.
- Clinical Neuroscience with a focus on the relationship between the brain’s electrical activity and disordered cortical function such as schizophrenia and attention deficit hyperactivity disorder.
- Neuroscience instrumentation and methodologies which aims to develop electronic instrumentation and mathematical techniques that will record the brain’s electrical activity more clearly.

An important feature of many of the projects in the Cognitive and Clinical Neuroscience streams is the use of functional brain imaging methodologies including brain electrical activity mapping based on Steady State Probe Topography (SSPT), Positron Emission Tomography (PET) and functional Magnetic Resonance Imaging (fMRI).

In addition the Institute aims include:

- to assist in the teaching of the neurosciences in undergraduate and postgraduate Swinburne programs
- to offer a facility enabling individuals to pursue postgraduate studies in the neurosciences
- to promote the availability and commercial development of intellectual property originating within the Institute.

Centre for Applied Colloid and Biocolloid Science

Head
G.T. Lonergan
Telephone: (03) 9214 8714
Fax: (03) 9819 0334
Email: glonergan@swin.edu.au

The Centre was established in 1980 for the development of applied research and contract research in applied colloid science. It provides an opportunity through research sponsorship and other collaboration for companies or organisations to make use of sophisticated equipment and applied research skills for the investigation of problems within this field. The base area of expertise in colloid science has been broadened to include industrial biotechnology.

Major areas of applied research now include integrated projects combining diverse skills such as wastewater treatment (utilising adsorbing colloid flotation) for the removal of toxic heavy metals, anions and organics to biological techniques of cellular degradation for the complete treatment of toxic organics.

Other biotechnology applications include the use of enzymes in the recycled paper industry to enhance de-inking and drainage on the paper machines. Another area is the use of combined chemical and biological processes for the breakdown of industrial dyes. The Centre also has expertise in bioremediating biosolids.

Combined with more traditional areas of colloid science such as coal pelletisation and emulsion science, these and other multidiscipline projects provide an avenue for the teaching of colloid science at an advanced (postgraduate) level and has resulted in the training of a large number of postgraduate students.

The Centre also promotes the teaching of colloid and biocolloid science at all levels - undergraduate and postgraduate, coursework and research only degrees. It also acts as a contact point for visiting members of staff from other academic institutions, companies or government authorities, both local and overseas. Visitors often give lectures and discuss research activities, which proves advantageous to the quality of teaching at both undergraduate and postgraduate (particularly coursework postgraduate) levels as an integral part of their training.

Some of the work undertaken inevitably involves the development of equipment or processes which may be patented, covered under secrecy agreement or made available for publication in the international literature.

Industrial Research Institute Swinburne (IRIS) (incorporating the CIM Centre)

Director
Professor E. Siores
Telephone: (03) 9214 8600
Fax: (03) 9214 5050
Website: www.swin.edu.au/iris

Swinburne’s first research institute was formed in 1985. The Institute focuses on applied research and technology transfer in collaboration with industry. It incorporates the CIM Centre and other research groups. Major research interests are advanced materials and materials processing, robotics and automation, management and industrial engineering, CIM/CAD/CAM, simulation and modelling; numerical engineering, mechatronics; control systems, polymer processing, rapid prototyping, vision and non-contact inspection, artificial intelligence and expert systems and other related specialisations.

Institute for Social Research (ISR)

A number of existing centres and networks operating within the University have been incorporated into a broader Institute for Social Research (ISR). The newly formed ISR incorporates the:

- Asia-Australia Research Centre (AARC)
- Centre for Psychological Services
- Centre for Urban and Social Research
- Media and Telecommunications Centre
- Australian Citizenship Network
- Virtual Communities Network

The ISR will provide an environment to promote and support the work of social scientists and applied humanities practitioners within the University together with contemporary and progressive courses, research and consultancy services in Australia and throughout Asia.
The centres associated with the Institute include:

**ISR - Asia-Australia Research Centre (AARC)**

**Director**
Professor K. Young
Telephone: (03) 9214 5243 or (03) 9214 8101
Fax: (03) 9214 5515

The Centre was established in July 1996. The Asia Australia Research Centre (AARC) is a multi-disciplinary research group providing research, scholarship, teaching and commentary on Asia and Australia. Its specialists have expertise on China, India, Indonesia, Korea and Southeast Asia. The AARC’s research and teaching deals with change in Asia and its consequences for Australia. The diverse societies and economies of the Asia-Pacific, including Australia, are being transformed through accelerated integration on a regional and global scale. The AARC aims to develop theoretically advanced, comparative and practical understandings of social change. It therefore investigates most aspects of globalisation and change in contemporary Asia: political, economic, cultural, technological, urban and regional. It seeks to understand the emergence of new and influential modernities from the second half of the twentieth century into the next, and millennium. The AARC’s staff and students possess expertise from a range of social science and business disciplines. The staff provides services in research, consulting, supervision of research degrees, teaching in postgraduate programs, and the provision of advice, commentary and short courses for business and government. Its members have extensive contacts throughout Asia and Australia as well as with centres of excellence in Europe and North America.

The main objectives of the Centre are:

- to strengthen Swinburne’s research expertise and activity on Asia and Australia-Asia relations, and to win national and international recognition for the excellence of our achievements in research;
- to develop postgraduate work on Asia and on Australia’s role in the Asia Pacific by attracting research students of high calibre, and provide a quality environment for their training;
- to bring together academic, linguistic and business skills that will offer expert consultation and commentary for business, government and the media;
- to foster collaborative research links with research institutions with internationally recognised expertise on Asia, especially those in Asia itself, but also in Europe and America;
- to develop collaborative research within Swinburne, tapping diverse expertise with interests in Asia across the University;
- to nurture a research culture at Swinburne responsive to the highest international standards;
- to enhance the internationalisation of undergraduate teaching programs at Swinburne.

**ISR - Centre for Psychological Services**

**Manager**
R. Cook
Telephone: (03) 9214 8653
Fax: (03) 9819 6857
Email: rcook@swin.edu.au
Website: www.swin.edu.au/sbs/psy/cps/cps.htm

The Centre for Psychological Services provides several major services to the wider community. These include personal counselling, psychotherapeutic programs, educational and training services and research consultancy, all of which are offered on a fee-for-service basis.

The Centre is staffed by experienced psychologists associated with the School of Social and Behavioural Sciences, and enhances the teaching resources of the School by providing a facility for the professional training and education of graduate students. Initially the Centre has developed special services in:

- marriage and relationship counselling
- family therapy
- infertility counselling
- lifestyle management
- treatment of anxiety
- management of children and adolescents.

The Centre accepts referrals from a wide range of other professionals and from both private and government sponsored agencies.

**ISR - Centre for Urban and Social Research**

**Chair**
J. Pidgeon
Telephone: (03) 9214 8306, (03) 9214 8825
Fax: (03) 9819 5349
Website: www.swin.edu.au/dbhss/cus.htm

The Centre was established in 1974 in order to bring together Swinburne staff with a common interest in urban issues. Since the early 1980s the focus has been on applied and pure research, originally focusing on housing but extending into a wide range of urban and social issues including gender research. These research activities have extended to initiatives in citizenship, and public sector training and education, including the production of workplace training modules and short courses.

The Centre emphasises the demographic, social and economic dimensions of urban and social research, education and training and policy development. A wide range of skills and techniques is offered by the Centre including survey research, needs analysis, social impact analysis, policy and program evaluation, housing market analysis, community profiles, population forecasting and projections, development of training modules and training.

**Current Research and Training Themes of the Centre**

**Housing and Urban Research**

Housing and urban issues, particularly the affordability of housing, infrastructure provision and housing finance.

**Citizenship**

This concerns the right and responsibilities of members of Australian society, and translating these citizenship rights and responsibilities into benchmarks of best practice.

**Survey and Demographic Research**

Large scale survey research focuses on topics as diverse as medical ethics, home purchase decision-making and car and public transport usage. In addition the need for demographic research has been a consistent requirement for many of the consultancy and research projects.

**Gender**

Gender research is also conducted, particularly in relation to equal opportunity in and access to the workplace.

**Education and Training**

The Centre provides training and educational materials for a wider audience. Particular attention is given to public and community housing management and administration.

**ISR - Media and Telecommunications Centre**

**Head**
Professor T. Barr
Telephone: (03) 9214 8106
Fax: (03) 9819 0574
Email:_tbarr@swin.edu.au

The Media and Telecommunications Centre is part of the Institute of Social Research in the School of Social and Behavioural Sciences. Its role is to initiate educational programs that will foster closer cooperative connections with industry and the wider community. The activities it has undertaken include:

- the Commercial Radio Course to provide training for those planning a career in commercial radio;
- in conjunction with media studies coursework in the Bachelor of Arts program, the production of Swinburne publications and publication of local community newsletters;
- the presentation of short courses on a variety of media-related subjects (such as media regulation, techniques of radio production, media in the classroom, media awareness) and desktop publishing skills;
• a publishing program of dossiers and monographs on film, television and
general media subjects;
• research consultancies on telecommunications and media in the Pacific, Asia
and Australia;
• a short course in international communications; economics and regulatory
policy.
• high profile public speaking engagements, especially on major trends in the
communications field. This also involves fee for service engagements to
secondary schools involved with VCE/CATs on media subjects.
• specialised research projects including studies on interactive online services
and on telecommunications futures in association with the Centre for
International Research in Communications and Information Technologies
(CIRCIT).

Swinburne Computer Human Interaction
Laboratory (SCHIL)

Director
Professor P. Sanderson
Telephone: (03) 9214 5067
Email: psanderson@swin.edu.au

SCHIL’s mission is to understand and improve the nature of information technology
from the perspective of the end users of that technology.

SCHIL was established in the early 1980s to meet the needs of the important
research and consulting areas of usability and human factors in computing
systems. Located within the School of Information Technology, SCHIL provides a
‘centre of excellence’ in the human issues which underpin information technology
and the systems development processes.

Below are the current research concentrations of SCHIL.

1. HCI Design Process. SCHIL researchers focus on how to ensure the usability
of interactive systems. Projects include studies of trade-off decision making
in design, and the development of frameworks and tools to aid the design
process.

2. Device and Interface Design. SCHIL researchers share an interest in theories
and techniques for visual display design. Projects include distortion-based
displays, design of ecological interfaces for complex dynamic processes, and
an examination of the electrophysiological activity that takes place when people
use different kinds of visual displays. There is also an active interest in
advanced technologies. Projects include the development and deployment of
website computing devices in real-world collaborative environments and the
design of navigational tools for WWW sites.

3. Cognitive Engineering. Cognitive engineering extends some of the concerns
of HCI to complex, high-risk domains such as emergency response centres,
process control, defence command-and-control, and critical care medicine.
SCHIL researchers investigate the design and use of information technology
and the nature of technologically-mediated human collaboration in all of
these environments.

Other activities of the centre include the supervision of postgraduate research
students, and the conduct of high level consultancy in the areas of usability and
user interface design.

University Strategic Research Initiatives

Excimer Laser Micromachining
Femto Laser Spectroscopy
Imaging and Applied Optics
Astrophysics and Cosmology

Other Affiliated Centres

While the following groupings do not receive the direct infrastructure support of
the established Tier 1 and Tier 2 Research Centres, Swinburne staff and students
associated with the following groups are undertaking an exciting range of
innovative research and development work.

Astrophysics and Supercomputing Research
Group

Director
Professor M. Bailes
Telephone: (03) 9214 8782
Fax: (03) 9214 8782
Email: mbailes@swin.edu.au
Website: www.swin.edu.au/astronomy

The Astrophysics and Supercomputing Research Group was formed in early 1998
under the leadership of Professor Matthew Bailes. The group specialises the
discovery and ultra-high precision observations of radio pulsars. The group is
conducting a number of searches for new pulsars using their high-speed data
recording system and supercomputer. These searches are the most sensitive ever
undertaken for sub-millisecond pulsars. The group is a major user of the Parkes 64
metre radio telescope and collaborates extensively with the CSIRO and Caltech.

Australian Centre for Entrepreneurship and
Innovation (ACE)
(formerly the Centre for Innovation and Enterprise Pty Ltd)

Acting Director
A. Hanich
Telephone: (03) 9214 8512

The Australian Centre for Entrepreneurship and Innovation offers a range of
postgraduate programs.

The Centre is a world leader in the teaching and research of innovative
management practices. It was the first academic centre in the world to
concentrate its postgraduate management programs exclusively on the process
of innovation and the management of change. The Australian Centre for
Entrepreneurship and Innovation has a growing network of national and
international affiliations with innovation-oriented centres of teaching, research
and practice.

Swinburne first offered a formal qualification (a Graduate Diploma) in
entrepreneurship and innovation in 1986. Program offerings were broadened with
the addition in 1989 of a Master of Enterprise Innovation (Coursework Masters)
and in 1992 a Graduate Certificate in Enterprise Management. In 1991 a School
of Innovation and Enterprise was established and an existing Graduate Diploma in
Management added to the suite of programs. The Graduate Certificate in Training
Management was developed in 1992/3. Since 1993, the Centre for Innovation and
Enterprise has also offered its programs in Singapore, and is now presented in
Israel.

In 1997 the structure of the University was revised and the School of Innovation
and Enterprise became a Centre within the Graduate School of Management.

The ACE offers:
• accredited postgraduate programs in the areas of innovation,
entrepreneurship, management, and training management in Australia and
overseas;
• accredited postgraduate programs, short courses, and training in corporations
or other organisations, both in Australia and overseas;
• contract consulting services.

The Australian Centre for Entrepreneurship and Innovation is a specific example of
Swinburne’s general commitment to the provision of high calibre educational
programs which are simultaneously at the academic leading edge and directly
applicable to the specific needs of commerce and industry.
Centre for Biomedical Instrumentation

**Director**
Dr. A. Wood

Telephone: (03) 9214 8867
Fax: (03) 9214 8867
Email: andrewwood@swin.edu.au

Website: www.swin.edu.au/bioscieleceng/bioinst

The Centre was established to provide a focus for research and consulting activities related to instrumentation for medical and physiological use. The Centre draws on the strengths in instrumentation and biophysics within the School of Biophysical Sciences and Electrical Engineering and works in collaboration with the Brain Sciences Institute.

At present, research activities include monitoring of human sensory function, driver performance, functional neuro-imaging, modelling of brain electrical activity, computer MR image classification, biological applications of laser scanning confocal microscopy, Raman and Mössbauer spectroscopy, effects of electromagnetic fields on tissue and a fibre-optic based respiratory monitor. A number of additional projects are being undertaken in conjunction with local hospitals.

Other aims of the Centre include:
- to offer a facility enabling individuals to pursue postgraduate studies in biomedical instrumentation
- to offer short courses serving the needs of medical and health personnel and the biomedical instrumentation industry
- to assist in the teaching of biomedical instrumentation in undergraduate and postgraduate Swinburne programs
- to provide a contact point for visitors from other institutions or companies to undertake collaborative projects
- to promote the availability and commercial development of intellectual property originating within the centre.

Centre for Imaging and Applied Optics

**Co-Directors**
Dr. A. Mazzolini

Telephone: (03) 9214 8866
Fax: (03) 9819 0656
Email: amazzolini@swin.edu.au or martinh@optiscan.com.au

Professor M. Harris

Mobile: 041 234 2846

The Centre for Imaging and Applied Optics (CIAO) was formed in December 1997, in response to the new Swinburne University initiatives in laser technology. CIAO operates a modern, purpose-built, optics laboratory facility on the ground floor of the Applied Science building (Hawthorn campus). CIAO is involved in applied optics research, primarily in the areas of confocal microscopy, 2-photon scanning spot imaging, new optoelectronic materials, and fibre optic sensing.

CIAO has developed collaborative links with industry. The Centre currently collaborates with Optiscan Imaging Limited (a leading Australian designer and manufacturer of confocal microscope systems) to research and develop “next generation” imaging instruments. The Centre will also establish a “state of the art” confocal microscopy facility for scientific, medical and industrial applications research.

CIAO’s main research interests are in the following areas:
- Laser Scanning Confocal Microscopy
- Non-linear optical phenomena
- Fibre optics sensors
- Industrial & medical imaging
- Industrial and medical sensor applications
- Astronomical instrumentation & imaging
- Development of novel rare earth doped glasses for laser applications

Further information can be found at CIAO’s www home page at the following address: www.swin.edu.au/bsee/maz/ciao.html

Centre for Intelligent Systems

**Director**
Associate Professor T. Hendtlass,

Telephone: (03) 9214 8863
Fax: (03) 9819 6443
Email: thendtlass@swin.edu.au

For the past seven years the Centre for Intelligent Systems has specialized in developing and applying algorithms for processing complex data sets and for optimizing complex processes. The main techniques used are artificial neural networks and evolutionary algorithms. Artificial neural networks are used to uncover relationships in data using only a number of examples from the process to be understood. This is especially useful when the data set is large, noisy or involves complex relationships between input and output that, although known to exist, can not be adequately modeled by normal mathematical techniques. Evolutionary algorithms use the principles of Darwinian evolution to optimize the performance of systems involving large numbers of interacting variables when the number is so large as to prohibit any attempt at systematic search for the optimum combination. Over the past few years the Centre has developed a number of techniques for speeding up evolutionary algorithms.

In addition to developing new algorithms, the Centre undertakes a significant amount of commercial application of artificial neural networks and evolutionary algorithms.

More information can be found at http://gene.bsee.swin.edu.au/cis/index.htm

Centre for Internet and Telecommunications Technologies

**Director**
Dr. B. Lavery

Telephone: (03) 9214 8373
Facsimile: (03) 9819 6443
Email: vjl@swin.edu.au

Website: www.swin.edu.au/bioscieleceng/

The Centre for Internet and Telecommunications Technologies conducts research and consulting in leading edge Internet and Telecommunications Technologies, including component Internet, multimedia and software technologies and applications. Our focus is on modeling the growth and performance of the Internet and the underlying telecommunications networks, and the development of advanced multimedia Internet applications such as on-line education and training. This research addresses issues such as accessibility and quality of service for real time or mobile Internet services. In addition to the in-house research programs, we conduct commissioned research and consulting, deliver a program of on-site industry training courses, and offer industry focused postgraduate degrees by coursework or research.

Centre for Object Technology Applications and Research - COTAR (Victoria)

**Director**
Professor B. Henderson-Sellers

Telephone: (03) 9214 8524
Fax: (03) 9819 0823
Website: www.csse.swin.edu.au/cotar

The Centre for Object Technology Applications and Research, known as COTAR (Victoria), is an industry funded, university located centre of excellence focusing on object technology. Industry partners offer support in either cash or kind to create an active research and teaching environment into object technology (OT) - the leading edge of computer science and information systems thinking. Sponsored research produces results which can then flow back directly to industry for rapid utilization.

Object technology is the newest approach to building software which offers substantial business benefits (e.g. flexibility, maintainability and higher quality of software) whilst incurring costs for retraining and restructuring current software practices. COTAR has the advancement of OT in an industry context as its focus. COTAR aims to:
foster collaboration and communication between universities and industry in order to accelerate the practical development of object technologies
provide an Australian research centre in object technology
provide quality professional development courses in object-oriented software engineering
provide an Australian focus for the dissemination to industry of leading-edge knowledge on object technology.

Ongoing research projects include:
- development of the OPEN methodology - in collaboration with over 30 key researchers worldwide
- product and process metrics, funded by government and industry
- usability, particularly of software CASE tools
- the use of formal methods - the FODM project
- technical and organizational issues of reuse
- object-oriented project management
- metamodelling - the COMMA project

COTAR promotes and facilitates technology transfer to the object-oriented paradigm and serves as a focal point for local researchers, international visitors and industry partners. COTAR is also a member of the Object Management Group. Specifically, COTAR offers the following benefits to its industry partners.
- immediate access to modern ideas on software development
- advice on migrating to OT
- advice on object-oriented language choice
- networking to other companies adopting OT for similar projects
- priority access to in-house and public professional development courses
- hands-on access to a wide range of object-oriented CASE tools, language compilers and support tools for evaluation
- access to research students providing collaborative input to appropriate projects.

Centre for Organisational and Strategic Studies (COSS)

Director
Professor M. Nicholls
Telephone: (03) 9214 8434
Fax: (03) 9214 5245
Email: mnicholls@swin.edu.au

The Centre for Organisational and Strategic Studies (COSS) was established in 1996. The Centre consolidates Swinburne’s research and teaching expertise in the following areas:
- Strategic Management and Strategic Change
- Organisation Dynamics and Change
- Innovation and Business Development
- Mixed Mode Modelling
- Marketing

The Centre’s focus on design research and professional design consultancy within a local and international community enables design projects for industry, government instrumentalities and selected community-based clients to be undertaken. The Centre also facilitates the development and application of new Thermofluids Engineering Technologies. CRTD facilitates such development by encouraging partnerships among organizations from industry, government and academia. In working with the industry and government organisations CRTD provides the following services:
- development of instrumentation
- application softwares
- measurement and diagnostic techniques
- technical information, new data and improved access to existing information
- technology transfer

The current CRTD projects include:
- Flowfield modeling and diagnostic techniques
- Computational Fluid Dynamics and Heat Transfer
- Die casting process an magnesium alloy development
- Tooling - complex cooling channels
- Bio-Engineering, Fluid Mechanics and Materials
- Bio-medical computing and hydrodynamic performance of heart valve prostheses
- Micromachined electrohydrodynamic pumps
- Gas injection into liquid baths
- Particulate flows
- Turbulent swirling flows
- Turbulence, mixing, chemically reacting flows and combustion.

Design Centre

Director Graphic Design
T. Streader
Telephone: (03) 9214 6908

Director Industrial Design
B. Quatrelli
Telephone: (03) 9214 6973

Director Multimedia Design
S. Huller
Telephone: (03) 9214 6909

The aim of the Swinburne Design Centre is to provide a professional design consultancy within an educational environment for postgraduate students completing a Bachelor of Design (honours) program. The Centre’s focus on design research and professional design consultancy enables design projects for industry, government instrumentalities and selected community-based clients to be undertaken. The Centre also facilitates the application of new technologies including Interactive Multimedia and CAD to generate innovative visual communication solutions in graphic, product and exhibition design.

Education Research and Development Group

Co-ordinator
Dr I. Macdonald
Telephone: (03) 9214 8003
Email: imacdonald@swin.edu.au

Members of the Group are involved in a wide range of activities including:
- Encouraging and supporting the formation of Teaching Communities within the School to promote a greater awareness of teaching and learning issues.
- Acting as a resource on educational issues within the School.
- Representing the School in University activities involving teaching and learning issues.
- Supervising two current CUTSD-funded projects, “Testing Conceptual Understanding in Physics” and “First Year Engineering Education: "Developing a Culture of Teaching and Learning”, and a Swinburne Curriculum Renewal Project “A Process to Improve the Quality of Teaching and Learning in First Year Engineering Physics”.

The Centre for Research and Technology Development (CRTD) was established to provide a focus for research and teaching and to facilitate the cooperative development and application of new Thermofluids Engineering Technologies.
• Promotes student and staff exchanges between Australian and Korean universities.
• Assisting the School in seeking internal and external funding for educational research and development projects.
• Conducting research and collaborative initiatives related to student transition to tertiary studies.
• Involvement in school curriculum enrichment programs, including the Physics Olympiad and Switch on to Physics.
• Active participation in the Asian Physics Education Network and the Thai Australia Science Engineering Project.
• Liaising with professional bodies including the Australian Institute of Physics Educational Committee (Vic), the Astronomical Society of Australia Educational Subcommittee, and the Institution of Engineers (Aust).
• Involvement with VCE Physics curriculum issues.

The National Korean Studies Centre

Manager

L. Smith
Telephone: (03) 9214 8608
Email: nksc@swin.edu.au
Website: www.monash.edu.au/nksc

The National Korean Studies Centre has four inter-related emphases: research, design and development, project management, and profiling diversity.

National Korean Studies Centre

Manager

L. Smith
Telephone: (03) 9214 8608
Email: nksc@swin.edu.au
Website: www.monash.edu.au/nksc

The National Korean Studies Centre (established 1991) is a joint venture of Swinburne University, Monash University and the University of Melbourne. The mission of the centre is:

- to develop and expand teaching, research and associated activities in Korean Studies, including language, culture, politics, law, business, education and other relevant disciplines;
- to enhance the Australian community’s knowledge and understanding of Korea;
- to support Australia’s economic and other national development strategies.

Building on existing teaching programs conducted in consortium member institutions and in institutions Australia-wide, the Centre:

- fosters the design and delivery of vocationally and culturally relevant Korean language and studies courses in all sectors of the Australian education system;
- fosters and undertakes high quality research relevant to Korean Studies and to Australia-Korea relations;
- promotes greater mutual awareness of all aspects of the Australia-Korea business and trade relationship;
- promotes student and staff exchanges between Australian and Korean universities.

Science Education Centre
(The Swinburne Travelling Science Show)

Coordinator

P. Lees
Telephone: (03) 9214 8503

The Swinburne Travelling Science Show is the major activity of the Science Education Centre. The series of programs produced by the Show are designed to promote science and engineering among school students and the general public. The activities of The Swinburne Travelling Science Show include:

- school based programs for years prep to 10 designed to stimulate an interest in science and engineering;
- a community based program for promotion of Swinburne University to the wider community;
- support for the teaching of science in schools by the provision of in-service training and technical support materials.

The centre also coordinates the Siemens Science School and participates in events such as the ANZAAS Junior Science and Technology festival.

Taxation Research and Advisory Centre

Manager

D. Vinen
Telephone: (03) 9214 8474
Fax: (03) 9819 2117
Email: dvinen@swin.edu.au

The Taxation Research and Advisory Centre was formed in response to two trends: firstly the community’s need for easy access to advice on a progressively complex and difficult area, and secondly, the University’s growing awareness that its valuable resources should be made more readily available to the community.

Services offered

- short courses
- research for tax planning
- research for contesting tax assessments
- advice on interpreting income tax legislation and tax rulings
- assistance in compliance with Australian Tax Office administrative requirements
- research for preparing academic papers
- library searches

Facilities

- excellent library of journals and books on taxation
- experienced and qualified staff with accounting backgrounds

Using the Centre

The Centre runs on a fee-for-service basis and as a matter of policy wishes its resources to be used extensively by the community. The range of services offered should appeal to:

- small and large businesses with specific problems
- accountants or lawyers who wish to offer their clients an extended service
- entrepreneurs
- investors
- salary earners
- retirees.
University Services

Access Education Services
Access Education is part of the Department of Access, Community and Language Programs. Several services and programs are available.

Access Maths and Access English

Teacher in charge
R. Thomas, (03) 9214 8816

Secretary
A. Naish, (03) 9214 8634

Individual assistance in English and mathematics is available to students enrolled in courses at Swinburne. The need for tuition may be related to a student’s problems with a mathematics and/or English subject. Alternatively, difficulties in English or mathematics may affect a student’s progress in a range of subjects of their course of study. Particular attention is given to the provision of English tuition to students from non-English speaking backgrounds, including international students.

Tuition may be short-term to overcome a specific difficulty or arranged on a weekly basis over a longer period of time.

This service is available TAFE building TD345 in Hawthorn, room PK312 at Prahran and LA225 at Lilydale. Understanding staff are available to discuss people’s problems in English and/or mathematics and follow up with appropriate tuition.

Community Access Programs

Telephone: (03) 9214 8634

Staff are also responsible for providing access to any members of the community who wish to improve their English and/or mathematics skills.

Consequently, a variety of courses in mathematics and English are available at a range of different skill levels from one-to-one tuition to small group classes. Two return-to-study programs cater for those who wish to enter either a science or humanities course. The department is also responsible for administering the Victoria Police Education Entrance Exams each month.

Study Skills and Support Services (Croydon and Wantirna Campuses)

Swinburne’s campuses at Croydon and Wantirna (formerly Eastern TAFE) offer a range of Study Skills and Support Services including:

Adult Literacy

Evening or day classes are available for building the foundations of reading and writing for studies or work.

Telephone: (03) 9210 1212 (Wantirna) or (03) 9213 6662 (Croydon)

Computing with Confidence

If you lack confidence with a computer, you can join a beginner’s workshop and you’ll be using a computer in no time.

Telephone: (03) 9210 1228

English as a Second Language

If English is your second language, special part-time or full-time classes are available.

Telephone: (03) 9210 1211

Maths with Meaning

A friendly, activity-based workshop is held every week at Croydon and Wantirna to boost confidence with maths.

Telephone: (03) 9210 1228

Open Learning Language Centres

These Centres are available to students who prefer to work independently to improve English and literacy skills. Teachers assist students with finding suitable resources and setting out a program that meets their individual needs.

Telephone: (03) 9210 1215

Return to Study

The Return to Study Unit offers support throughout the year for any student wanting to discuss individual needs or problems. They can help with reading, effective note-taking, writing essays, spelling, or managing time between study, work and family commitments.

Telephone: (03) 9210 1173

Alumni Association

Who are the Alumni?

Former students, former and current staff, and friends of the University.

What is the Alumni Association?

The Alumni Association helps you to stay in touch with friends made at Swinburne by organising seminars, networking events and other functions. All alumni receive our magazine Swinburne News free of charge. In addition, you have the opportunity to remain involved with your University. As the University’s reputation grows, the value of your own qualification also increases.

The aims of the Alumni Association are as follows:

- to offer services and activities which meet the needs of alumni members;
- to provide forums for alumni to network with their peers;
- to encourage alumni to become involved in policy making within the University;
- to raise funds to support current educational programs, thus enhancing the University’s status and maintaining the continuing value of Swinburne qualifications.

On payment of a fee, alumni can use the library, sports association, tool library and bookshop.

For further information contact: Merri Hagan, Telephone: (03) 9214 8705
(For information about chapter groups, consult divisional entries.)

Bookshops

(Bookshop Co-operative Limited)

Manager
R. Wilkens, (03) 9214 5495

General enquiries
(03) 9214 8429/8225

Location
Hawthorn
The bookshop is located on the second level of the Bookshop/Cafeteria building (Student Union building).

Prahran
The bookshop is located on the ground floor of the Union Building (U Building), 160 High St, Prahran.
Telephone: (03) 9214 6730

Lilydale
The bookshop is located in the LA Building next to the library and cafeteria.
Telephone: (03) 9215 7181

Normal trading hours

Hawthorn
Monday - Thursday 8.30am-7.30pm
Friday 8.30am-4.00pm

Prahran
Monday - Thursday 9.00am-6.00pm
Friday 9.30am-5.00pm

Lilydale
Monday - Friday 9.00am-4.00pm

During semester breaks and other times please check the Bookshop noticeboard.

History

The co-operative began trading in February 1978, its objective being to provide an efficient and convenient service to the Swinburne community.

The Bookshop was set up as a co-operative structure to raise working capital via the sale of shares and also to ensure that the control of the operation remained with the members who use the co-operative. The co-operative’s profits remain with the organisation to ensure its continued growth and viability. No external beneficiaries exist.

Membership

For the co-operative to continue to operate successfully it must have members. Members who buy shares and patronise the bookshop are in turn ensuring the Bookshop has an inflow of share capital for growth and ensures its viability.
In return the co-operative provides a convenient and efficient service on campus. Members are also entitled to attend and vote at all Annual General Meetings and are also eligible to be elected as a board member of the co-operative as per the society's rules.

To become a member of the co-operative you simply fill in a share application form and pay $5.00 for 5 x $1.00 shares. You will then be issued with a membership card which should be presented when making a purchase at the co-operative to receive your discount.

How to make the best use of the services offered by your bookshop

Familiarise yourself with the many services offered by your bookshop. Here is a convenient list for your information.

We sell:
- Text and references, novels, secondhand books and general interest books
- Full range of stationery supplies
- Full range of office supplies
- Gifts, cards, wrapping paper and novelties
- Audio and video cassettes
- Film and film processing
- Art and craft supplies
- Calculators, electronic diaries
- Binding service for presentation of assignments etc.

You are also able to sell your used and unwanted books through the bookshop. We suggest that if you are intending to purchase a required text or reference, you do so at the beginning of each semester. If you cannot afford to purchase it immediately, have it put aside. This will help to alert us to any possible shortages early in the semester. Top-up orders can then be placed where necessary to ensure the book arrives in a time to be of use for that semester.

If you find the book is unavailable ask the staff when it will arrive and place a personal order at the information counter to secure a copy when supplies become available.

Croydon and Wantirna Campuses

Wantirna and Croydon have bookshops located in the Learning Resource Centre (Library) on each campus. They offer students a discount of 15% off the recommended retail price of all Eastern House books.

Wantirna: (03) 9210 1916
Croydon: (03) 9213 6651

Centre for Business Development and Training

Established in 1986, the Centre for Business Development and Training is Swinburne’s premier business and industry training centre. The mission of the Centre is to offer the very best in professional development opportunities in order to assist individuals and the organisations they represent to be more effective, efficient and productive. When you invest in one or more of our courses, you can expect:

- relevant and practical skill training that you can apply immediately to your unique situation;
- stimulating learning sessions taught by highly qualified faculty and industry practitioners who are very effective communicators;
- classes that use the very latest in computer technology, curriculum materials and teaching methodology;
- comfortable and engaging learning environments with small class sizes to ensure close interaction among leaders and participants;
- classes held at convenient times in order to accommodate the needs of those employed full-time; and
- access to the combined resources of Australia’s finest multi-sectoral university.

Some of the many services and programs offered by the Centre each year include:
- management skill development seminars, short courses and workshops;
- Microsoft and other computer applications software courses;
- Certified Novell Administrator (CNA) computer network training;
- Certified Novell Engineer (CNE) computer network training;
- Microsoft NT computer network training; and
- fully accredited Workplace Training and Workplace Assessor Training

Please contact us on (03) 9214 8164 to find out more on how we can be of assistance to you and your organisation.

Careers and Employment Unit

The Unit offers a range of services to assist with choice of a career, assessing interests and abilities, investigating course and employment options, improving job hunting skills, and establishing contact with potential employers. Services include:

- careers advice
- workshops on cover letter, résumé writing and interview skills
- careers/employment information and resources
- alumni links program
- vocational assessment
- campus interview program
- job register for graduates
- employment opportunities and information
- job boards and application forms
- vacation employment
- career planning workshops and seminars

Careers Library including:
- handbooks for universities and TAFES
- books on job hunting techniques, career planning, selection and trends
- employer profiles and opportunities
- handouts on preparing a resume, cover letter or interview
- videos on job hunting and employer details
- computer programs - Ozjac, Sigi-Plus, Gradlink
- course information

All services are available on the Hawthorn campus. Croydon, Lilydale, Prahran and Wantirna have a smaller careers and employment program.

Hawthorn campus

465 Burwood Road, Hawthorn. Telephone: (03) 9214 8023/8521
Website: www.swin.edu.au/extaff/careers
For appointments and advice on the hours of availability for the Lilydale and Prahran campuses telephone:
Lilydale: (03) 9215 7101
Prahran: (03) 9214 6734

Croydon and Wantirna Campuses

Swinburne’s Croydon and Wantirna campuses (formerly Eastern TAFE) offer careers advice and counselling by professional staff who can guide you through the process of making a career decision, and assists graduates in making a successful transition from study to work. Telephone for an appointment:
Croydon: (03) 9213 6810
Wantirna: (03) 9210 1265

Chaplaincy

Hawthorn campus

Chaplain
M. Payne
Office Location
473 Burwood Rd, Room 475B106 (alongside Student Health Centre)
Telephone: (03) 9214 8489
Available: Monday, Tuesday, Wednesday
Chaplain for International Students
Chris Gibson
Available: Thursday and Friday

Lilydale campus

Richard O’Brien is the visiting chaplain, and is on campus one lunch-time each week, or by appointment.
Telephone: (03) 9725 5370
Prahran campus

Howard Langmead is the visiting chaplain, and is available at St Matthew's church (opposite the campus) or by appointment. Telephone: (03) 9510 5483 or enquire via Student Union.

Chaplains are available to all students and staff regardless of their religious affiliation or lack of it. They are available to offer all sorts of pastoral care, bible studies and seminars. New students are particularly invited to meet the chaplains, who have information about student religious groups on campus, and local churches. All chaplains are recognised by their respective Christian churches, and authorised by the University.

International students

Christopher Gibson is especially available to all international students, regardless of their religious affiliation or lack of it. If you want to find people of your own language group, locate a church with a similar cultural background or want assistance in coping with Australia, contact Chris on (03) 9214 8489.

Visiting chaplains

For specific religious affiliations, visiting chaplains are available - Jews, Catholics, Orthodox, Lutheran, etc.

Student-run religious groups

There are a number of student-run religious groups, affiliated with the Student Union. The Christian Union, Overseas Christian Fellowship, Indonesian Campus Ministries, Hilltel: Foundation of Jewish Campus Life, and the Swinburne Islamic Society, all meet at Swinburne.

A quiet/prayer room and an Islamic Prayer room are both rooms set aside for use by students.

Childcare Centres

Child-care Centre (Hawthorn)

Coordinator

S. Somerville, (03) 9214 9519

A cooperative was formed in 1975 to provide child-care facilities at Swinburne for parents in need of this service.

The primary objective of the Centre is to meet the needs of the children by providing a secure and happy atmosphere combined with experiences which will foster their development. The Centre aims to encourage beneficial contact that will produce an understanding of the needs of individual children and their family.

The Centre can cater for up to thirty-five children at one time with six caring staff. The children are not separated into age groups but form one large, if rather noisy, family. A combination of structured and free choice experiences have created a warm, relaxed program. The children are encouraged to go at their own pace, to develop their own style, to find their own solutions and enjoy their own creativity.

The Centre aims to provide a happy, warm relaxed atmosphere meeting the individual needs of all children and families. Staff are friendly, caring and committed to quality, professional child care providing planned educational, stimulating activities both indoor and out. Children are encouraged to make choices and develop their self help skills.

Swinburne Prahran Community Children's Centre Cooperative (Prahran)

Coordinator

D. Advyugin

131-133 Union Street, Prahran

Telephone: (03) 9521 4653 or (03) 9521 4643

Fax: (03) 9521 4649

Opening Hours

Monday - Friday: 7.30am - 6.00pm

The Centre is community based run by a Parent Committee of Management and provides long-day care for children aged infancy to six years on a sessional, part-time or full-time basis. Vacancies are available for children from all areas. Child care assistance is available, the Centre is also registered for the Commonwealth Cash Rebate Scheme. All meals are provided and are based on a vegetarian diet.

The Centre provides a program that is based on the individual child's needs. The children are offered a program in which they are free to make their own choices. Simultaneous indoor/outdoor play, informal routines such as morning and afternoon tea, lunchtimes and sleep/rest time are examples of this. The staff are committed to offering a high quality child care service.

Childcare Centres (Croydon & Wantirna)

Childcare Centres are located at both the Croydon and Wantirna campuses, offering full-time, part-time and occasional care for children aged from six weeks to six years on a fee basis.

The Centres are registered with the Department of Human Services as Class 1 facilities. They are also registered carers with the Health Insurance Commission for the Childcare Rebate, and offer Childcare Assistance to eligible families with Centrelink.

Opening Hours

Monday - Friday: 8.00am - 6.00pm

Bookings for all sessions are essential:

Croydon: (03) 9213 6875

Wantirna: (03) 9210 1229

Computing Facilities

Open Access Computing Laboratories

Student access to computing laboratories is provided by IT Infrastructure Services (ITIS) at each campus.

ITIS manages and maintains the open access computing laboratory in the West Wing (2nd floor, West Engineering Building, Hawthorn) as well as several classrooms. One hundred PCs are provided in the West Wing laboratory; running a range of software packages for all University students. There is a student help desk in the West Wing to provide software and hardware support to laboratory users, operate the loans desk and provide a colour laser printing service. The West Wing help desk is open whenever the West Wing laboratory is open.

Opening hours - West Wing (during teaching periods)

Monday - Friday: 8.00am - 9.30pm

Saturdays (some): 12.00pm - 5.00pm

Sundays (some): 1.00pm - 5.00pm

Enquiries: (03) 9214 8574

The West Wing is not open every weekend so please call to check before coming in. BA408 also has faxing and binding facilities and computer disks for sale.

Opening hours - BA408

Monday - Friday: 8.00am - 10.00pm

Saturdays (some): 9.00pm - 5.00pm

Sundays (some): 9.00pm - 5.00pm

Enquiries: (03) 9214 8065

ITIS also manages the TAFE laboratories at Prahran (H601A) and Hawthorn (TC211), which provide a wide range of software applications for DOS and Windows as well as providing access to CD-ROMS in the Library.

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Central Computing Facilities

ITIS manages eight Digital AlphaServer 2100s, one of which supports general UNIX teaching while another supports the ORACLE application exclusively.

The University Network

Managing the University's data network infrastructure is another of ITIS's major responsibilities. The wide area network (WAN) currently consists of a high capacity microwave link between the Hawthorn and Prahran campuses and the Hawthorn and Lilydale campuses of the University. The network also provides all campuses with access to the extensive services available through the Australian Academic and Research Network (AARNet) and the worldwide Internet.

DialIn Access

For instructions on how to connect your PC at home to the Swinburne network via a modem, refer to the web address: www.swin.edu.au/cms/services/dialin

Help Desk

For assistance with any facilities supported by ITIS contact the student help desks on (03) 9214 8574 or (03) 9214 8065.

Network Access and Code of Practice document

All students using Swinburne’s computing facilities should be familiar with the Network Access and Code of Practice document which explains the services provided to users and the conditions governing their use. This document has been reprinted in the separate publications, Higher Education Student Guide and TAFE Policies and Procedures, and is also available from the Help Desk and online through the Campus Wide Information Service (CWIS). The Swinburne CWIS can be viewed through any World Wide Web browser at URL: www.swin.edu.au

English Language for Migrants

Migrant Education Coordination

Co-ordinator

Prahran: (03) 9214 6957
Hawthorn: (03) 9214 5337

Swinburne offers a variety of courses and support programs for migrants, for whom English is their second language, who are:

- learning English as newly arrived migrants
- preparing to enrol in Swinburne or other post-secondary courses
- currently enrolled in Swinburne courses
- wanting to develop language skills to improve study and work prospects.

Full-time and part-time day courses

Preparation for further study and work - Hawthorn and Prahran campus. English levels vary from zero English to advanced.

Part-time, evening courses

Preparation for further study and work - Hawthorn and Prahran campus. English levels vary from zero English to advanced.

January summer school

English for academic purposes (full-time program) - Hawthorn campus. Run in January over a 3 week period.

Language support within a mainstream course

At Hawthorn and Prahran campuses, when circumstances allow, ESL students can have access to English as a second language (ESL) trained teachers and extra tuition time if they are enrolled in VCE, advanced certificate or associate diploma courses.

Independent Learning

At Hawthorn and Prahran campuses students have access to materials for independent study (self-access for language development purposes; audio, computer-based and text-based materials are provided).

Non-permanent residents

Courses are run by the English Language Centre for international students and others who are in Australia on a temporary visa. Enquiries: International Student Unit, (03) 9214 8153.

Croydon and Wantirna Campuses

Swinburne’s campuses at Croydon and Wantirna (formerly Eastern TAFE) offer a range of courses and support programs for migrants, for whom English is their second language including:

English as a Second Language

If English is your second language, special part-time or full-time classes are available.

Telephone: (03) 9210 1211

Open Learning Language Centres

These Centres are available to students who prefer to work independently to improve English and literacy skills. Teachers assist students with finding suitable resources and setting out a program that meets their individual needs.

Telephone: (03) 9210 1215

Equity Unit

Manager

E. Shave

Room AD209F, Hawthorn

Telephone: (03) 9214 8665, (03) 9214 6743 (Prahran)

Level 2, Room 225, Lilydale

Telephone: (03) 9215 7168

Swinburne University of Technology is committed to providing a learning and working environment that is based on equality of opportunity for all staff and students.

Discrimination on the following grounds is unlawful: age, disability, industrial activity, sexual orientation, marital/parental/carer status, physical features, political beliefs or activity, pregnancy, race, religious belief or activity, sex or to sexually harass another. Swinburne has adopted an anti-discrimination policy.

Swinburne is committed to providing an environment free from harassment and discrimination and has in place a network of Sexual Harassment/Discrimination Advisers. The University also adheres to a policy of Affirmative Action.

Disability at Hawthorn, Prahran and Lilydale campuses is managed by the Equity Unit. A Disability Action Plan has been developed and adopted by Council. Enquiries should be directed to: (03) 9214 8855 or (03) 9214 5533.

Croydon and Wantirna Campuses

Swinburne’s campuses at Croydon and Wantirna (formerly Eastern TAFE) offer a Disability Support Service. If you have a disability, permanent or temporary, and require support whilst studying, please contact staff prior to applying for your course. Assistance may be available in the form of note-taking, study support, in-class support, interpreting, attendant care or tutoring.

Wantirna: (03) 9210 1916

Croydon: (03) 9213 6651

International Office

Dean

I.A. McCormick

473 Burwood Road, Hawthorn

Telephone: (03) 9214 8235

The International Office is the first point of contact for enquiries regarding Swinburne’s international activities. It is responsible for coordinating Swinburne’s...
international programs, and for formulating policy and guidelines on the conduct of these activities.

**International Student Unit**
473 Burwood Road, Hawthorn
Telephone: (03) 9214 6849

369 Stud Road, Wantirna
Telephone: (03) 9210 1294

Opening hours
Wantirna
(03) 9210 1294

Prahran
(03) 9214 6998

Lillydale Lake (TAFE)
Hawthorn
(03) 9214 8330

Telephone numbers:
www.swin.edu.au/lib/welcome.html

Library web site
www.swin.edu.au/lib/welcome.html

Telephone numbers:

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<td>Hawthorn</td>
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<td>Lillydale Lake (TAFE)</td>
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<td>Lilydale (HE)</td>
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<td>Wantirna</td>
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Library open opening hours reflect Swinburne’s teaching program timetables, including evening and weekend opening during teaching periods. Hours vary between campuses. Details for the current period and advance notice of changes are posted on notice boards in the libraries and on the Library web page (http://www.swin.edu.au/lib/hours/hours.html).

**Summary of Library borrowing regulations and conditions of use**

**Persons entitled to use the library**

All currently enrolled full-time and part-time students and staff employed by Swinburne University of Technology who accept the Library regulations may use any campus library.

Members of the general public, including past students and staff, are welcome to read or use the facilities within the libraries, provided that they also accept the regulations.

The managers of campus libraries, or the senior staff member on the premises, may refuse entry to the library to any person not registered as a borrower.

**Persons entitled to borrow from the library**

Members of Council and Board of TAFE of Swinburne.

Full-time and part-time staff members of Swinburne University of Technology.

Approved borrowers from other institutions with which Swinburne has reciprocal borrowing agreements.

Registered members of the Swinburne Library Information Service and Alumni Association (fees apply).

Such other persons or organisations as the Director, Information Resources and Learning Services or Campus Library Manager may from time to time approve as borrowers.

**Identity cards**

A current Swinburne identity card or approved borrower card must be presented each time an item is borrowed, and at any other time at the request of Library staff. Cards are not transferable and lost cards must be reported and replaced immediately.

**Borrowing**

All material and equipment borrowed must be recorded at appropriate issue points before the borrower enters the security gate to leave the library.

The borrower accepts responsibility for the care of any item borrowed and for its return in good condition on or before the due date and time.

Limits on the number of items in various categories (books, periodicals, videos, etc) which a borrower may have on loan at one time are set out in the campus library guides.

The Library reserves the right to recall any item on loan before the normal loan period has expired.

Most library materials may be returned to any of the campus libraries. Equipment must be returned to the campus from which it was borrowed.

**Loan periods**

The standard loan periods for books are:

- Students (undergraduate/TAFE): 14 days
- Off-Campus students (postal delivery): 21 days
- Higher degree students (Masters/Doctorate): 28 days
- Staff: 28 days

Most loans may be renewed provided that the item has not been reserved by another borrower and that it is not overdue.

Most material in Reserve collections may be borrowed for 2 hours for use in the library. Computer software held in Reserve collections may be borrowed with associated books for 14 days/28 days.

Items not available for home loan include material in the Reference, rare book and archive collections, and any items marked “Not for loan” or “Display”.

Loan periods and conditions for items in the periodicals and audiovisual collections are set out in the campus library guides.

**Holds and intercampus requests**

Students, staff and registered borrowers can reserve an item which is out on loan or request an item from another campus by placing a hold via the catalogue.

**Lost or damaged material**

Loss or damage of an item must be reported immediately. Borrowers are responsible for the cost of replacement or repair, plus an administrative charge.
Penalties

Each campus library issues loans subject to the imposition of penalties for late return and non-return of items. When an item falls overdue, borrowing privileges are suspended at all campuses. Fines are imposed for late return of most items. Further details of penalties are contained in the campus library guides.

For students, the issuing of results and eligibility for re-enrolment is dependent upon the student having no overdue items. Conferring of awards is dependent upon all outstanding library penalties being resolved.

For staff, all material on loan to them must be returned and all penalties resolved before they leave employment with Swinburne.

Authorisation for reciprocal borrowing at other libraries will not be issued to nor renewed for students or staff who have accrued fines in excess of $40.00 during the previous twelve months.

Use of open access workstations and electronic resources

Open access electronic workstations are available at all campus libraries. Some are dedicated for the use of databases, library catalogues and other academic information resources. Users of the workstations must abide by legal requirements and Swinburne policies, which are detailed on notices posted near the workstations.

Photocopying and printing

Photocopying and laser printing facilities are available in the libraries (charges apply). Users must note the relevant provisions of the Copyright Act and abide by them.

Rules for general conduct

Eating, drinking and smoking are not permitted in the library.

Playing games is not permitted in the library.

Mobile phones must be switched off in the library.

Bags and cases may be brought into the library but must upon request be presented for inspection at the library exit.

The library, including computer areas, is a place for quiet study. Library users are expected to behave in a manner that is conducive to quiet independent study. Discussion is permitted only in designated areas.

Any person who, in the opinion of a library staff member and the senior staff member on the premises, repeatedly fails to observe any of the above rules, or who is noisy or disruptive or engages in anti-social behaviour, or who damages library property in any way, must produce a Swinburne identity card on request.

Offenders will be responsible for all damage caused, and will be subject to disciplinary action which may result in exclusion from the library and suspension of borrowing privileges.

If a student or staff member is dissatisfied with any punitive action taken by the library, a request for it to be reviewed in accordance with Swinburne’s official Grievance Procedures can be made.

Swinburne accepts no responsibility for the safekeeping of property belonging to library users.

Power to alter rules

One or more of the rules may be changed from time to time by the Vice-Chancellor or Deputy Vice-Chancellor, on the recommendation of the Director, Information Resources and Learning Services.

At the discretion of the Director IRLS one or more of the rules may, under special circumstances, be temporarily suspended. Any change to or suspension of any rule shall be reported at the earliest opportunity to the Vice-Chancellor or Deputy Vice-Chancellor.

Library services for students with disabilities

All levels of all campus libraries are wheelchair accessible. A range of adaptive equipment is available at Hawthorn and Prahran campuses. Flexible loan periods, assistance with searching for information, retrieving materials and photocopying can be arranged through the disability liaison librarian at each campus.

Croydon

(03) 9213 6649

Hawthorn

(03) 9214 8829
TTY (03) 9214 8840

Lilydale Lake (TAFE)

(03) 9839 2439

Lilydale (HE)

(03) 9215 7115
TTY (03) 9215 7115

Prahran

(03) 9214 6795
TTY (03) 9214 6833

Wantirna

(03) 9210 1294
TTY (03) 9210 1292

Office for Quality Education (OQEd.)

The Office for Quality Education has responsibility for the following functions across the University:

Evaluation Services

The use of Teleform optical scanning technology for:

• student evaluation of subjects and teaching;

• collecting data for the Graduate Careers Council of Australia’s graduate destinations surveys and course experience questionnaires;

• and for customer and staff satisfaction surveys.

Curriculum Renewal Projects

Annual grants to teaching staff by competitive tender to provide seed funding to assist staff to improve curricula content and encourage innovative approaches to teaching, learning and assessment methods.

CUTSD Coordination

In-house arrangements for the communication, selection and approval of applications for Committee for University Teaching and Staff Development (CUTSD) national teaching development and staff development grant schemes.

Swinburne Teaching Excellence Awards/Australian Awards for University Teaching

The whole process for these two awards is coordinated by QEd.

SOMS Coordination

The coordination of the quality review aspects of the Swinburne Quality Management System (SOMS) and related quality improvement initiatives.

Through these functions OQEd. provides a range of projects, training programs and consultancy services to help the University to continuously improve the quality of its educational programs, related services and management processes.

The Office for Quality Education is located in room AD 206 in the Administration Building, Hawthorn Campus.

Telephone: (03) 9214 5404, Fax: (03) 9214 5483

Student and Residential Services

Director

Z. Burgess
Room 36W1a, 36Wakefield St., Hawthorn
Monday - Friday: 9.00am - 5.00pm
Telephone: (03) 9214 8423

Prahran Campus

Coordinator

H. Kalaboukas
Room PK228, Building PK, Level 2
Monday: 9.00am - 5.00pm
Tuesday - Thursday: 9.00am - 6.00pm
Friday: 9.00am - 4.00pm
Telephone: (03) 9214 6720

Lilydale Campus

Coordinator

E. Wallis
Room LA232, Building LA, Level 2
Monday - Friday: 9.00am - 5.00pm
Telephone: (03) 9215 7103

The following services are available to all students and staff. The majority of services listed at the Hawthorn campus are also available at the Lilydale campus and the Prahran campus.

Counselling Service (Hawthorn)

Deputy Director, Student and Residential Services

R. MacDonald
Room 36W2, 36Wakefield St., Hawthorn
Monday, Tuesday & Friday: 9.00am - 5.00pm
Wednesday & Thursday: 9.00am - 6.00pm
Telephone: (03) 9214 8025
The Counselling Service is available to students and their partners, staff and graduates up to 12 months after completion of their course. The Service is free and strictly confidential.

The service includes individual counselling by appointment or on a ‘drop-in’ basis, group workshops for students and staff and consultancy to staff to enhance their work environment. The counsellors, who are registered psychologists, assist with areas such as:

- Life skills and personal development
- Relationship and interpersonal education
- Effective strategies for stress management and problem solving

Cross-Cultural Counselling and Workshops for:

- Adjustment to Australian society and university life
- Cross-cultural communication
- Awareness of cultural differences
- Specialised strategies to improve learning and academic performance

The Learning Skills area enhances student learning and assists students who are having problems with their learning. Counselling and workshops are offered in the areas of:

- Study techniques
- Learning approaches and strategies
- Time management/organisation
- Exam preparation/anxiety
- Overcoming procrastination
- Improving motivation
- Reading, listening and note-taking
- Educational counselling

Health Service (Hawthorn)

Co-ordinator
J. Fischer
Room SH107, Laneway behind library
Monday - Friday: 8.45am - 5.00pm
Telephone: (03) 9214 8483

Medical practitioners by appointment
Nursing staff available on a ‘drop-in’ basis

This is a confidential nursing and medical service covering:

- Emergencies
- Clinical care
- Health promotion

It is available to all Swinburne students and staff. We offer:

- Immunisation/general, overseas
- Hearing/vision testing
- Asthma management
- Full clinical assessment
- Health counselling:
  - nutrition
  - contraception
  - sexually transmitted diseases
- Information programs

Housing, Part-time Employment & Finance (Hawthorn)

Co-ordinator (Housing & Part-time Employment)
S. Crosbie,
Room 36W4b, 36 Wakefield St., Hawthorn
Telephone: (03) 9214 8882
Monday, Tuesday & Thursday: 9.00am - 5.00pm
Wednesday: 9.00am - 6.00pm
Friday: 9.00am - 4.00pm

Coordinator (Finance, Austudy & Student Loans)
B. Graham,
Room 36W4a, 36 Wakefield St., Hawthorn
Telephone: (03) 9214 8953
Monday, Wednesday & Friday: 9.00am - 5.00pm

This Service offers the following to students and staff:

- Independent advice on all aspects of housing
- Noticeboard of housing offers; share, self-contained, board
- Information on tenants’ rights
- Lists of real estate agents offering flats and houses
- Noticeboard of part-time employment offers
- Register for students interested in working part-time
- Tutor register for students looking for a tutor or offering to be a tutor
- Information on recommended rates of pay and work agreements
- Information, advice and advocacy on Youth Allowance/Austudy (we have contacts with Centrelink)
- Financial counselling, including student loans
- Assistance with fees
- Information on tax and budgeting

Financial Assistance Schemes

Youth Allowance

Youth Allowance was introduced July 1 1998 and replaces a number of existing payments, including Youth Training Allowance, Newstart and Sickness Allowance for under 21s, AUSTUDY for under 25s and Family Allowance for some secondary students.

Youth Allowance provides financial assistance to:

- Full-time students aged 16 to 24;
- Full-time students 25 or more who were getting Youth Allowance before they turned 25 and are still doing the same course;
- Other young people up to 21 who are looking for work full-time, combining part-time job search and part-time study, doing other approved activities (including voluntary work), or who are ill;
- And are an Australian resident (a two year waiting period may apply to new arrivals);
- And who meet a personal and maybe a parental or partner income and assets test.

Austudy

Austudy provides financial assistance to:

- Full-time or concessional study load students;
- Who are aged 25 or more;
- And are an Australian resident (a two year waiting period may apply to new arrivals);
- And who meet a personal and maybe a partner income and assets test.

Helpful hints about Youth Allowance/Austudy

- Pick up your application form and information booklet from Centrelink or from Student & Residential Services (financial adviser) on your campus.
- Read the information booklet carefully.
- If having read the booklet you still have questions, then seek help from the financial adviser on your campus.
- There are some changes with Youth Allowance and Austudy that may mean that students who were previously ineligible for AUSTUDY may now be eligible for some assistance. Ask the financial adviser on your campus for more information.
- If your friends, family or family accountant say you are not eligible, don’t assume they are correct - the eligibility criteria are complex and students’ circumstances vary. IF IN DOUBT PUT IN AN APPLICATION ANYWAY.
- Fill in your application form carefully – mistakes or omissions will mean delays in receiving your first payment.
- Supply all the documentation requested, otherwise delays will occur.
- Get your application in as soon as possible.
NB. Back payments no longer apply. Payments may only start from the date you lodge your claim for payment.

- Don’t accept a decision from Centrelink if you think it is inaccurate or unfair. Ask your financial adviser on campus for assistance.
- If your circumstances change at any time throughout the year, you must let Centrelink know immediately. In particular, change of enrolment or employment details.

Some students (including part-time) in receipt of certain pensions or allowances from Centrelink or DVA may also be entitled to a Pensioner Education Supplement. The Student Homeless Rate may assist students who do not get any support from their families. Ask the financial adviser on your campus for more details.

Centrelink offers a voluntary loan scheme which is referred to as The Student Financial Supplement Scheme. Ask your financial adviser on campus for more information before taking up the Supplement option. Remember, this is a loan and you will have to repay it! If you also have deferred paying your HECS payments the debts can build up.

It is also possible to get up to a $500 Advance Payment. The Advance Payment is repayable by direct deductions from your fortnightly allowance over the next six months.

**ABSTUDY**
ABSTUDY provides financial help for Aboriginal and Torres Strait Islander students who want to do secondary or tertiary studies.

**Department of Social Security Benefits (DSS)**
There are various benefits from DSS that may be available to students, such as Family Allowance Supplement, Sole Parent Pension, Unemployment Benefits (part-time students) and Health Care Cards.

Students who qualify for ABSTUDY may be eligible for a Health Care card, enabling them to receive a range of concessions.

**Rent Assistance**
Rent Assistance may be available to Youth Allowance recipients who are married or have a dependent child, or “independent” and living away from the parental home and “dependent” recipients who have an approved employment or study related reason to live away from home. Some other Centrelink beneficiaries may also receive Rent Assistance.

**Bond Assistance Scheme**
If you are looking for a place to live and you can’t afford the bond, the Department of Planning and Development may be able to help. Ask your housing officer on campus for more details.

**Scholarships**
There are various scholarships, prizes and trusts that may be available to students. Ask your financial adviser and your Divisional office for information and check in this handbook for details under the heading ‘Scholarships and Awards’.

**Tutoring**
Tutoring assistance may be available to you. Ask at Student and Residential Services.

**Travel Concession**
If you are a full-time student and wish to travel on the metropolitan transport network at concession rates you can purchase a Transport Concession Card from Met outlets. Also ask about concession cards for country and interstate rail travel. Application forms are available at Student Administration.

Concession tickets are available for travel to and from Swinburne on public transport. Students who wish to purchase these tickets should go to the Student Administration Office to complete the necessary forms. Only full-time students are eligible for fare concessions. Concessions are not available to full-fee paying overseas students. Students must present their student card when applying for a concession form. Australian Airlines and Ansett Airlines concessions are available from the Contact Centre, Student Union, or from STA Travel Agencies. Full-time students are also eligible for an international student card, available from the Contact Centre, Student Union.

**Student Loans**
With the approval of the Loans Fund Committee, full-time students may obtain financial assistance from the following funds:

- Commonwealth Help for Needy Students Fund
- Special Assistance for Students Program

- Student Aid Fund
- Rotary Swinburne Loan Fund
- Overseas Student Loan Fund

Emergency short-term loans are available to full-time and part-time students from the Student Union Aid Fund. For all loans, ask at Student and Residential Services on your campus.

**Student Residences**
On campus accommodation is available at the Hawthorn Campus. This consists of an 85 bedroom Residential College which offers hostel type accommodation and 36 two and three bedroom apartments that can accommodate a total of 96 students. The Residential College would be of particular interest to first year students who have not lived away from home before, while the apartments would suit students in the second year of their course or later, who have already lived away from home.

**Residential College**
The Residential College features individual rooms furnished with a single bed, built-in study desk and bookshelf, cupboards, chairs, wash basin and an electric jug. There is hydronic heating in each bedroom.

The shared facilities include:

- Bathroom and toilets on each floor.
- Fully equipped with self-catering facilities.
- Recreation/TV Lounge areas.
- Landscaped outdoor BBQ area.
- Laundry facilities.
- Tutorial rooms.

**Apartments**
The Apartments are well appointed and feature:

- Bedrooms furnished with single beds.
- Bedrooms have a built-in desk and ergonomic chair.
- Gas heating.
- Kitchens with stove, oven and fridge.
- Dining table and chairs.
- Laundry with washing machine and dryer.
- Lounge suite and coffee table.
- Individual apartment and bedroom locks.
- Security entrance.

Another 20 three bedroom apartments capable of accommodating 60 students will be ready for occupation by the second semester.

The Student Residences are located at 21 Wakefield Street, Hawthorn.

Further information and application forms can be obtained by contacting (03) 9214 5555.

**Student and Support Services (Croydon and Wantirna)**
There are many services available to assist students at the Croydon, Healesville, Lilydale and Wantirna campuses (formerly Eastern TAFE) including:

- Careers Advice and Counselling
- Childcare
- Disability Support
- Financial Assistance
- Health Service
- Recreation
- Student Liaison

These services are available at both the Croydon and Wantirna campuses and arrangements can be made for students attending the Lilydale and Healesville campuses. You can contact Student Support Services on:

- **Croydon**: (03) 9213 6810
- **Wantirna**: (03) 9210 1205
**Sports Association**

**Opening hours and contact**

**Hawthorn**
Sports Centre (Building 19)
Monday - Friday 7.00am - 10.00pm
Saturday - Sunday 12.00pm - 5.00pm
Telephone: (03) 9214 8018

**Prahran**
Room Student Services, Building K
Monday - Friday 9.00am - 5.00pm
Telephone: (03) 9214 6745

**Lilydale**
Monday - Friday 10.00am - 4.00pm

Swinburne Sports Association is an autonomous body which aims to promote and encourage opportunities in sport, health and physical recreation to all members of the Swinburne community. All students are eligible to become a member of the Association on enrolment. Swinburne staff and alumni are also encouraged to join by paying a small annual fee.

The Association began in 1963. It is managed by students and has eight full-time employees across three campuses.

**Recreation**

An extensive and exciting recreation program is offered continually throughout the year. Activities range in commitment and complexity. The easiest recreations are the free on-campus 'one hit wonders'. These 'everyone has a go' activities are designed to give you a break and a bit of fun in-between classes.

The Sports Association offers over eighty short courses a year such as ballooning, rafting, singing and photography. Course club structure emphasises a beginner-up approach so that members of any skill level can have a go.

**Clubs**

Some twenty different sporting and recreation clubs are affiliated and supported by the Sports Association. Clubs are managed by students who volunteer to work in a committee format to plan and prepare activities for their club. Types of clubs are wide ranging and include the more team-based and competitive sports such as Australian rules football, basketball, netball, tennis, hockey, soccer, and volleyball. To the recreational based clubs such as hang-gliding, scuba diving, snow skiing, skydiving, bush walking and waterskiing. The Sports Association’s club structure emphasises a beginner-up approach so that members of any skill level can have a go.

Over the last four years the number of clubs continued to grow, especially in the outer east and Prahran where the club system began in 1993. Such growth is indicative of the fun, challenge and enthusiasm obtained by joining a sports club.

**Fitness and health**

The Sports Association provides fitness and health promotions at each campus. The Hawthorn campus has weight training, aerobics, nutrition counselling, massage and fitness testing areas in its Sports Centre. Subsidised membership deals with fitness centres in the local vicinity of the Lilydale and Prahran campuses are negotiated.

By uniting with the Student Health Unit and the Student Union the Sports Association creates on-campus awareness and promotion weeks such as Quit Smoking, Heart Week, Health and Sexuality, and Women and Equal Opportunity.

**Inter campus and elite sport**

As a university, Swinburne enters teams in local, state and national inter-university sporting events. The Sports Association supports the individuals and teams that wish to represent the University. In this spirit, ‘grudge’ matches between the three Swinburne campuses develop a healthy rivalry that assists in the preparation and selection of our teams to compete against other universities in the Victoria/Tasmania conference. Our goal at these conference challenges is to be highly ranked so that we can progress to the national university championships.

Students at Swinburne who are of world competition standard will be nominated and supported by the Sports Association for World Student Games.

**Sports Association handbook and further information**

By visiting the Sports Desk at your campus you can collect our handbook and detailed information on any of the clubs, recreations, facilities and services offered.
the demands of students as a group, without losing sight of the individual student, and ensuring high standards are met.

**Union Office**
The Union’s head office is located on the fourth level of the Union Building at Hawthorn. Union personnel located on this level include the President, Executive Officer, Finance Manager, and Administrative Support.

**Reception**
The Union provides a reception area on each campus. Contact details are as follows:

- **Croydon**
  - Student Union Office
  - Telephone: (03) 9213 6642

- **Hawthorn**
  - 4th Floor Union Building, John Street.
  - Telephone: (03) 9214 5440
  - Facsimile: (03) 9819 2256

- **Healesville**
  - Student Union Office
  - Telephone: (03) 5957 1808

- **Lilydale**
  - Level 1, Building LA
  - Telephone: (03) 9215 7181
  - Facsimile: (03) 9215 7182

- **Prahran**
  - Level 2, Building PK, St John Street
  - Telephone: (03) 9214 6729
  - Facsimile: (03) 9214 6540

- **Wantirna**
  - Student Union Office
  - Telephone: (03) 9210 1110

The reception area on each campus provides various services, including room bookings, legal advisor bookings, insurance claims, facsimile, international student identity cards, and general information.

Bookshop facilities for Lilydale are also housed at the Student Union reception.

**Other services**

**Book Vouchers**
Needy students can apply for book vouchers, which are jointly funded by the Student Union, Bookshop, and Chancellery. They are available from the University’s Housing, Part time Employment, and Finance Department on each campus.

- Telephone: (03) 9214 8953 (Hawthorn), (03) 9215 7181(Lilydale), (03) 9214 6734 (Prahran).

**Halls and Meeting Rooms**
Halls and meeting rooms are available for bookings by students on each of the three campuses. At the Hawthorn campus, Ethel Hall, the Fourth Floor Meeting Room, and SAAASC meeting rooms are available, at Lilydale the Student Union Meeting Room on Level 1 of Building LA, and at Prahran the meeting room on Level 2 of Building PK.

- Telephone: (03) 9214 5440 (Hawthorn), (03) 9215 7181(Lilydale), (03) 9214 6729 (Prahran).

**Student Lounge and Union Services Desks**
Each campus hosts one or more student lounges in which students can relax with friends or undertake work in a casual atmosphere. The Hawthorn E lounge is one space open to students, while the Hawthorn Union Services Desk, Prahran Level 2, and Lilydale Level 1 provide access to newspapers and magazines. The Hawthorn Union Services desk provides particular assistance for nearby TAFE students by responding to enquiries, approving notices for noticeboards, and supplying games and playing cards. Lilydale student lounge provides music, and contains a pool table for student use.

**Emergency Loans**
The Student Union provides funding for short term emergency loans for students. Loans are allocated by the University’s Housing, Part-time Employment and Finance Department. Repayments can be made at the reception desk of each campus.

- Telephone: (03) 9214 8953 (Hawthorn), (03) 9215 7105 (Lilydale), (03) 9214 6734 (Prahran).

**Legal Advisor**
The Student Union provides a free legal service for full and part time students. The solicitor is available at the Hawthorn campus every Tuesday during the academic year. This service is available to students on all campuses. Students may contact reception on their respective campuses to make an appointment.

- Telephone: (03) 9214 5442

**Personal Accident Insurance Scheme**
All students enrolled in Swinburne are automatically covered by personal accident insurance. This insurance scheme covers accidents, twenty four hours a day on or off campus in the event that it relates to activity associated with Swinburne. For further details please contact the Accountant in the Union Office.

- Telephone: (03) 9214 5442

**Tax Return Advice**
The Union has arranged for a tax consultant to answer student enquiries regarding preparation of their income tax returns. These one on one sessions are conducted in August, the dates being advertised in The Swine. Appointments can be made at Hawthorn reception.

- Telephone: (03) 9214 5440

**Computing Facilities**
Computing facilities are available for student use on both the Hawthorn and Prahran campuses. Popular word processing, spreadsheet and DTP packages are networked for student use. Hawthorn computers are available on the fourth floor of the union building while at Prahran they are housed on the second level of Building PK.

**Laser Printing**
Users of the computing facilities have access to networked laser printers at low per page rates.

**Resume Typing**
The computer centres offer a professional resume service to word process and print resumes for students at reasonable cost. Information is also available at the service counters for those students who wish to have essays and assignments typed.

**Binding Service**
A thermal glue binding service is available at Hawthorn Computer Centre at a reasonable cost. The covers are A4 with a clear acetate cover.

- Telephone: (03) 9214 5447

**Tax Return Advice**
Cone binding is also available at three bookshop outlets.

- Telephone: (03) 9214 8225 (Hawthorn), (03) 9215 7181(Lilydale), (03) 9214 6730 (Prahran)

**Student Advisory and Academic Support Services**
Student Advisory and Academic Support Services are delivered to students across each of the campuses, from the SAAASC (Student Advisory and Academic Support Centre) at Hawthorn, from the Union Services Desk, Level 2 Building PK Prahran, from the Union Services Desk, Level 1, Building LA, Lilydale and from the Student Union Offices at Wantirna, Croydon and Healesville.

Each campus contact point provides a one stop shop for a whole range of information regarding support services available on campus and in the wider community. A database is kept up to date with information on all University services and departments, as well as community services which students may access. This enables staff to deal with any student emergency arising, whether personal or academic, assuring appropriate referral in order to resolve the problem.

The professional staff employed to deliver these services are expert at dealing with academic problems, assisting students experiencing such problems to understand the correct avenues for resolution and helping them to find the best solution. Staff can also assist with the development of a student perspective on University policy areas, to ensure that the needs of students are not overlooked and hence help develop a University system which is effective.

A number of community projects, subject to budget constraints, are coordinated by the advisory and academic support staff to provide individual students with greater opportunities to foster the community spirit. From 1998 a student mentor
scheme will be operational. It will give students the chance to be linked with experienced and trained returning students, in order to assist them with settling into university life and ensure they can access help if problems arise. Student Orientation Supporters are returning students who help organise and run activities for new students so that the transition to Swinburne is smooth.

The Advisory and Academic Support staff also provide support to the constituencies which are groups of students who meet regularly to discuss their courses, concerns and the subsequent steps to take to ensure a satisfactory outcome. The Swinburne Youth Initiative, another project co-ordinated by this area, provides the opportunity for students to undertake paid tutoring with disadvantaged youth in the wider community.

The Union also runs an Award Scheme that has been designed to give students who participate in extra curricular activities credit for their effort. It offers them access to training, to further enhance the skills they develop through their participation. It will assist students to plan out their areas of involvement and work through what they want to achieve for the year. Finally it will help them market their skills to future employers.

In addition to supporting projects, staff undertake student oriented research in order to provide quality statistical information to be fed into the policy process and to improve service delivery on campus.

**SAASC (Hawthorn) opening hours**

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**Student Union Services Desk, Prahran**

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**Student Union Services Desk, Lilydale**

| Monday, Tuesday, Thursday | 9.00am - 6.30pm |
| Wednesday, Friday         | 9.00am - 5.00pm |

**Student Union Office, Croydon**

| Telephone             | (03) 9214 5455 |

**Student Union Office, Healesville**

| Telephone             | (03) 9213 8642 |

**Student Union Office, Wantirna**

| Telephone             | (03) 9210 1110 |

**Communications and Information Publications**

The Student Union publishes a weekly newspaper called The Swine, which primarily carries news and information pertaining to students and Swinburne. It provides a forum for students and staff to present and discuss their views on relevant matters. During holidays and non-teaching periods, a smaller publication called Piglet keeps the flow of information going.

The Student Union also produces a free diary, Orientation Handbook and year planner which are available from Union Services Desk on each campus and at re-registration.

**Student Publications**

Students publish magazines called *Tabula Rasa*, *Colostomist* and *Verimoo*, at least twice per semester. They provide a medium for students to develop their publication skills and all students are welcome to contribute graphics, articles, and creative writing. If you would like to participate, contact or come to the Media Office. Telephone: (03) 9214 5545.

**Visual and Performing Arts (VPA)**

In conjunction with the Campus Committee, the VPA, subject to budget constraints, develops, organises and presents the social programs for the year. A wide variety of events are planned, to suit the different types of students, including theatre, part timer’s evenings and union nights. Students help to organise activities through the Campus Committee and welcome feedback regarding the types of functions students would like to experience on campus. VPA works closely with clubs and societies in order to promote activities jointly between clubs and the Student Union.

**Activities contacts:**

- Telephone: (03) 9214 5459 (Hawthorn), (03) 9215 7150 (Lilydale), (03) 9214 6729 (Prahran)

** Clubs and Societies**

Clubs and Societies promote the involvement of students in the Swinburne community through participation in groups with a common interest. Affiliated clubs receive funding from the Student Union and assistance with organizing events which suit their members. There are more than seventy clubs and societies for students at Swinburne to choose from and the ability to start more. High quality meeting and storage facilities are available to be booked at the Hawthorn SAASC, the Prahran Union Services Desk, and the Lilydale Union Services Desk. A mini bus is available for clubs and societies to book via the Tool Library, with no charge except for a deposit, refundable upon return of an undamaged bus. The Clubs and Societies officers will assist with queries regarding the starting of clubs, affiliation and support with resources.

- Telephone: (03) 9214 5461 (Hawthorn), (03) 9215 7150 (Lilydale), (03) 9214 6729 (Prahran)

**Orientation**

All new student are invited to attend the orientation program, which attempts to fast track the learning process about what is available on campus and what sort of things happen in a University environment. All the service departments of the University are involved in presenting information and theatre performances and workshops are held to target specific groups of students with special needs.

Orientation days are offered for full-time students, before classes start and there are evening functions for part-time students. After the commencement of classes there is a week of orientation activities, which are entertainment based, to help new students get to know each other better.

**Tool Library**

The Tool Library is located next to the Corner Caf at Hawthorn, however this service may also be accessed by students from all campuses. The Library hires a wide range of tools and equipment to students and staff. Hire prices are extremely low and the service aims to enable access to equipment, without making a profit, while offering a quality service with information and assistance. Catalogues are widely available and equipment for hire includes lawn-mowers, mulchers, whipper-snippers, engine tune-up kit, arc welder, wallpaper remover, carpet steamer - and a whole lot more.

**Opening hours:**

- Monday - Friday: 9.00am - 5.30pm

**Night Bus**

To ensure safety after dark, a night bus service is offered by the union in conjunction with the university, on three campuses. At Hawthorn, students can take the bus from outside the Corner Caf in Wakefield Street, at Prahran from outside the Security Hut in St John Street, and at Lilydale from the Atrium Bus Stop. Drivers are selected and trained to be safely conscious and to offer a quality service, which drops students at their cars or transport stops within the local area.

The service runs from:

- Hawthorn: Monday - Thursday: 6.30pm - 10.15pm
- Lilydale: Monday - Thursday: 6.00pm - 9.00pm
- Prahran: Monday - Thursday: 6.30pm - 10.00pm

**Photocopying**

The Student Union operates photocopying services from the Services Desk, Corner Cafeteria Hawthorn, Level 2 Building PK, Prahran, and Level 1 Building LA, Lilydale. Copying on transparencies for overheads is also available at a very reasonable price, and there are staff present to give assistance.

A copystar machine with a choice of $2.00 and $5.00 cards is available for the use of Student Union photocopiers.
Catering Department

Hawthorn Campus

Courtyard Café

Located on the ground floor of the Union Building (top end of John Street), this popular new cafeteria offers a wide variety of fresh sandwiches, focaccia, salads and fried foods. Great deals on all food including hot items - perfect for the student on a budget. Smokers are catered for in the undercover seating area and inside offers a clean and inviting environment. Seats forty-eight inside and more than forty outside.

Opening hours (during teaching semester times):
- Monday - Thursday 8.00am (doors open at 07.30am) - 8.00pm
- Friday 8.00am (doors open at 07.30am) - 3.00pm

Contact: Elaine Merton (03) 9214 8823

Corner Café

Located on the corner of John and Wakefield Streets, this extremely popular, busy café offers the surrounds of an old period home. It has a wide range of sandwiches, salads, fried foods, hamburgers and steak sandwiches. Renowned for it’s home-style cooking and friendly staff. Priced conservatively it seats 70 people inside and has picnic style seating outside.

Opening hours:
- Monday - Thursday 8.00am - 8.30pm
- Friday 8.00am - 3.00pm

Contact: Marion Tracey (03) 9214 8380

Union Bistro

Located on the third floor of the Union Building this fully licensed venue offers a great place to get away. Offering a range of beers, spirits and wines at more than competitive prices. Cappuccinos and hot chocolates to keep you warm in winter. The large outdoor terrace is great for those who don’t like to be stuck inside. Great deals on hot food and sandwiches. There is always music playing and a pool table for the sharks. The Union Bistro can also be booked for functions outside of operating hours.

Seats: 120 inside, 48 on the Terrace. BBQ facilities available.

Opening hours:
- Monday - Wednesday 8.00am - 6.00pm
- Thursday 8.00am - Late
- Friday 8.00am - 6.00pm

Functions Department

The main kitchen and administration section of this department are located on the third floor of the Union Building. Offering an expansive range of services including coffee breaks, light lunches, cocktail parties, finger foods, buffets and plated meals. No matter how formal or informal the event may be there is a menu to fit the occasion. Our friendly professional staff deliver to any location, set-up and clear away; waitering staff can be arranged on request. The Functions co-ordinator is always available to help with the planning of any event.

Contact: Joe Kirby (03) 9214 5468 or (03) 9214 8172

Union 3rd Floor Study Area

A large area with tables and chairs for those who need space to study. If video games are your thing this is were you’ll find them. A microwave oven is available for people who like to bring their own. This space is also available for special events.

Catering - Lilydale

Located on the ground floor of Building LA, this new café offers students and staff a range of hot and cold foods. Pies, filos, sandwiches, cakes and many other tempting snacks are available at affordable prices. The café is set back form the spectacular atrium so you can enjoy your food and drinks while taking in the panoramic views of the surrounding hills and Lilydale Lake.

Opening hours:
- Monday - Thursday 8.00am - 6.00pm
- Friday 8.00am - 3.00pm

Contact: Lorraine Foster (03) 9215 7081

Catering - Prahran

This new cafeteria is located in St. John Street on the ground floor of the PK building giving students and staff plenty of room both inside and out. Well regarded for its homestyle cooking, soups, salads, etc. All made fresh daily on the premises. There is also a variety of sandwiches, hot and cold foods as well as cappuccinos and cakes. Like all of the Catering Department Outlets this café offers reasonable prices, friendly service and clean surrounds.

Opening hours:
- Monday - Thursday 8.00am - 8.30pm
- Friday 8.00am - 3.00pm

Contact: Gorda Reiger (03) 9214 6501

Catering at Wantirna, Croydon and Healesville Campuses is provided by a private contractor.

Transport, Access and Parking

Public transport

Croydon campus

Croydon station is on the Lilydale line, a short walk from the campus. The bus No.s 366, 367, 634, 664, 670 to 672, 688 to 690 and 755 also service the Croydon area.

Hawthorn campus

Swinburne's Hawthorn campus is well served by public transport. Trains stop frequently at the Glenferrie Station, which is a two-minute walk from the campus. The station is on the Alamein, Belgrave and Lilydale lines and there are also frequent trains into the city.

Trams and buses also serve the area. The No. 69 tram travels along Glenferrie Road from Kew to St Kilda, and connects with several other tram lines, and buses travel along Auburn Road (No. 824 from Kew to Oakleigh).

Healesville campus

Healesville is serviced by the No. 684 bus which travels along the Maroondah Highway from Lilydale to Eildon, and the No. 685 from Lilydale to Healesville and Badger Creek via Yarra Glen.

Lilydale campus

The campus is located about 10 minutes walk from the town centre and the Lilydale station, where students can catch the No. 680 bus to the campus. Lilydale is also serviced by bus No.s 634, 679, 681, 684 and 685.

Prahran campus

Prahran campus is close to the Prahran Station, on the Sandringham line, with frequent trains into the city. It is also very well served by trams with the No. 6 Glen Iris tram stopping outside the door in High Street, as well as the North Richmond - Prahran (Nos. 78, 79) in nearby Chapel Street.

Wantirna campus

Wantirna campus is serviced by the many buses which terminate at the nearby Knox City Shopping Centre. Bus No.s include 664, 665, 732, 737, 738, 745, 756, 757 and 758.

For further information on public transport, telephone the MET Information Centre on 131 638.

Parking

Croydon campus

Limited off-street parking facilities are available on a first come basis. Please observe No Parking, Restricted and Disabled Parking areas. Registrations of offending vehicles will be recorded and parking infringement notices may be issued.

Hawthorn campus

Limited off-street parking is available to students in the multideck carpark in Wakefield Street. A fee is payable.

For further information, contact KC Park Safe on (03) 9818 3255.

Lilydale campus

Limited off-street parking facilities are available on a first come basis. Students need to obtain a Parking Permit from reception. Please observe No Parking, Restricted and Disabled Parking areas. Registrations of offending vehicles will be recorded and parking infringement notices may be issued.

Healesville campus

Limited off-street parking facilities are available on a first come basis. Please observe No Parking, Restricted and Disabled Parking areas. Registrations of offending vehicles will be recorded and parking infringement notices may be issued.
**Prahran campus**
Limited off-street parking facilities are available at the Green Street car park. Students’ vehicles must display a current 1999 Student Parking Sticker (available from the Facilities and Services Office in Green Street) and a daily ticket (purchased from the ticket machines located in the car park).
For further information, contact KC Park Safe on (03) 9818 3255.

**Wantirna campus**
Limited off-street parking facilities are available on a first come basis. Please observe No Parking, Restricted and Disabled Parking areas. Registrations of offending vehicles will be recorded and parking infringement notices may be issued.

**Conditions of use**
Use of car parks is strictly at the owner’s risk and is subject to:
- a current Swinburne parking permit or sticker valid for the car park in question being clearly displayed on the windscreen;
- availability of space in the car park;
- the car being within a marked bay;
- any fees or charges being paid;
- the driver’s observance of parking signs or directions given by any of Swinburne Parking or Security Officers.

**Parking stickers**
Available from Facilities and Services Offices if required, a student identity card is required. Students should obtain the Terms and Conditions of Parking for the campus they are attending.

**Hours of access**
The main car parks open at 7.00am and close at 10.30pm. Car parks on some campuses are open twenty-four hours. Students are warned against leaving cars in parks overnight.

**Infringement of parking rules**
Failure to comply with parking regulations could incur a Parking Infringement Notice of up to $100.00. Under the Road Safety Act 1986, the fines are enforceable in court. Those who abuse the system are also liable to have their parking privileges withdrawn and the parking permits for their cars revoked.

**Students with disabilities**
Consideration is given to the provision of reserved spaces for students with physical disabilities. Enquiries should be directed to the Equity Unit, Hawthorn (03) 9214 8855 and Prahran (03) 9214 6743.

**Motorcycles and bicycles**
Campus motorcycle parking and bicycle rack locations can be obtained from Facilities and Services Offices.

**Location of carparks**
On-campus parking areas are indicated on the campus maps in this Handbook and on the reverse of parking applications and permits. Subject to change.

**Multi-deck Carpark (Wakefield Street, Hawthorn)**
The complex provides parking for more than 680 cars for the Swinburne and Hawthorn community.

**Note:** A review of parking is being undertaken in the later part of 1998. Students should obtain the current Terms and Conditions of Parking on each campus and obey all parking signs.
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Higher Education Division (Hawthorn/Prahran)

**APPLIED SCIENCE**

Z052  **Bachelor of Applied Science (Biochemistry)**

1999 VTAC course codes: 34601 (F/T) 34603 (O/S Fee)

**1998 ENTER: 72.00**

This program combines studies in chemistry, biochemistry and microbiology. Biochemistry is the study of the chemistry of living matter based on principles of organic, physical and analytical chemistry. As well as understanding biology and working with biochemicals and biochemical instrumentation, the modern biochemist has to make extensive use of computers. Computers are used to control instrumentation in investigations ranging from alcohol levels in blood to vitamin concentrations in food. Computers are also used to control industrial processes such as fermentations and food processing.

The course involves a study of the structure and function of the chemical systems of living organisms and application of this knowledge to many industrial fields such as clinical, pharmaceutical and food chemistry. The course provides a sound background in theory and application of analytical and preparative biochemical techniques. Computing subjects are ancillary but provide awareness and proficiency in modern computer technology and its applications to biochemistry. All aspects of the course are reinforced by paid industrial experience.

**Location**

Hawthorn campus.

**Career opportunities**

Graduate biochemists are employed in a wide variety of industries including the manufacture of vaccines and pharmaceuticals, preparation and analysis of food products, beverages and stock-feed and the preparation of biochemicals for agriculture.

Graduates are also employed in hospital laboratories and private pathology laboratories, as well as in medical and veterinary research institutions.

Emerging employment opportunities exist in biotechnologies such as waste treatment and the manufacture of fine biochemicals.

**Professional recognition**

Graduates are eligible for membership of the Royal Australian Chemical Institute, the Australian Society for Biochemistry and Molecular Biology, the Australian Biotechnology Association and the Australian Society for Microbiology.

**Course duration**

Four years full-time including one year of paid, supervised Industry Based Learning (normally taken after the fourth semester).

**Course subjects**

**Year 1 (1999 syllabus)**

<table>
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<tr>
<th>Semester 1</th>
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<tr>
<td>SP108 Physics or</td>
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<td>SC508 Industry Based Learning 2</td>
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**Year 4 (1994 syllabus)**

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<td>SC562 Analytical Biochemistry</td>
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<tr>
<td>SC570 Chemistry</td>
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<tr>
<td>SC502 Scientific Communications</td>
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**Note:** this course is currently being reformatted as a four subject/semester course.

**Entry requirements**

Completion of VCE. Units 3 and 4: English and Mathematical Methods or Further Mathematics with a minimum of grade B and one of Chemistry or Biology.

**Credit transfer**

Students who have completed the Swinburne TAFE Associate Diploma of Applied Science (Laboratory Technology), with appropriate bridging subjects TLS01, TLS02, TLS03 may be admitted into second year of the course.

**Application procedure**

Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

**Further information**

Contact the School of Engineering and Science on (03) 9214 8372.

Email: engsci@swin.edu.au

Z051  **Bachelor of Applied Science (Chemistry)**

1999 VTAC course codes: 34101 (F/T) 34103 (O/S Fee)

**1998 ENTER: 68.75**

This program combines major studies in chemistry and applied chemistry.

Computers are widely used in chemical laboratories to control instruments, manage data and control experiments. This unique chemistry course equips students for the computerised laboratory. All aspects of the course are reinforced by paid industrial experience.

**Location**

Hawthorn campus.

**Career opportunities**

Using their knowledge of chemical principles and their application to industrial problems graduates take up positions with private and public companies or with government and semi-government organisations such as CSIRO. Initially graduates usually work in laboratories associated with manufacturing (industrial and agricultural chemicals, textiles, explosives, fertilisers, detergents, plastics, dyes, paints, pharmaceuticals) or in the processing of food, coal, oil, gas or minerals.

Swinburne University of Technology | 1999 Higher Education Handbook
Further opportunities exist in research, development, technical services, sales, government organisations concerned with health and environment and administration.

**Professional recognition**
Graduates are eligible for membership of the Royal Australian Chemical Institute.

**Course duration**
Four years full-time including one year of paid, supervised Industry Based Learning.

**Course subjects**

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<td>SC560 Practical Chem</td>
<td>15.0</td>
</tr>
<tr>
<td>SC570 Chem</td>
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<tr>
<td>SC590 Computers in Chem</td>
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<tr>
<td>Semester 8</td>
<td></td>
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<tr>
<td>BS619 Business and Mgmt (option)</td>
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</tr>
<tr>
<td>SC653 Applied Chem</td>
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<td>SC660 Practical Chem</td>
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<td>SC670 Chem</td>
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</tr>
<tr>
<td>SC602 Scientific Comm</td>
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</tr>
</tbody>
</table>

ICI is a major supporter of this course, providing funds for the purchase of molecular graphics equipment as well as being a continuing supporter of our industry based learning program.

**Note:** this course is currently being reformatted as a four subject/semester course.

**Entry requirements**
Completion of VCE. Units 3 and 4: English and Mathematical Methods or Further Mathematics with a minimum of grade B and one of Chemistry or Biology.

**Credit transfer**
Students who have completed the Swinburne TAFE Associate Diploma of Applied Science (Laboratory Technology), with appropriate bridging subjects TLS01, TLS02, TLS03 may be admitted into the second year of the course.

**Application procedure**
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

**Further information**
Contact the School of Engineering and Science on (03) 9214 8372.

Email: engsci@swin.edu.au

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Name</th>
<th>Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>H050</td>
<td>Bachelor of Applied Science (Environmental Health)</td>
<td>ESH055</td>
<td>Bachelor of Health Science (Environmental Health Management)</td>
</tr>
</tbody>
</table>

This health science course is the accredited qualifying program for environmental health professionals in Victoria. It is unique to Swinburne and is designed to develop skills in community health protection, food safety, environmental control and occupational health and safety. The training offered is inter-disciplinary and suit graduates who enjoy working with communities and industry, and have a genuine concern for achieving and maintaining high standards of community health and environmental accountability.

It normally takes the form of a four year program of cooperative education (industry based learning) in which students attend the University for a total of six semesters, and gain practical professional experience for two semesters.

Swinburne arranges the professional experience for full-time students.

The Bachelor of Health Science (Environmental Health Management) has the following objectives:

- to produce a professional graduate who is able to communicate the role of environmental health management to the community and deploy environmental health principles in adding value to community health and quality of life;
- to develop in students a mastery of the basic theoretical and practical principles of environmental health management and their relationship to human behaviour, social health and the environment;
- to produce a professional graduate who has a thorough understanding of environmental health methodology and the ability to interpret and apply it competently and appropriately in the relevant professional context and setting;
- to imbue the graduate with an appreciation of the role of the environmental health practitioner in society, a sense of resourcefulness, originality, impartiality and a well developed culture of community service and ethics;
- to develop self-educative skills, flexibility of mind, and an inherent recognition of the need to research and keep abreast of technological, financial, social and political change;
- to develop graduates who are able to communicate with and relate confidently to a wide range of professionals and others who interface with environmental health practice;
- to develop graduates who are able to participate in the education of society in matters of community health;
- to develop the management skills required to administer and deliver a range of environmental health services to an increasingly informed society;
- to assist students to demonstrate the necessary academic strengths and motivation to seek and obtain entry to a wide range of post graduate programs relevant to environmental health management;
- to meet the accreditation requirements for environmental health undergraduate degree programs set by the Australian Institute of Environmental Health.
### Location
Hawthorn campus.

### Career opportunities
Many environmental health professionals are employed by local government authorities and by state government health and community departments but some work with the Environment Protection Authority (EPA). Opportunities also exist in other state and federal departments and an increasing number in the private sector.

Environmental health professionals can thus be involved in varied duties such as: disease control and immunisation; food safety and quality assurance; industrial health; pollution control; health education; and environmental health risk assessment and management.

Opportunities also exist in industry, particularly the food industry, where environmental health professionals assist with quality control work and in complying with health and pollution laws.

Some environmental health graduates are self-employed as consultants.

### Professional recognition
Graduates are eligible for full membership of the Australian Institute of Environmental Health, a statutory pre-requisite for local government positions. Students can become student members while doing the course.

### Course duration
4 years full-time.

### Course subjects
#### Year 1 (1999 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
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<tbody>
<tr>
<td>ES1700 Environmental Health Management 1</td>
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</tr>
<tr>
<td>ES1610 Human Biology</td>
<td>12.5</td>
</tr>
<tr>
<td>MS101 Foundation Mathematics</td>
<td>12.5</td>
</tr>
<tr>
<td>ES1500 Introductory Chemistry</td>
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<table>
<thead>
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<tbody>
<tr>
<td>BSL100 Introductory Law</td>
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<td>ES1615 Integrative Biology</td>
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<tr>
<td>ES1715 Environmental Measurement</td>
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<tr>
<td>MS102 Introduction to Statistics</td>
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#### Year 2

<table>
<thead>
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<tr>
<td>BSL200 Environmental Health Management 2</td>
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<tr>
<td>ES2740 Environmental Health Technology</td>
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<tr>
<td>ES2630 Microbiology</td>
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<tr>
<td>ES2700 Food Science</td>
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<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>ES2725 Food Safety 1</td>
<td>12.5</td>
</tr>
<tr>
<td>ES2635 Food Microbiology</td>
<td>12.5</td>
</tr>
<tr>
<td>ES2735 Communicable Disease Control</td>
<td>12.5</td>
</tr>
<tr>
<td>ES2705 Water Science</td>
<td>12.5</td>
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#### Year 3

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<table>
<thead>
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<tbody>
<tr>
<td>ES3705 IBL</td>
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#### Year 4

<table>
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<tr>
<th>Semester 1</th>
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<tbody>
<tr>
<td>ES4720 Environmental Management*</td>
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<tr>
<td>ES4740 Environmental Control*</td>
<td>12.5</td>
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<tr>
<td>ES4730 Food Safety 2</td>
<td>12.5</td>
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<tr>
<td>ES4700 Research Skills</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
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<tbody>
<tr>
<td>ES4725 Occupational Health and Safety*</td>
<td>12.5</td>
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<tr>
<td>BSH400 Administration and Management</td>
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</table>

### Course subjects

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>ES4715 Health Planning and Promotion*</td>
<td>12.5</td>
</tr>
<tr>
<td>ES4705 Research Project</td>
<td>12.5</td>
</tr>
</tbody>
</table>

* may be replaced by approved elective alternatives.

### Entry requirements
Successful completion of the Victorian Certificate of Education or its equivalent, with passes in Units 3 & 4 of English, Mathematical Methods (or a grade average of at least B in Further Mathematics) plus one of Chemistry, Biology or Physics.

Applicants who do not have a Year 12 qualification, may be considered for admission if they can demonstrate an ability to succeed.

Persons who have completed a relevant diploma or associate diploma may be eligible for exemptions in the degree program, depending on subjects completed and results. The 1988/1999 Swinburne Pathways Credit Transfer Guide should be consulted for full details. Applicants will be considered on their individual merits.

### Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC).

### Further information
Contact the School of Engineering and Science on (03) 9214 8372.
Email: engsci@swin.edu.au

### Z061 Bachelor of Applied Science (Medical Biophysics and Instrumentation)

<table>
<thead>
<tr>
<th>1999 VTAC course codes:</th>
<th>34231 (F/T)</th>
<th>34233 (O/S Fee)</th>
</tr>
</thead>
</table>

1999 ENTER: 83.80

This course covers specialist theoretical and practical study of the functional aspects of the human body, plus study of the modern instrumentation and technology required in clinical care and other monitoring environments.

### Location
Hawthorn campus.

### Career opportunities
This course enjoys an extremely high graduate employment rate in the health care sector, medical equipment companies and sports medicine area. Hospital careers include intensive care support, medical technologists positions in cardiovascular, respiratory and neurological medicine and biomedical engineering.

### Professional recognition
Graduates are eligible to join the Australasian College of Physical Sciences and Engineers in Medicine.

### Course duration
The course will normally require three years of full-time study, with an optional, and additional, one year of paid, supervised Industry Based Learning (IBL).

### Structure
This course will operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed to be equivalent to one hour of student work per week over a semester, whether in contact with staff or in private study.

Four subjects will generally be taken each semester. The typical student’s average weekly workload during semester is therefore expected to be fifty hours. Total student contact hours, including lectures, classes, tutorials, flexible learning and laboratory and field sessions will vary in different semesters.

### Course subjects

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMS111 Engineering Mathematics 1</td>
<td>12.5</td>
</tr>
<tr>
<td>HET118 Physics 1</td>
<td>12.5</td>
</tr>
<tr>
<td>HET102 Introductory Physiology</td>
<td>12.5</td>
</tr>
<tr>
<td>I22080 Introduction to Programming (C)</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMS112 Engineering Mathematics 2</td>
<td>12.5</td>
</tr>
<tr>
<td>HET108 Technology and Data Acquisition</td>
<td>12.5</td>
</tr>
<tr>
<td>HET106 Electronic Systems</td>
<td>12.5</td>
</tr>
<tr>
<td>HET122 Introduction to Biophysics</td>
<td>12.5</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMS213 Engineering Mathematics 3B</td>
<td>12.5</td>
</tr>
</tbody>
</table>
Aims and objectives:

- to develop students a mastery of the basic scientific principles underlying biochemistry and psychology;
- to develop a thorough understanding of methods and strategies in biochemistry and psychology, and competence in their application, so that students are able to comprehend and analyse problems and obtain satisfactory solutions which, where appropriate, show originality and resourcefulness;
- to develop students’ communication skills for clear verbal, written and graphic presentation;
- to prepare students for the changing workplace and the changing social context of science by developing their life-long learning skills and flexibility of mind.

Location

Hawthorn campus.

Career opportunities

Medical and biomolecular research, neurological research, community health services, clinics and institutions involved in the assessment and management of persons with neurological problems, clinical psychology, sports psychology, scientific management.

Professional recognition

The Swinburne psychology major within the Bachelor of Arts and Bachelor of Applied Science is accredited by the Australian Psychological Society (APS)

Course duration

Three years full-time plus one year optional for Industry Based Learning.

Structure

Compulsory studies in first year in psychology, biology, chemistry and mathematics. Later years comprise major streams in psychology and biochemistry.

Course subjects

**Year 1**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Semester 2</th>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHB6151 Biology 1</td>
<td>CHB101 Chemistry 1</td>
<td>AY201 Developmental Psychology</td>
</tr>
<tr>
<td>CHB101 Chemistry 1</td>
<td>MS101 Foundation Mathematics</td>
<td>MA4278 Design and Measurement 2A</td>
</tr>
<tr>
<td>ES2620 Biochemistry 1</td>
<td>AY100 Psychology 100</td>
<td>ES2620 Biochemistry 1</td>
</tr>
<tr>
<td>Elective</td>
<td>Elective</td>
<td>Elective</td>
</tr>
</tbody>
</table>

**Semester 1**

- CHB6151 Biology 1
- CHB101 Chemistry 1
- MS101 Foundation Mathematics
- AY100 Psychology 100
- Elective

**Semester 2**

- CHB101 Chemistry 1
- MS101 Foundation Mathematics
- AY100 Psychology 100
- Elective

**Year 2**

- AY201 Developmental Psychology
- MA4278 Design and Measurement 2A
- ES2620 Biochemistry 1
- Elective

**Semester 1**

- AY201 Developmental Psychology
- MA4278 Design and Measurement 2A
- ES2620 Biochemistry 1
- Elective

**Semester 2**

- AY202 Cognition and Human Performance
- AY204 Social Psychology
- ES2625 Biochemistry 2
- Elective

Entry requirements

Applicants must have satisfactorily completed the Victorian Certificate of Education (VCE) or its equivalent, with Grade D or better in Units 3 & 4 - English, Chemistry or Biology, one of Mathematical Methods, Specialist Mathematics or a grade average of B in Further Mathematics. Passes may be accumulated over more than one year.

Special entry applicants who do not have a Year 12 qualification or who have a non-competitive Year 12 score and no other tertiary study, and have at least five years related work experience, may be considered for admission if they can demonstrate motivation and ability to succeed. Because of restrictions on numbers of places, not all eligible applicants can be offered a place.

Application procedure

Applicants must be made through the Victorian Tertiary Admissions Centre (VTAC)
Further information
Contact the School of Engineering and Science on (03) 9214 8372.
Email: engsci@swin.edu.au

ZO62 Bachelor of Applied Science
(Psychology/Psychophysiology)
1999 VTAC course codes: 34141 (F/T) 34143 (O/S Fee)
1998 ENTER: 85.60

The course has the following objectives: to prepare students for professional practice in psychology and psychophysiology; and to give students an appropriate introduction to the role of the professional scientist in the community and to explore the social effects of scientific decisions. These studies are aimed at developing moral, social, aesthetic, environmental and ethical concepts essential to a satisfying personal philosophy and a sound professional attitude.

Also, to provide students with the research and analytical skills associated with high quality physiological and psychological research; to prepare students for the changing workplace and the changing societal context of science by developing their life-long learning skills and flexibility in thought; and to develop students' communication skills so that they can present their ideas clearly by verbal, written and graphic means.

Location
Hawthorn campus.

Career opportunities
Graduates of this course have been employed in neurophysiological areas of hospitals and in research areas of Universities and Research Institutes within the private and public sectors.

Professional recognition
The psychology sequence of the course is accredited by the Australian Psychological Society (APS).

Course duration
Three years of full-time study.

Structure
This course will operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed to be equivalent to one hour of student work per week over a semester, whether in contact with staff or in private study.

Four subjects will generally be taken each semester. They typical student's average weekly workload during semester is therefore deemed to be fifty hours. Total student contact hours, including lectures, classes, tutorials, flexible learning and laboratory and field sessions will vary in different semesters.

Course subjects

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HET102 Introductory Physiology</td>
<td>12.5</td>
</tr>
<tr>
<td>HAY100 Psychology 100</td>
<td>12.5</td>
</tr>
<tr>
<td>HMA103 Statistics and Research Methods</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Choose one of the following electives:

| HT2080 Introduction to Programming (preferred elective) | 12.5 |
| HMA121 Mathematics 1 | 12.5 |
| HAH100 Introduction to Philosophy | 12.5 |
| HAS100 Sociology 1A (Introductory Sociology) | 12.5 |
| HAH103 Critical Thinking | 12.5 |

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HET133 Introductory Psychophysiology</td>
<td>12.5</td>
</tr>
<tr>
<td>HET148 Technology and Data Acquisition</td>
<td>12.5</td>
</tr>
<tr>
<td>HAY101 Psychology 101</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Choose one of the following electives:

| HMA132 Mathematics for Computing B (preferred elective) | 12.5 |
| HMA122 Mathematics 2 | 12.5 |
| HAH100 Introduction to Philosophy | 12.5 |
| HAH103 Critical Thinking | 12.5 |

HAS101 Sociology 1B (Social Policy and the Family) 12.5

Semester 3
HET227 Neurophysiology 12.5
HET219 Neurological Monitoring 12.5
HAY206 Design and Measurement 2A 12.5
HAY206 Developmental Psychology 12.5

Semester 4
HET226 Sensory Systems 12.5
HET231 Perception and Motor Systems 12.5
HAY205 Cognition and Human Performance 12.5
HAY207 Social Psychology 12.5

Semester 5
HET527 Sleep and Attention 12.5
HET528 Higher Cortical Function 12.5
HAY308 Psychology of Personality 12.5
HMA378 Design and Measurement 3 12.5

Semester 6
HET631 Psychophysiology 12.5
HET303 Psychophysiology Project 12.5
HAY309 Psychological Measurement 12.5
HAY321 Abnormal Psychology 12.5

Entry requirements
For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Victorian year 12 or its equivalent, such as an interstate or international year 12 qualification. Students must have completed the following subjects:

1998 - VCE units 3 and 4 English, Mathematical Methods or Specialist Mathematics, and one of: Physics, Chemistry or Biology.

Special Entry - Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational background.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information
Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859.

DOUBLE DEGREES

E069 Bachelor of Applied Science
(Computer Science and Software Engineering) / Bachelor of Engineering (Telecommunications and Internet Technologies)
Refer to main entry in the Computing and Information Technology section, page 107.

ZO30 Bachelor of Applied Science
(Medical Biophysics) / Bachelor of Engineering (Electrical and Electronic Engineering)
1999 VTAC course codes: 34681 (F/T) 34683 (O/S Fee)
1998 ENTER: 88.75

The course has the following objectives:

- to produce graduate engineering scientists with multi-disciplinary skills in engineering and science that integrates the fields of electrical and electronic engineering with that of medical biophysics and medical technology;
- to integrate the formal five-year course of study with an optional one year period of industry based learning;
- to deliver a professionally recognised course of study which will enable graduates to join The Institution of Engineers, Australia as graduate members.
In the field of Medical Biophysics, the course aims to develop in students:

- a sound knowledge of anatomy, physiology, the application of physics to biomedical systems, and the appropriate application of monitoring technology in the clinical environment;
- the skills necessary for working in a clinical environment as an effective team member; an understanding of clinical evaluation and monitoring to assist the medical process;
- problem solving skills in complex human-machine systems;
- the communication and management skills required to successfully manage medical technology projects; an understanding of safety, social, legal and ethical issues confronting the paramedical professional; and
- knowledge and experience in human factors, knowledge-based systems, database systems and data communications.

Location
Hawthorn campus.

Career opportunities
Graduates may work either in the Biomedical area either in the public sector in, for example, hospitals, or in the health industry. Alternatively, graduates may choose to undertake work as an Electrical Engineer.

Professional recognition
The course satisfies The Institution of Engineers, Australia accreditation requirements and will produce graduates who have the technological skills, personal development and knowledge base expected of a young professional engineer.

Course duration
The course will normally require five years of full-time study, with an optional, and additional, one year of paid, supervised Industry Based Learning (IBL).

Structure
This course will operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed to be equivalent to one hour of student work per week over a semester, whether in contact with staff or in private study.

Four subjects will generally be taken each semester. The typical student’s average weekly workload during semester is therefore expected to be fifty hours. Total student contact hours, including lectures, classes, tutorials, flexible learning and laboratory and field sessions will vary in different semesters.

Course subjects

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<th>Semester 1</th>
<th>Credit points</th>
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<tbody>
<tr>
<td>HMS111 Engineering Mathematics 1</td>
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<tr>
<td>HET118 Physics 1</td>
<td>12.5</td>
</tr>
<tr>
<td>HET102 Introductory Physiology</td>
<td>12.5</td>
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<td>HET100 Professional Engineering</td>
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<tbody>
<tr>
<td>HMS112 Engineering Mathematics 2</td>
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<tr>
<td>HES1120 Mechanics of Structures</td>
<td>12.5</td>
</tr>
<tr>
<td>HET112 Electronic Systems</td>
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<tr>
<td>HET122 Introduction to Biophysics</td>
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<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>HMS213 Engineering Mathematics 3B</td>
<td>12.5</td>
</tr>
<tr>
<td>HET210 Electronics</td>
<td>12.5</td>
</tr>
<tr>
<td>HET128 Physics 2</td>
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<tr>
<td>HET240 Cellular Biophysics</td>
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<table>
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<th>Semester 4</th>
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<tr>
<td>HMS214 Engineering Mathematics 4B</td>
<td>12.5</td>
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<tr>
<td>HET235 Biomedical Electronics</td>
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<tr>
<td>HET230 Cardiovascular Biophysics</td>
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<tr>
<td>HET260 Renal and Respiratory Biophysics</td>
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<table>
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<tr>
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<tr>
<td>HET212 Circuits</td>
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<tr>
<td>HIT208 Introduction to Programming (C)</td>
<td>12.5</td>
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<tr>
<td>HET227 Neurophysiology</td>
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</tbody>
</table>

HET408 Biomedical Imaging and Emerging Technologies 12.5

Semester 6
HET223 Linear Systems 12.5
HET232 Embedded Microcontrollers 12.5
HET226 Sensory Systems 12.5
HET419 Physiological Modelling 12.5

Semester 7
HET310 Analog Electronics Design 12.5
HET312 Control and Automation 12.5
HET314 Communications Principles 12.5
HET316 Electromagnetic Waves 12.5

Semester 8
HIT3081 Software Development for Engineers 12.5
HET431 Digital Electronics Design 12.5
HET329 Digital Signal and Image Processing 12.5
HET616 Management Fundamentals 12.5

Semester 9
HET550 Design and Development Project 1 12.5
HET313 Telecommunication Technologies 12.5
HET615 Introduction to Finance and Accounting 12.5
Choose one of the following electives:
- HET417 Photonics and Fibre Optics 12.5
- HET378 Integrated Circuit Design (preferred elective) 12.5

Semester 10
HET556 Design and Development Project 2 12.5
HET488 Robotic Control 12.5
HET618 Management Practices 12.5
Choose one of the following electives:
- HET403 Astronomy and Instrumentation 12.5
- HET224 Computer Communications and LAN’s (preferred elective) 12.5

Entry requirements
For entry into the first year of the course, applicants should have Satisfactorily completed an appropriate Victorian year 12 or its equivalent, such as an interstate or international year 12 qualification. Students must have completed the following subjects: with an average of grade D or better: VCE units 3 and 4 English and Mathematical Methods. Passes may be accumulated over more than one year.

Special Entry - Applicants who do not satisfy the above requirements may be selected after consideration of their employment and educational background.

Further information
Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859.

Z032 Bachelor of Applied Science (Multimedia Technology) / Bachelor of Engineering (Telecommunications and Internet Technologies)
Refer to main entry in the Multimedia section, page 135.

E061 Bachelor of Applied Science (Research and Development) / Bachelor of Engineering (Electrical and Electronic Engineering)
New course for 1999
This double degree course has the objectives of the degree course of Bachelor of Engineering in Electrical and Electronic Engineering, and in addition:
- to prepare highly-capable students by a carefully selected combination of coursework and research experience for professional employment in research and development laboratories in engineering and science;
Choose one of the following electives:

- to introduce highly capable students to a component of engineering and science research, under individual, expert guidance and mentoring, from the first year of their course;
- to develop, under individual guidance and mentoring, skills in project planning, design, organisation and execution;
- to encourage students to be independent, self-motivated, lifelong learners;
- to communicate effectively; both in collaborating with research teams in a range of science and engineering research areas, and in the writing of research reports and publications (where appropriate);
- to encourage students to be creative and innovative in the application of basic science and engineering fundamentals to research and development;
- to develop in depth technical competence in at least one area of engineering research and/or development.

**Location**
Hawthorn campus.

**Professional recognition**
These courses satisfy the IEAust. accreditation requirements and will produce graduates who have the technological skills and knowledge expected of a professional engineer.

Graduates are expected to be eligible to apply for graduate membership of The Institution of Engineers, Australia.

**Course duration**
Five years plus optional one year of paid, supervised Industry Based Learning (IBL).

**Structure**
The course will operate under a student workload model based on 100 credit points for a full-time academic year. One credit point is deemed equivalent to one hour of student work per week for one semester whether in contact with staff or in private study.

Usually, four subjects will be taken per semester, each subject having a value of 12.5 credit points. The typical students' average weekly workload during semester is therefore expected to be 50 hours. Total student contact hours, including lectures, classes, tutorials, laboratory and field sessions, will be approximately 22 hours/week during academic semesters.

**Course subjects**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>HMS111 Engineering Mathematics 1</td>
<td>12.5</td>
</tr>
<tr>
<td>HET118 Physics 1</td>
<td>12.5</td>
</tr>
<tr>
<td>HET1000 Professional Engineering</td>
<td>12.5</td>
</tr>
<tr>
<td>HET102 Introduction to Physiology</td>
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<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
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<tbody>
<tr>
<td>HMS112 Engineering Mathematics 2</td>
<td>12.5</td>
</tr>
<tr>
<td>HET101 Research and Development Project 1</td>
<td>12.5</td>
</tr>
<tr>
<td>HET182 Electronic Systems</td>
<td>12.5</td>
</tr>
<tr>
<td>HET122 Introduction to Biophysics</td>
<td>12.5</td>
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<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>HMS213 Engineering Mathematics 3B</td>
<td>12.5</td>
</tr>
<tr>
<td>HET210 Electronics</td>
<td>12.5</td>
</tr>
<tr>
<td>HET128 Physics 2</td>
<td>12.5</td>
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<tr>
<td>HET1051 Software Development 1</td>
<td>12.5</td>
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<table>
<thead>
<tr>
<th>Semester 4</th>
<th>Credit points</th>
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<tbody>
<tr>
<td>HMS214 Engineering Mathematics 4B</td>
<td>12.5</td>
</tr>
<tr>
<td>HET222 Embedded Microcontrollers</td>
<td>12.5</td>
</tr>
<tr>
<td>HET201 Research and Development Project 2</td>
<td>12.5</td>
</tr>
<tr>
<td>HET1052 Software Development 2</td>
<td>12.5</td>
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<table>
<thead>
<tr>
<th>Semester 5</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HET212 Circuits</td>
<td>12.5</td>
</tr>
<tr>
<td>HET417 Photonics and Fibre Optics</td>
<td>12.5</td>
</tr>
<tr>
<td>HET314 Communications Principles</td>
<td>12.5</td>
</tr>
<tr>
<td>Choose one of the following electives:</td>
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<tr>
<td>HET313 Telecommunication Technologies</td>
<td>12.5</td>
</tr>
<tr>
<td>HET604 Exploring Galaxies and The Cosmos</td>
<td>12.5</td>
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<table>
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<tr>
<th>Semester 6</th>
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<tbody>
<tr>
<td>HET605 Theories of Space and Time</td>
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<tr>
<th>Semester 7</th>
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<tbody>
<tr>
<td>HET223 Linear Systems</td>
</tr>
<tr>
<td>HET403 Astronomy and Instrumentation</td>
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<tr>
<td>HET138 Physics 3</td>
</tr>
<tr>
<td>HET305 Research and Development Project 4</td>
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<tr>
<th>Semester 8</th>
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</thead>
<tbody>
<tr>
<td>HET405 Research and Development Project 4</td>
</tr>
<tr>
<td>HET613 Research Methods</td>
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<tr>
<th>Semester 9</th>
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</thead>
<tbody>
<tr>
<td>HET431 Digital Electronics Design</td>
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<tr>
<td>HET423 Neural Networks and Intelligent Instrumentation</td>
</tr>
<tr>
<td>HET329 Digital Signal and Image Processing</td>
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<tr>
<td>HET501 Research and Development Project 5</td>
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<tr>
<th>Semester 10</th>
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<tbody>
<tr>
<td>HET601 Research and Development Project 6</td>
</tr>
<tr>
<td>HET312 Control and Automation</td>
</tr>
<tr>
<td>HET615 Introduction to Finance and Accounting</td>
</tr>
<tr>
<td>Elective 2</td>
</tr>
</tbody>
</table>

**Further information**
Contact the School of Engineering and Science on (03) 9214 8372.

**Entry requirements**
For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Victorian year 12 or its equivalent, such as an interstate or international year 12 qualification. Students must have satisfactorily completed the following subjects: Units 3 and 4 English, Units 3 and 4 Mathematical Methods or Specialist Mathematics, and Physics.

Entry will be restricted to students with very high ENTER scores, and the selection process will include an interview. Special entry conditions and advanced standing do not apply to this double degree.

**Further information**
Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859.

**HONOURS YEAR**

**Z073 Bachelor of Applied Science (Applied Chemistry)(Honours)**

This program provides an opportunity for selected students, who have achieved a high standard during the applied chemistry course, to graduate with a degree with honours.

**Location**
Hawthorn campus.

**Course duration**
Four or five years

**Structure**
Year 1 & 2 (Study), Year 3 (IBL & Study), Year 4 (Study)

**Course subjects**

<table>
<thead>
<tr>
<th>Semester 1 &amp; 2 of pass degree, SC507, SC553, SC570, SC580, SC602, SC607, SC653, SC670H, SC701, SC707</th>
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</thead>
<tbody>
<tr>
<td>Semester 3</td>
</tr>
<tr>
<td>HET405 Research and Development Project 4</td>
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<tr>
<td>HET613 Research Methods</td>
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<tr>
<th>Semester 4</th>
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<tbody>
<tr>
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<tr>
<th>Semester 5</th>
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<tbody>
<tr>
<td>HET601 Research and Development Project 6</td>
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<tr>
<td>HET312 Control and Automation</td>
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<tr>
<td>HET615 Introduction to Finance and Accounting</td>
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<tr>
<td>Elective 2</td>
</tr>
</tbody>
</table>

**Entry requirements**
For entry into the first year of the course, applicants should have satisfactorily completed an appropriate Victorian year 12 or its equivalent, such as an interstate or international year 12 qualification. Students must have satisfactorily completed the following subjects: Units 3 and 4 English, Units 3 and 4 Mathematical Methods or Specialist Mathematics, and Physics.

Entry will be restricted to students with very high ENTER scores, and the selection process will include an interview. Special entry conditions and advanced standing do not apply to this double degree.

**Further information**
Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8859.
Z072  Bachelor of Applied Science (Biochemistry/Chemistry)(Honours)
This program provides an opportunity for selected students, who have achieved a high standard during the biochemistry/chemistry course, to graduate with a degree with honours.

Location  Hawthorn campus.
Course duration  Four or five years
Structure  Year 1 & 2 (Study), year 3 (Study & IBL), Year 4 (Study)
Course subjects  Semester 1 & 2 of pass degree, SC507, SC565, SC570, SC602, SC607, SC670H, SC701, SC707, SC712, SCB72;
Entry requirements  1. A weighted average of 65% or greater in the year prior to entry.
2. Identification of a suitable honours research project.
Further information  Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8372
Email: engsci@swin.edu.au

Z069  Bachelor of Applied Science (Environmental Health)(Honours)
For further information on this course contact the School of Engineering and Science on (03) 9214 8372

Z066  Bachelor of Applied Science in Medical Biophysics (Honours)

Z079  Bachelor of Applied Science in Psychophysiology (Honours)
These programs provide opportunities for selected students who have achieved a high standard in the major areas of study to continue their undergraduate studies to an honours level. In addition to the two project subjects, students must complete a minimum of four subjects. These are selected from subjects offered by the School of Biophysical Sciences and Electrical Engineering in consultation with the postgraduate coordinator. Subject to approval, one subject of equivalent standard from another School may be chosen.
Further information  Contact the School of Biophysical Sciences and Electrical Engineering on (03) 9214 8559.

ARTS & SOCIAL SCIENCE

N055  Bachelor of Arts
1999 V/AC course codes: 34321 (F/T), 34401 (P/T)
1998 ENTER: 78.65
Graduates of an Arts degree acquire knowledge and skills in a variety of study areas and also a range of "generic skills"—skills which are a key part of the life-long process of personal development and which are also highly valued by employers. Some of these skills develop students' capacity to relate to other people. Course activities in the Bachelor of Arts which develop these skills include public speaking, group discussions, interviewing, planning group projects and organising seminars. These activities and skills help prepare students for management and leadership positions.

Course activities also develop skills such as independent thinking, conceptual analysis, theory development, learning to write clearly and effectively, planning essays and research projects, attending to detail, and time management. Arts graduates learn to use ideas and information stored in libraries and electronic databases, acquire computer skills, carry out research projects and evaluate and develop policies. They develop a strong sense of personal integrity and an awareness of the role of ethics in private and public life, and they nurture personal stores of energy, motivation and adaptability.

All of these generic skills enhance students’ abilities to solve problems and to make decisions, irrespective of the specific field of study that they undertake. Whilst many degree courses provide some chance to develop generic skills, an Arts degree usually provides the most opportunities to further students' development in these areas. Consequently Swinburne Arts graduates are well equipped to find work in areas where employers put a high premium on generic skills. These areas include: Policy analysis and development, Research, Community development, Administration, Public relations, Publishing, Media.

Three-week study tours to the European Community, Thailand and Korea are available as elective subjects within the Swinburne BA. These tours provide a great opportunity for students to gain a basic understanding of the economy, culture, history and business environment of particular countries. Students not only visit companies, government departments, small businesses, factories and other universities, but also visit cultural and tourist attractions. There are also a number of international exchange programs in place with institutions in countries such as Canada, Hungary, Italy, Japan, Korea, Thailand and the United States of America where students may study overseas for one or two semesters and gain full credit towards the Bachelor of Arts program.

Location  Hawthorn campus.
Career opportunities  
Listed below are some examples of career opportunities available for graduates based on their chosen major area of study.

Asian Studies: Media, government, commerce and industry.
Australian Studies: Teaching, private and public sectors, human services.
Cultural Studies: Social work, diplomatic corps, teaching.
European Studies: Particularly relevant for students wishing to pursue a career in the international business environment.
Italian: Ideal for working with Italians in Australia or overseas, and especially useful in fields such as marketing, accountancy, or psychology.
Japanese: Teaching, events organising, interpreting, tourism (within Australia and Japan).
Korean: Tourism, teaching, interpreting.
Literature: Journalism, advertising copy writing, hypertext writing, teaching.
Media Studies: Journalism, radio production, public relations, communications research.
Philosophy and Cultural Inquiry: Broad or specialist careers destinations such as social policy areas, private and public sector management, medical and bio-ethics, computer programming, legal studies.
Politics: Media, publishing, personnel, government, commerce and industry.
Psychology: Research, human resources, personnel, advertising. Further study is required to become a psychologist.
Sociology: Social research, administration, community development, public housing, human resources, marketing, social work.
With further study, Arts graduates can also gain qualifications to become, for example, librarians, teachers, personnel officers or social workers.

**Course duration**
The Bachelor of Arts is normally completed in three years of full-time study, or six years part-time.

**Course structure**
The Bachelor of Arts is a 24-subject degree. Subjects at Stages 1, 2 and 3 carry 12.5 credit points. In each year, four subjects per semester normally constitute a full-time load of 100 credit points, while two subjects per semester normally constitute a part-time load of 50 credit points.

In order to enhance their generic skills profile, employability and capacity to pursue further study, all Swinburne BA students must take a core Stage 1 subject in Research Methods and Statistics.

Evening classes are offered in most subjects. Students can choose whether they attend classes during the day, evening or a combination of both (subject to availability of places).

In most subjects, assessment is by a combination of class tests, essays and examinations. Students are informed of assessment requirements for each subject during the first week of classes.

**Major studies**
A major is a three-stage sequence of study in the one discipline or specialisation. In the Bachelor of Arts, a major normally consists of one or two Stage One subjects followed by seven post-Stage One subjects. At least two post-Stage One subjects must be taken at Stage Two and at least three post-Stage One subjects must be taken at Stage Three. The remaining post-Stage One subjects may be taken at Stage Two or Three. Please consult individual entries for each major for the exact requirements.

To qualify for the award of the Bachelor of Arts degree, students must complete two majors, with at least one major chosen from the available BA majors:

**Bachelor of Arts Majors**
- Asian Studies
- Australian Studies
- Cultural Studies
- European Studies
- Italian Language and Culture
- Japanese
- Korean
- Literature
- Media Studies
- Philosophy and Cultural Inquiry

Subject to timetable compatibility, students may choose as a second major any other major from the above BA majors, or a major from either the Bachelor of Social Science or the Bachelor of Business degrees or any other approved major from elsewhere in the University.

**Bachelor of Social Science Majors**
- Politics
- Psychology
- Sociology

**Bachelor of Business Majors**
- Accounting
- Business Law
- Business Modelling
- Economics
- Finance
- International Business
- Information Systems
- Management
- Manufacturing Management
- Marketing
- Human Resource Management/Organisation Behaviour

**Entry requirements**
Applicants must have completed satisfactorily the Victorian Certificate of Education (VCE) or its equivalent, with Grade D or better in four VCE subjects, including English. Passes may be accumulated over more than one year.

**Special entry**
Applicants who do not have a Year 12 qualification or who have a non-competitive Year 12 score and no other tertiary study, and have at least five years related work experience, may be considered for admission if they can demonstrate motivation and ability to succeed. Because of restrictions on numbers of places, not all eligible applicants can be offered a place.

**Credit transfer**
An advanced credit transfer system, known as the Pathways program, is in place at Swinburne. Through Pathways, students with one or more of a wide range of post-secondary qualifications (both local and international) can gain entry into Arts programs with advanced standing.

Certain subject requirements must be met and an acceptable standard of results achieved in order to gain admission and for maximum credit to be granted.

**Application procedure**
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

**Further information**
Contact the School of Social and Behavioural Sciences on (03) 9214 5209.

Website: http://www.swin.edu.au/sbs/

**ARTS MAJORS**

**Asian Studies**
The Asian Studies major focuses on contemporary Asia, with emphasis on the political economy and international relations in some subjects, and on the historical-cultural background in others.

It is designed to provide students with a good knowledge of countries and cultures in a region of great and growing importance to Australia, as well as the generic skills emphasised in the Swinburne Bachelor of Arts program. It offers students a broad basis for the cross-cultural understandings needed in today’s world. It is often taken by students majoring in Asian languages. The Asian Studies major currently incorporates subjects from the Politics and Asian Languages and Cultures discipline areas.

**Career opportunities**
As Australia's integration into the Asian region proceeds at a rapid pace, a working knowledge of Asian societies and cultures is increasingly important. An increasing number of Australian graduates live and work in Asia and others deal with Asia in their work in Australia. While Asian Studies is not strictly vocational, it does add significant value to a conventional vocational major.

**Structure**
An Asian Studies major must include one Stage 1 subject, and at least seven post Stage 1 subjects. At least two post Stage 1 subjects must be taken at Stage 2 and three at Stage 3. The remaining post Stage 1 subjects may be taken at Stage 2 or 3.

Most Politics subjects are double-coded so that they can be done as either Stage 2 or Stage 3 subjects (but not both). Where subjects are listed with two codes, the first one indicates the Stage at which it is normally taken.

**Course subjects**
Within the Asian Studies major students can choose from the following:

**Stage 1**
- AJ102 Introduction to Japan - A Cultural Overview (Japanese)
- AK102 Traditional Korea (Korean)
- AP117 International Politics (Politics)

**Stage 2**
- AJ202 Communication in Japanese (Japanese)
- AK213 Korean Society (Korean)
- AK214 Korean Politics and Economy (Korean)

**Stage 3**
- BL324 Asian Legal Systems (Business)
- BL328 Asian Pacific Business Practice (Business)
The following subjects can be taken at stage 2 or stage 3 but not both:

AP220/AP320 Modern Japan (Politics)
AP224/AP324 Emergence of Modern Asia (Politics)
AP225/AP325 Australia and Asia (Politics)
AP230/AP223 Development and Democratization in Southeast Asia (Politics)

Further information
Contact the School of Social and Behavioural Sciences on (03) 9214 5209.
Email: sbsadmin@swin.edu.au.
Website: http://www.swin.edu.au/sbs/

Australian Studies

Australian Studies examines Australian society and its cultures from several different disciplinary perspectives.

Its main objective is to provide a solid body of knowledge about the political, economic and social history of twentieth century Australia. From that base, it provides the opportunity to undertake specific studies within particular disciplines such as literature, media studies, philosophy and cultural inquiry, politics and sociology. It offers a broad perspective on contemporary public issues and a context for the analysis of questions in other disciplines.

Australian Studies encourages students to identify connections between political and social institutions, cultural practices and economic structures, to analyse how they are changing and the effects of those changes. It is about the dynamics of contemporary Australian society. The Australian Studies program combines training in established disciplines with the more flexible, problem-solving approach that boundary-crossing allows. It also has the benefit of permitting students to follow their intellectual enthusiasms as they develop over the three years.

Career opportunities

Australian Studies offers the generic intellectual skills that the Swinburne Bachelor of Arts emphasises. These are not strictly vocational, but they are what many employers are looking for in graduates. They form an ideal complement to specific career training.

Structure

An Australian Studies major must include one Stage 1 subject, and at least seven post Stage 1 subjects. At least two post Stage 1 subjects must be taken at Stage 2 and three at Stage 3. The remaining post Stage 1 subjects may be taken at Stage 2 or 3.

There is a core sequence of three compulsory subjects in the Australian Studies major - Australian Politics, Modern Australia and Work in Australia.

Course subjects

The Australian Studies major includes the following:

Stage 1
- AP100 Australian Politics (Politics) (compulsory)

Stage 2
- AL209 Australian Writing and Cultural Change (Literature)
- AM210 Popular Culture (Media Studies)

Stage 3
- AM312 Cinema Studies (Media Studies)
- ASP304 Sociology and Social Policy (Politics/Sociology)
- ASP305 Models of Social Analysis (Politics/Sociology)

The following subjects may be taken at stage 2 or stage 3 but not both:

AH222/AH322 Practical Ethics (Philosophy and Cultural Inquiry)
AP221/AP230 Modern Australia (Politics) (compulsory)
AP225/AP325 Australia and Asia (Politics)
AP230/AP220 Public Policy in Australia (Politics)
ASP201/ASP201 Work in Australia (Politics) (Compulsory)

Further information
Contact the School of Social and Behavioural Sciences on (03) 9214 5209.
Email: sbsadmin@swin.edu.au.
Website: http://www.swin.edu.au/sbs/

Cultural Studies

Cultural studies is an interdisciplinary major focused on the nature of culture and its current transformations. Subjects composing the major come from Philosophy & Cultural Inquiry, Media Studies, Literature, Politics, Psychology and Asian Languages and Cultures. Students are provided with the means to comprehend and critically analyse the diverse components and media of culture: science, literature, film, television, popular culture, print, electronic media etc., the relationship between these, and the relationship between different cultures of different regions, nations and ethnic groups.

Students may construct their major to focus on their particular interests such as literature and film as cultural phenomena, cultural politics, the problematic relationship between cultures in a globalized world, the problems associated with the disintegration of traditional cultures and the search for new foundations for beliefs, science and philosophy as cultural phenomena etc.

At Swinburne, Cultural Studies is an interdisciplinary major, consisting of core subjects from Philosophy & Cultural Inquiry and the choice of a diversity of subjects from a range of other disciplines.

This has the advantage of providing students with a much more rigorous foundation in the theoretical debates taking place within cultural studies, while providing a much greater choice of subjects pertaining to practical cultural issues than would otherwise be available.

Career opportunities

The study of culture is becoming of increasing importance in a number of professions and in the business world as the pace of cultural transformation accelerates and people with incompatible cultures are increasing brought into contact with one another. This is particularly important in the business world as transnational corporations increasingly dominate the world, and for people entering the professions of journalism, teaching, film and television production, social work and politics.

Structure

A Cultural Studies major must include one Stage 1 subject, and at least seven post Stage 1 subjects. At least two post Stage 1 subjects must be taken at Stage 2 and three at Stage 3. The remaining post Stage 1 subjects may be taken at Stage 2 or Stage 3.

There is a core sequence of two compulsory subjects in the Cultural Studies major - Philosophy of Culture and Approaches to Culture.

Course subjects

The Cultural Studies major includes the following:

Stage 1
- AA119 Post War Italy
- AH100 Introduction to Philosophy
- AH101 History of Ideas
- AJ102 Introduction to Japan
- AK102 Traditional Korea
- AML104 Media Literature Film: Texts and Contexts

Stage 2
- AH209 Philosophy of Culture (compulsory)
- AK213 Korean Society
- ALM200 Reading, Writing and Criticism
- AM210 Popular Culture
- ASP305 Models of Social Analysis
- AS299 Sex and Gender in Society
- AY207 Social Psychology

Stage 3
- AH316 Approaches to Culture (compulsory)
- AL309 Renaissance Literary Culture
- AM312 Cinema Studies
- AS310 Sociology of Organisations

The following subjects may be taken as stage two or stage three subjects, but not both:

AH220/AH320 Social and Political Philosophy
AH221/AH321 Rationality
AH223/AH323 Environmental Philosophy
European Studies

The major in European Studies allows students to study contemporary European issues by offering a combination of subjects chosen from Literature, Language and Culture, Politics, Philosophy, Sociology and Business. The aim of this major is to develop in students an understanding of the events that are shaping Europe today. Students undertaking the major in European Studies will be better equipped to understand the economics, politics, societies and business cultures of the European region.

The major in European Studies may be completed in three years and follows the normal requirements for a major in the Bachelor of Arts. This involves a total of eight subjects over three stages. AP117 International Politics is a compulsory first year subject for the major in European Studies.

A highlight of the major in European Studies is that two elective subjects are taken in Europe. The first of these, a European Study Tour involves a 3-4 week tour of several European countries and includes briefings sessions with major European companies, visits organised to European Institutions such as the European Parliament, the European Court of Justice and formal lectures offered by European universities. The second (elective) subject, Work Experience in Europe, involves work experience in a European country of choice.

The subjects offered are:

**Stage 1**
- AP117 International Politics (compulsory)
- AA119 Post-War Italy
- AA181 Italy and its Language 1

**Stage 2**
- AA288 European Union
- AH209 Philosophy of Culture

**Stage 3**
- AA389 Work Experience in Europe
- AA390 Study Tour to European Union
- AA377 International Business in the Italian Context
- AA392 European Union - Business Context
- AH316 Approaches to Culture
- AL309 Renaissance Literary Culture
- BM336 European Business Studies

Students may not double-count subjects for two majors. In choosing optional subjects at Stage Two, students must have completed the prerequisites for those subjects. Where an alternative is not specified, the subject convener is to approve the enrolment.

Further information
Contact Ms Kaye Nolan, convenor of European Studies on (03) 9214 5339.

Italian Language and Culture

Italian Studies at Swinburne, offered in conjunction with European Union Studies, provides an insight into Italy, a modern, thriving and wealthy European country, industrially, economically and technologically advanced, among the top seven leading powers in the world.

The Italian major is designed to acquaint students with Italian, an important community, cultural and commercial language. The broad aim is to enable students to communicate with Italians, on both linguistic and socio-cultural levels. The major study in Italian therefore strongly emphasises language acquisition, and progressively treats those aspects of Italian language, literature, history, geography, economics, sociology, politics and culture appropriate to an understanding of the modern nation and its inhabitants.

A degree major in Italian may be obtained by undertaking studies in one of two streams offered; a beginner stream and a post-VCE stream.

Structure

**Students enrolled in the Italian major prior to 1998**

The beginners stream consists of AA109 and AA110 at Stage One, followed by AA209 and AA210 at Stage Two, then AA309, AA310 and AA313 at Stage Three.

The post-VCE (Advanced) stream consists of AA106 and AA107 at Stage One, followed by AA206 and AA207 at Stage Two, then AA306, AA307 and AA313 at Stage Three.

Note: Students who intend, on graduating, to teach Italian either at primary or secondary level or who do not wish to preclude this possibility should note that the exit point required in the Italian Studies major must be at the third-year post-VCE level. To achieve this, students need to transfer to the Advanced stream either by enrolling in AA306 after completing AA210 or by enrolling in AA307 after completing AA309. In both cases a credit is the minimum requirement to be able to transfer to the Advanced course.

**Students enrolled in the Italian major from 1998**

The beginners stream consists of : AA181, AA182 and AA183 at Stage One, followed by AA281, AA282, AA283 and AA287 at Stage Two, then AA381, AA387 and AA388 at Stage Three.

The post-VCE (Advanced) stream requires a pass and above at VCE level or equivalent and consists of : AA184, AA185 and AA186 at Stage One, followed by AA284, AA285, AA286 and AA287 at Stage Two, then AA384, AA387 and AA388 at Stage Three.

Students undertaking a major in Italian are also strongly advised to enrol in AA288 European Union.

Course subjects

The following subjects related to Italian studies are also offered:

- AA289 Twentieth Century European Literature and Thought
- AA399 Work Experience in Europe
- AA390 Study Tour to European Union
- AA377 International Business in the Italian Context
- AA392 European Union - Business Context

It should be noted that the Italian major is sequential in nature. Therefore students must complete all subjects in Stage One Italian before enrolling in the Stage Two subjects and these, in turn, must be completed before enrolling in the Stage Three subjects.

An honours program in Italian is available and MA and PhD programs by research and thesis in Italian are currently offered. A double degree Bachelor of Business/ Bachelor of Arts (Italian) is also available. The subjects offered in the Italian Studies major are:

**Stage 1**
- AA119 Post-War Italy
- AA181 Italy and its Language 1 or
- AA184 Advanced Italian 1A
- AA182 Italy and its Language 2 or
- AA185 Advanced Italian 1B
- AA183 Introductory Italian or
- AA186 Advanced Italian 1C

**Stage 2**
- AA289 Twentieth Century European Literature and Thought
- AA288 European Union
- AA281 Italian 2X or
- AA284 Advanced Italian 2A
- AA282 Introductory Business Italian (2Y) or
- AA285 Introductory Business Italian (2B)
- AA283 Italian 2Z or
- AA286 Advanced Italian 2C

Both streams:
- AA287 Post-War Italy

**Stage 3**
- AA306 Advanced Italian 3A or
- AA309 Italian 3X
- AA307 Advanced Italian 3B or
Stage 1
(i) AJ102 Introduction to Japan - A Cultural Overview which is offered in both culture, in the following order: Japanese, which provide an essential background to Japanese language and AJ102 Introduction to Japan - A Cultural Overview and AJ202 Communication in Japanese. Students undertaking a major in Japanese are strongly advised to enrol also for the advanced stream - AJ305, AJ306. Both streams one of AJ307, AJ308 or AJ310.
Students enrolled in the Japanese major prior to 1998 will be required to complete AJ325, AJ326 and two of AJ327, AJ328, AJ320, AJ321 or AJ322. The following subjects form a degree stream for the major.

Further information
Contact the School of Social and Behavioural Sciences on (03) 9214 5209.
Email: sbsadmin@swin.edu.au.
Website: http://www.swin.edu.au/sbs/

Japanese
In view of the relations established between Australia and Japan on all levels of the national life, it is advisable that a study of Japanese language, both spoken and written, be undertaken by a greater number of Australians. Furthermore, it is important that a knowledge and understanding of Japan be increased in Australia. The Japanese programs train students to communicate effectively in Japanese and provide the opportunity to study Japanese culture, society and economy through the language. The emphasis is on contemporary Japanese.

Students undertaking a major in Japanese are strongly advised to enrol also for AJ102 Introduction to Japan - A Cultural Overview and AJ202 Communication in Japanese, which provide an essential background to Japanese language and culture, in the following order:

(i) AJ102 Introduction to Japan - A Cultural Overview which is offered in both semesters concurrently with the first year subjects of each stream;

(ii) AJ202 Communication in Japanese - which is offered in semester one concurrently with the second year subjects of each stream.

AJ102 Introduction to Japan - A Cultural Overview is also open to students not undertaking the full Korean language major offers three years of systematic language training to enable students to communicate effectively in modern spoken Korean, and to read fluently a wide range of modern written material in Korean.

Korean
Korean is the language of sixty million Koreans in South and North Korea and also of millions of Koreans living in overseas communities, including Australia. Economic and cultural ties between South Korea and Australia make it desirable that more Australians undertake the study of the Korean language. The Korean language major offers three years of systematic language training to enable students to communicate effectively in modern spoken Korean, and to read fluently a wide range of modern written material in Korean. Supporting subjects provide the opportunity to supplement language studies with courses on culture, society, economy and politics.

A major in Korean can be completed in a beginners or advanced (post-VCE Korean) stream.

Stage 3
A318 Written Japanese 3A
A319 Spoken Japanese 3A
A323 Written Japanese 3B
A324 Spoken Japanese 3B
A325 Advanced Written Japanese 3A
A326 Advanced Spoken Japanese 3A
A327 Advanced Written Japanese 3B
A328 Advanced Spoken Japanese 3B
A320 Reading Japanese Newspapers
A321 Japanese for Tourism and Hospitality
A322 Japanese for Business and Industry

Further information
Note: Students whose stage two results are credit or above in either the beginners or the advanced stream may choose to study a part of their third year course at an approved tertiary institution in Japan. A scholarship scheme has been established to enable students to undertake this alternative.

Stage 2
AA310 Italian 3Y
AA389 Work Experience in Europe
AA390 Study Tour to European Union
AA377 International Business in the Italian Context
AA392 Italian 3K or
AA384 Individual Project

Both streams:
AA387 Advanced Business Italian
AA398 Contemporary Italy

Website: http://www.swin.edu.au/sbs/
The Literature major includes the following:

A Literature major must include one Stage 1 subject, and at least seven post Stage 1 subjects. At least two post Stage 1 subjects must be taken at Stage 2 and three at Stage 3. The remaining post Stage 1 subjects may be taken at Stage 2 or 3. The subject Media Literature Film: Texts and Contexts, is a compulsory subject in the Literature major.

Further information

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Website: http://www.swin.edu.au/sbs/

Literature

Traditionally, Literature has involved the close reading and evaluation of valued writings. But it also involves even closer attention to what writing is, and how it comes to be valued. Literary works do not exist in a vacuum, but rather are produced and understood in the context of a literary culture - a collective body of assumptions about the world, the written word, creativity, authority and representation. An understanding of the concept of literary culture is central to both Literature at Swinburne and to any informed understanding about the current state of art and communication in the Age of Information. One of the most fascinating challenges facing literary studies is the shift from a culture based on, and formed by the book, to a “wired” society increasingly dominated by electronic media, where an encyclopedia can be stored on a compact disk. Far from being obsolete in this new information age, the study of literary culture is central to an understanding of the transition from the page to the screen. Literature at Swinburne is in touch with these developments, and provides useful links with subjects such as Media Studies and Information Systems.

The study of Literature is principally concerned with how we relate to and make sense of the world through writing. The Literature major at Swinburne is designed to provide students with the opportunity to consider literary works from a variety of historical periods, ranging from the Renaissance to the Cyberculture of the twentieth century. Students also consider issues such as the changing nature of culture as we move into an ‘Age of Information’.

Career opportunities

A Literature major provides students with a range of skills and experiences relevant to any profession that requires the ability to construct and evaluate arguments clearly, and to think laterally, flexibly and independently. Apart from careers in journalism, advertising and education, Literature also equips graduates to take up positions in the social services, where sensitivities to cultural difference and the ability to communicate clearly and effectively are paramount. There is also an emerging market in creative writing for interactive multi-media, and software developers are increasingly on the lookout for writers with both literary skills and familiarity with the new media. The Literature major provides students with the ability to communicate clearly, and to think laterally, flexibly and independently. Apart from

The Media Studies major includes the following:

A Media Studies major must include one Stage 1 subject, and at least seven post Stage 1 subjects. At least two post Stage 1 subjects must be taken at Stage 2 and three at Stage 3. The remaining post Stage 1 subjects may be taken at Stage 2 or 3. The subject Media Literature Film: Texts and Contexts (ALM104) is a compulsory subject in the Literature major.

Further information

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Website: http://www.swin.edu.au/sbs/

Media Studies

As the twentieth century draws to a close, the study of the media and its place in the technological revolution emerges as the most significant issue for the future. Questions about the nature of communication and its social and ethical consequences become crucial to our survival, whether we are dealing with the Internet or with TV news. Media Studies can incorporate a wide range of academic and production subjects. At Swinburne, they fall into three overlapping groups:

1. textual analysis, which is concerned with the various ways in which we make sense of film and media materials (TV, print, new media);
2. the study of the political economy of media and telecommunications, dealing with issues such as ownership and control of the media and the cultural impact of new technologies;
3. hands-on subjects in which the emphasis is on publishing, radio production and workplace experience (these are available only after successful completion of the appropriate prerequisites).

The Media Studies major is primarily taught by people who have had extensive work-place experience (in publishing, the print media and radio) and who share the belief that the student best equipped to face the vagaries of the workplace is the one who has a general as well as a specialised appreciation of how it operates.

Students need to understand how the media work and to be able to recognise the place they occupy within the broader social context. They also need to be skilled at thinking for themselves, and to be informed and flexible in their approaches to the kinds of problem solving that are crucial in the development of a professional career.

Career opportunities

Media Studies students gain employment directly in media industries as well as in media related work. Media Studies is a vital prerequisite for careers in print journalism, radio, television, film distribution and public relations. Positions are increasingly emerging in the exciting telecommunications industry, with telecommunications carriers, suppliers, resellers and service providers. Some specialised opportunities also exist in broadcasting and communications research.

The experience of past students has been that, even if they are not always directly employed in a media industry, the knowledge acquired about the media during the course has had many useful applications for them, both professionally and personally.

Structure

A Media Studies major must include one Stage 1 subject, and at least seven post Stage 1 subjects. At least two post Stage 1 subjects must be taken at Stage 2 and three at Stage 3. The remaining post Stage 1 subjects may be taken at Stage 2 or Stage 3. The subject Media Literature Film: Texts and Contexts (ALM104) is a compulsory subject in the Media Studies major.

Course subjects

The Media Studies major includes the following:

Stage 1

ALM104 Media Literature Film: Texts and Contexts (compulsory)
AL103 Writing Fiction

Stage 2

AL209 Australian Writing and Cultural Change
ALM200 Reading, Writing and Criticism
ALM201 Media Voices, Media Style: The Process of Journalism

Stage 3

AL309 Renaissance Literary Culture
ALM316 Electronic Writing
ALM317 Media/Literature Project
AM305 Cinema Studies

Note: Subjects with the prefix ALM can be counted towards the Literature major or the Media Studies major, but not both. For example, if ALM200 Reading, Writing and Criticism is counted towards a Literature major, it cannot also be counted towards a Media Studies major.

Website: http://www.swin.edu.au/sbs/
The Philosophy & Cultural Inquiry major includes the following:

A Philosophy and Cultural Inquiry major must include one Stage 1 subject, and at least seven post Stage 1 subjects. At least two post Stage 1 subjects must be taken at Stage 2 and three at Stage 3. The remaining post Stage 1 subjects may be taken at Stage 2 or 3.

**Stage 1**
- AM105 The Media in Australia
- AM210 Popular Culture
- AM211 New Media: The Telecommunications Revolution
- AML200 Reading, Writing and Criticism
- AML201 Media Voices, Media Style: The Process of Journalism
- ASM200 Cyber Cities

**Stage 2**
- AH209 Philosophy of Culture

**Stage 3**
- AH316 Approaches to Culture

The following subjects can be taken as Stage 2 or Stage 3, but not both:
- AH219/AH319 Philosophical Psychology
- AH220/AH320 Social and Political Philosophy
- AH221/AH321 Rationality
- AH222/AH322 Practical Ethics
- AH223/AH323 Environmental Philosophy

Further information
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**Philosophy and Cultural Inquiry**

The subjects offered by Philosophy & Cultural Inquiry are designed to provide a well-grounded understanding of the major conceptual influences which have shaped our contemporary world view, and in this way, to enhance our prospects for responding insightfully and effectively to the problems of living which confront us today.

To advance this goal, we draw on influential currents in philosophical thought, the history of ideas, social and behavioural research, political theory, and the history and philosophy of science. In the process of opening up our understanding of the world we live in, we introduce students to the techniques of philosophical inquiry in a way which promotes a variety of useful reasoning skills, including conceptual analysis, argument construction and evaluation, critical and creative thinking. The understanding and skills developed through philosophical inquiry play an important part in complementing studies in other disciplines, and, in addition, are of great value in their own right in personal and professional life.

Overall, Philosophy and Cultural Inquiry seeks to promote critical and independent thinking in the tradition of philosophical thought but in a way which complements the activities of the major areas of study within the School of Social and Behavioural Sciences and across the University.

**Career opportunities**

Because of the range of skills it develops, a major in Philosophy and Cultural Inquiry is a very useful qualification in job seeking and professional development. In particular, the ability to solve problems, to communicate, to organise ideas effectively, to understand complex material, and to assess pros and cons - skills which are the life blood of philosophical inquiry - are highly valued by employers.

In addition to preparing people trained in philosophy to do many kinds of tasks, the skills and understanding acquired equip people to understand and respond effectively to the changing demands of the work place, and so, to advance professionally as well as personally.

**Structure**

A Philosophy and Cultural Inquiry major must include one Stage 1 subject, and at least seven post Stage 1 subjects. At least two post Stage 1 subjects must be taken at Stage 2 and three at Stage 3. The remaining post Stage 1 subjects may be taken at Stage 2 or 3.

**Course subjects**

The Philosophy & Cultural Inquiry major includes the following:

**Stage 1**
- AH100 Introduction to Philosophy
- AH101 History of Ideas
- AH103 Critical Thinking
The Media Studies major consists of a minimum of nine subjects over three stages, with students taking Texts and Contexts (ALM104) and The Media in Australia (AM105) at Stage 1 followed by seven subjects post Stage 1. At least two of these post Stage 1 subjects must be taken as Stage 2 subjects and at least three as Stage 3 subjects. The remaining two post Stage 1 subjects may be taken as either Stage 2 or Stage 3 subjects. Each subject involves three hours a week of class time plus a similar amount of private study.

Course subjects
The Media Studies major includes the following subjects:

**Stage 1**
- ALM104 Media Literature Film: Texts and Contexts
- AM105 The Media in Australia

**Stage 2**
- AM210 Popular Culture
- AM211 New Media: The Telecommunications Revolution
- ALM200 Reading, Writing and Criticism
- AM201 Media Voices, Media Style: The Process of Journalism
- ASM200 Cyber Cities

**Stage 3**
- AM312 Cinema Studies
- AM313 Radio Production and Criticism
- AM314 Professional Attachment Program
- ALM316 Electronic Writing
- AM315 Information Society: A Global Perspective
- AM316 Radio Production and Criticism B
- ALM317* Media/Literature Project
- ASM300 Sociology of the Electronic Age

Students also choose a second major plus electives.

* A second option for this subject is exclusive to Literature students, and involves an independent research project, conducted over a semester, under the supervision of a member of the Literature staff. Numbers will be limited, and students must have a proven, ongoing work in progress that will form the basis of their work. Eligibility for this program depends upon the student having a project on which they have been previously working (i.e., a book of poems, a novel, a critical essay), and which has been approved by the subject convenor. The subject is designed to develop a work to completion, and prepare, or at least submit it for publication. This work can be of a critical nature, and students are expected to work closely with a supervisor throughout the semester.

Honours
Outstanding Bachelor of Arts students have the option of undertaking a specialised fourth year of study, graduating with a Bachelor of Arts (Honours) degree. The honours year is offered in the areas of Media and Cultural Studies, Industry and Community Studies, Languages, Psychology and Social Sciences. This program provides students with an opportunity to enhance their research ability and permits further studies and specialisation in their major discipline of study.

Entry requirements
Applicants must have completed satisfactorily the Victorian Certificate of Education (VCE) or its equivalent, with Grade D or better in four VCE subjects, including English. Passes may be accumulated over more than one year. There are a limited number of places available in the Bachelor of Arts (Media and Communications) and the number of applications is generally higher (as are the TER scores required for entry) than for the general degree programs. Applicants wishing to study Media Studies should therefore consider listing as preferences both specialist and general degree programs offering Media Studies as a major at Swinburne.

Applicants who do not have a Year 12 qualification or who have a non-competitive Year 12 score and no other tertiary study, and have at least five years related work experience, may be considered for admission if they can demonstrate motivation and ability to succeed. Because of restrictions on numbers of places, not all eligible applicants can be offered a place.

Credit transfer
An advanced credit transfer system, known as the Pathways program, is in place at Swinburne. Through Pathways, students with one or more of a wide range of post-secondary qualifications (both local and international) can gain entry into Arts programs with advanced standing. Certain subject requirements must be met and an acceptable standard of results achieved in order to gain admission and for maximum credit to be granted.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information
Contact the School of Social and Behavioural Sciences on (03) 9214 5209. Email: lbsadmin@swin.edu.au. Website: http://www.swin.edu.au/sbs/

**NO51 Bachelor of Arts (Psychology/Psychophysiology)**

1998 VTAC course codes: 34461 (F/T) 34463 (O/S Fee)

1998 ENTER: 84.80

The Bachelor of Arts (Psychology/Psychophysiology) is unique to Swinburne and offers students an undergraduate degree with majors in Psychology and Psychophysiology.

The psychology major provides a broad introduction to a range of relevant psychology studies, with more specialised work in personality, design and measurement, psychological measurement and abnormal psychology.

The psychophysiology major emphasises an understanding of physiological processes relevant to the study of psychology. Areas of study include physiological responses to stress, neuropsychological processes in sleep, dreaming, memory and cognition, and brain disorders. Psychophysiology also looks at the use of computers and instrumentation relevant to cognition and behaviour.

Swinburne psychology and psychophysiology students are regarded very highly in the community, for their research, psychological and psychophysiological skills.

**Location**

Hawthorn campus.

**Career opportunities**

Graduates of the psychology/psychophysiology course have a unique blend of skills. The combination of psychological knowledge with understanding of the underlying physiological processes associated with stress, memory and psychiatric disorders, for example, gives entry to a wide range of jobs, areas of employment include community health services, and clinics and institutions involved in the assessment and management of neurological and psychophysiological problems.

Graduates can also take up careers in sports psychology, ergonomics and areas of clinical psychology concerned with the physiological effects of emotional and mental states.

**Professional recognition**

The three year undergraduate sequence in psychology at Swinburne is accredited by the Australian Psychological Society.

**Course duration**

Three years full-time.

**Course structure**

Students concurrently complete a three year course of study in Psychology and a three year program in Psychophysiology involving studies in Psychophysiology, Biology, Neuroendocrinology and the Neurophysiology of Mental Disorders.

**Course subjects**

Students undertake the following subjects to complete the Bachelor of Arts (Psychology and Psychophysiology):

**Year 1**

**Semester 1**
- ET102 Introductory Psychophysiology
- AY100 Psychology 100
- MA103 Statistics and Research Methods 1
- Elective (science based or arts and social science based)

**Semester 2**
- ET133 Physiological and Scientific Concepts
- ET148 Technology and Data Acquisition
- AY101 Psychology 201
- Elective (science based or arts and social science based)
The Bachelor of Arts provides a number of opportunities for students to enrich their studies, broaden their education and give themselves a better base from which to seek productive employment.

Certain subject requirements must be met and an acceptable standard of results achieved in order to gain admission and for maximum credit to be granted.

Further information
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Website: http://www.swin.edu.au/sbs/

HONOURS YEAR

N052 Bachelor of Arts (Honours)

This program provides opportunities for selected students who have achieved a high standard in the major areas to undertake a specialised fourth year of study, graduating with a Bachelor of Arts (Honours) degree. The honours year is offered in the areas of Media and Cultural Studies, Industry and Community Studies, Languages, Psychology and Social Science.

The Bachelor of Arts (Honours) program is available to students who have completed all requirements for the three-year Bachelor of Arts course at a high standard. A Bachelor of Arts (Honours) qualification denotes strong academic performance and provides the background required to pursue a range of postgraduate studies.

A four-year undergraduate course is required by most universities as a prerequisite to enrolment in masters and doctoral programs. In many cases, an Honours degree is preferred to other forms of fourth year study (e.g., postgraduate diplomas). The Bachelor of Arts (Honours) program consists of five strands. Students will be required to complete two seminar/coursework subjects and a thesis which consists of two subjects in one of five strands. The total program consists of four subjects.

Location
Hawthorn campus.

Course duration
One year of full-time study or the equivalent part-time.

Structure
To achieve a Bachelor of Arts (Honours), students must complete two seminar subjects (Honours Seminars A and B) and two thesis subjects (Honours Thesis A and B). The former include a range of class requirements and each strand has its...
own requirements. For the thesis subjects, students submit a thesis, which will normally be in the range of 12,000 to 15,000 words. This will be supervised by a member of staff in the area of study.

Final results are given for the year as a whole. Students will be graded as:
- First Class Honours (H1) 85%-100%
- Second Class Honours Division A (H2A) 75%-84%
- Second Class Honours Division B (H2B) 65%-74%
- Third Class Honours (H3) 50%-64%

Course subjects

**Media and Cultural Studies strand**

For students who have majored in asian studies, literature, media studies, philosophy and cultural inquiry or politics.

**Social Science strand**

For students who have majored in australian studies, media studies, politics or sociology.

**Languages strand**

For students who have majored in italian, japanese, or korean.

**Psychology strand**

For students who have majored in psychology.

**Social Science strand**

For students who have majored in media studies, asian studies, australian studies, politics or sociology.

Entry requirements

To be accepted for the honours degree, students must have completed all subjects necessary for a three year Bachelor of Arts degree and achieved a high academic standard overall with an excellent record in their major area of study, especially at third year level. Students interested in the honours program should complete an application form (available from the School of Social and Behavioural Sciences) and submit it by a date in November to be advised. Selection will be made by the Honours Committee.

Further information

Contact the School of Social and Behavioural Sciences on (03) 9214 5209.
Email: sbsadmin@swin.edu.au.
Website: http://www.swin.edu.au/sbs/

**SOCIAL SCIENCE**

**NO56 Bachelor of Social Science**

1998 VTAC course codes: 34221 (F/T), 34191 (P/T)
34223 (O/S Fee)

1998 ENTER: 77.60 (F/T), Individual offer (P/T)

Graduates of a Social Science degree acquire knowledge and skills in a variety of study areas and also a range of ‘generic skills’ - skills which are a key part of the life-long process of personal development and which are also highly valued by employers. Some of these skills develop students’ capacity to relate to other people. Course activities in the Bachelor of Social Science which develop these skills include public speaking, group discussions, interviewing, planning group projects and organising seminars. These activities and skills help prepare students for management and leadership positions. Course activities also develop skills such as independent thinking, conceptual analysis, theory development, learning to write clearly and effectively, planning essays and research projects, attending to detail, and time management.

Social Science graduates learn to use ideas and information stored in libraries and electronic databases, acquire computer skills, carry out research projects and evaluate and develop policies. They develop a strong sense of personal integrity and an awareness of the role of ethics in private and public life, and they nurture personal stores of energy, motivation and adaptability.

All of these generic skills enhance students’ abilities to solve problems and to make decisions, irrespective of the specific field of study that they undertake. Whilst many degree courses provide some chance to develop generic skills, a Social Science degree usually provides particular opportunities for students to further their development in these areas. Consequently Swinburne Social Science graduates are well equipped to find work in areas where employers put a high premium on generic skills. These areas include:

- Policy analysis and development
- Research
- Community development
- Administration
- Public relations
- Publishing
- Media

**Course duration**

Three years of full-time study, or six years part-time.

**Structure**

The Bachelor of Social Science is a 24-subject degree. Subjects at Stages 1, 2 and 3 carry 12.5 credit points. In each year, four subjects per semester normally constitute a full-time load of 100 credit points, while two subjects per semester normally constitute a part-time load of 50 credit points.

In order to enhance their generic skills profile, employability and capacity to pursue further study, all Swinburne Bachelor of Social Science students must take a core Stage 1 subject in Research Methods and Statistics.

Evening classes are offered in most subjects. Students can choose whether they attend classes during the day, evening or a combination of both (subject to availability of places).

In most subjects, assessment is by a combination of class tests, essays and examinations. Students are informed of assessment requirements for each subject during the first week of classes.

**Major studies**

A major is a three-stage sequence of study in the one discipline or specialisation. In the Bachelor of Social Science, a major normally consists of one or two Stage One subjects followed by seven post-Stage One subjects. At least two post-Stage One subjects must be taken at Stage Two and at least three post-Stage One subjects must be taken at Stage Three. The remaining post-Stage One subjects may be taken at Stage Two or Three. Please consult individual entries for each major for the exact requirements.
To qualify for the award of the Bachelor of Social Science degree, students must complete two majors, with at least one major chosen from the available Bachelor of Social Science majors.

**Bachelor of Social Science Majors**
- Politics
- Psychology
- Sociology
Subject to timetable compatibility, students may choose as a second major any other major from the above Bachelor of Social Science majors, or a major from either the Bachelor of Arts or the Bachelor of Business degrees or any other approved major from elsewhere in the University.

**Bachelor of Arts Majors**
- Asian Studies
- Australian Studies
- Cultural Studies
- European Studies
- Italian Language & Culture
- Japanese
- Korean
- Literature
- Media Studies
- Philosophy & Cultural Inquiry

**Bachelor of Business Majors**
- Accounting
- Business Law
- Business Modelling
- Economics
- Finance
- International Business
- Information Systems
- Management
- Manufacturing Management
- Marketing
- Human Resource Management/Organisation Behaviour

**Entry requirements**
Applicants must have completed satisfactorily the Victorian Certificate of Education (VCE) or its equivalent, with Grade D or better in four VCE subjects, including English. Passes may be accumulated over more than one year.

Applicants who do not have a Year 12 qualification or who have a non-competitive Year 12 score and no other tertiary study, and have at least five years related work experience, may be considered for admission if they can demonstrate motivation and ability to succeed. Because of restrictions on numbers of places, not all eligible applicants can be offered a place.

**Credit transfer**
An advanced credit transfer system, known as the Pathways program, is in place at Swinburne. Through Pathways, students with one or more of a wide range of post-secondary qualifications (both local and international) can gain entry into Social Science programs with advanced standing. Certain subject requirements must be met and an acceptable standard of results achieved in order to gain admission and for maximum credit to be granted.

**Application procedure**
Application must be made through the Victorian Tertiary Admissions Centre (VTAC).

**Further information**
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Website: http://www.swin.edu.au/sbs/

**SOCIAL SCIENCE MAJORS**

**Politics**
Politics is the study of the institutions of government, of the power of government, and of how it is used and abused. It is concerned with the different types of government, such as dictatorship and democracy, monarchy and republic, with how and why governments make the decisions they do, and with the consequences these decisions have. It is also concerned with the influence that social movements, political parties, and interest groups have on the decision-making process. An understanding of politics is important, because government decisions affect all members of society.

Whether it is a matter of setting economic directions, addressing the issues of a multicultural society, or dealing with questions of war and peace, the political process decides who wins and who loses. Because governments impact on so many areas of our lives, an understanding of politics is essential in many professions - in business, in the media, in law, and in human services.

Politics at Swinburne is focussed on the areas of greatest relevance to students in their working lives. It deals with the institutions and processes of government in Australia, the forces that have shaped them, and the consequences for ordinary Australians. Recognising that Australia is increasingly being shaped by international forces, it introduces students to global politics and to the politics of the Asian region with which our future is closely entwined, and where increasing numbers of Australians are living and working.

**Career opportunities**
Politics graduates find employment in a wide range of professions where knowledge of public affairs, skill in analysis, evaluation, and communication, are valued. Many work in journalism, social work, research, administration, and business in Australia and other countries in the Asia Pacific region.

**Structure**
A Politics major must include one Stage 1 subject, and at least seven post Stage 1 subjects from the list below. At least two of these post Stage 1 subjects must be taken as Stage 2 subjects and at least three as Stage 3 subjects. The remaining two post Stage 1 subjects may be taken as either Stage 2 or Stage 3 subjects. Most Politics subjects are double-coded so that they can be taken as either Stage 2 or Stage 3 subjects. Where subjects are listed with two codes, the first one indicates the Stage at which it is normally taken.

**Course subjects**

**Stage 1**
- AP100 Australian Politics
- AP117 International Politics
- AA119 Modern Italy

**Stage 2**
- AA288 European Union

**Stage 3**
- ASP304 Methodology of Social Research
- ASP305 Models of Social Analysis
- BE338 Economics of Social Issues

The following subjects can be taken as stage 2 or stage 3 but not both:
- AP220/AP320 Modern Japan
- AP221/AP321 Modern Australia
- AP224/AP324 Emergence of Modern Asia
- AP225/AP325 Australia and Asia
- ASP300/ASP200 Public Policy in Australia
- ASP301/ASP201 Work in Australia
- AP223/AP223 Development and Democratization in East Asia

**Further information**
Contact the School of Social and Behavioural Sciences on (03) 9214 5209.
Email: sbsadmin@swin.edu.au.
Website: http://www.swin.edu.au/sbs/
Psychology
The undergraduate psychology program provides students with a broad introduction to psychology in all three stages. In stage three, some attention is given to vocational skills and knowledge relevant to applied fields.

Career opportunities
Graduates in psychology are highly sought after by a wide range of organisations to work in human services, as research officers, human resource managers, and marketing and advertising personnel. After completing a Bachelor degree with a major in psychology, graduates can undertake a fourth year in psychology and further study in areas of professional psychology, such as Counselling, Health, Clinical Organisational, and Sports Psychology.

Professional recognition
The three-year undergraduate sequence in Psychology at Swinburne is accredited by the Australian Psychological Society.

Structure
The stage one course in psychology introduces students to a range of topics in psychology and experimental design and analysis. Students intending to major in psychology are required to take AY100 Psychology 100, AY101 Psychology 101 and MA103 Statistics and Research Methods 1. Each of these subjects comprises lectures, practical work and instruction in statistical analysis.

In stage two, AY205 Cognition and Human Performance, AY206 Developmental Psychology and AY207 Social Psychology are offered and for students wishing to major in psychology MA278 Design and Measurement 2A must be taken. In stage three, subjects offered are AY308 Psychology of Personality, AY309 Psychological Measurement and AY321 Abnormal Psychology. In addition, students majoring in psychology must take MA378 Design and Measurement 3A.

It should be noted that the undergraduate psychology program is sequential in nature; completion of the prescribed subjects at one stage of the program is a prerequisite for study at the next level. All subjects offered in this program are semester subjects. Thus a student must complete both stage one psychology subjects before enrolling in any stage two psychology subject, and must complete all stage two psychology subjects before enrolling in any stage three subject. Details of these prerequisite arrangements are shown in entries for all psychology subjects.

Students should note that two of the stage three subjects in psychology are worth half a semester subject toward their degree subject total for students who commenced their course prior to 1998. These subjects are AY309 and AY321. All other subjects in psychology are worth one semester subject.

Course subjects
Students are required to study Psychology in the sequence prescribed below:

**Stage 1**
- AY100 Psychology 100
- AY101 Psychology 101
- MA103 Statistics and Research Methods 1

**Stage 2**
- AY205 Cognition and Human Performance
- AY206 Developmental Psychology
- AY207 Social Psychology
- MA278 Design and Measurement 2A

**Stage 3**
- AY308 The Psychology of Personality
- MA378 Design and Measurement 3
- AY309 Psychological Measurement
- AY321 Abnormal Psychology

Further information
Contact the School of Social and Behavioural Sciences on (03) 9214 5209.
Email: sbsadmin@swin.edu.au.
Website: http://www.swin.edu.au/sbs/

Sociology
Sociology is the study of how individuals interact as groups, ranging from families to whole societies such as Australia.

It provides different understandings of the ways individuals, groups and societies work. It also provides a systematic understanding of different ways of finding out about aspects of the social world, ranging from participant observation and experiments through to large scale surveys and computerised data techniques. A sociological perspective is an essential part of informed decision-making and human resource management in a rapidly changing social world.

Sociology at Swinburne studies Australian society in an international perspective, comparing it with other societies. The program also takes an applied approach by emphasising how sociology can be used to solve practical problems faced by individuals, organisations and governments.

Career opportunities
Sociology graduates typically find careers in the areas of social research, administration, planning, community development, human resources, policy development, and marketing. These positions all require the conceptual and skill-based training that comes from undertaking a degree in sociology.

Professional recognition
Students who have completed a major in Sociology can apply to join the Australian Sociological Association.

Structure
A Sociology major must include both stage one subjects, and at least seven post Stage 1 subjects from the list below. At least two of these post Stage 1 subjects must be taken at Stage 2 and at least three at Stage 3. The remaining two post-Stage 1 subjects may be taken at either stage two or three.

In stage one, we introduce the subject matter of sociology, and explore aspects of Australian society, economy and government in the international context.

This takes a full year of study, consisting of AS100 Sociology 1A and AS101 Sociology 1B.

Students majoring in Sociology must include ASP302 Methodology of Social Research among their subjects. They are advised to include ASP305 Models of Social Analysis in their major studies.

Students not majoring in Sociology may apply to do any stage one, stage two or stage three sociology subject.

Students who do well in their undergraduate work may apply to be admitted to the Bachelor of Arts (Honours) course in Social Science.

For students intending to pursue a career in research and policy analysis, we offer the Graduate Diploma in Urban Management and Policy. A Master of Arts by coursework in Urban Management and Policy is also offered.

A Graduate Certificate in Housing Management and Policy is available for those students seeking to develop a set of practical skills relevant for employment within government and non-government housing organisations.

Details for all these postgraduate studies can be found in the chapter on postgraduate courses.

Course subjects

**Stage 1**
- AS100 Sociology 1A (Families and Societies)
- AS101 Sociology 1B (Economies, Governments and Societies)

**Stage 2**
- AS298 Sociology of Deviance and Social Control
- AS299 Sex and Gender in Society
- ASM200 Cyber Cities

**Stage 3**
- AS310 Sociology of Organisations
- AS311 Environment and Population
- ASP300/ASP200 Public Policy in Australia
- ASP301/ASP201 Work in Australia
- ASP302 Methodology of Social Research
- ASP303 Sociology of the Electronic Age
- ASP304 Sociology and Social Policy
- ASP305 Models of Social Analysis
Further information
Contact the School of Social and Behavioural Sciences on (03) 9214 5209.
Email: sbsadmin@swin.edu.au.
Website: http://www.swin.edu.au/sbs/

N063 Bachelor of Social Science
(Psychology)
1999 VTAC course codes: 34341 (F/T), 34271 (P/T)
34343 (Q/S Fee)
1998 ENTER: 80.89 (F/T), 76.90 (P/T)

Graduates of a Social Science degree acquire knowledge and skills in a variety of study areas and also a range of ‘generic skills’—skills which are a key part of the life-long process of personal development and which are also highly valued by employers. Some of these skills develop students’ capacity to relate to other people. Course activities in the Bachelor of Social Science which develop these skills include public speaking, group discussions, interviewing, planning group projects and organising seminars. These activities and skills help prepare students for management and leadership positions. Course activities also develop skills such as independent thinking, conceptual analysis, theory development, learning to write clearly and effectively, planning essays and research projects, attending to detail, and time management.

Social Science graduates learn to use ideas and information stored in libraries and electronic databases, acquire computer skills, carry out research projects and evaluate and develop policies. They develop a strong sense of personal integrity and an awareness of the role of ethics in private and public life, and they nurture personal stores of energy, motivation and adaptability.

All of these generic skills enhance students’ abilities to solve problems and to make decisions, irrespective of the specific field of study that they undertake. Whilst many degree courses provide some chance to develop generic skills, a Social Science degree usually provides particular opportunities for students to further their development in these areas. Consequently Swinburne Social Science graduates are well equipped to find work in areas where employers put a high premium on generic skills. These areas include:
- Policy analysis and development
- Research
- Community development
- Administration
- Public relations
- Publishing
- Media

Location
Hawthorn campus.

Career opportunities
Graduates in psychology are highly sought after by a wide range of organisations to work in human services, as research officers, human resource managers, and marketing and advertising personnel. After completing a Bachelor degree with a major in psychology, graduates can undertake a fourth year in psychology and further study in areas of professional psychology, such as counselling, health, clinical organisational, and sports psychology.

Professional recognition
The three-year undergraduate sequence in Psychology at Swinburne is accredited by the Australian Psychological Society.

Course duration
Three years full-time or six years part-time

Structure
The Bachelor of Social Science (Psychology) is a 24-subject degree. Subjects at Stages 1, 2 and 3 carry 12.5 credit points. In each year, four subjects per semester normally constitute a full-time load of 100 credit points, while two subjects per semester normally constitute a part-time load of 50 credit points.

In order to enhance their generic skills profile, employability and capacity to pursue further study, all Swinburne BA students must take a core Stage 1 subject in Research Methods and Statistics.

Evening classes are offered in most subjects. Students can choose whether they attend classes during the day, evening or a combination of both (subject to availability of places).

In most subjects, assessment is by a combination of class tests, essays and examinations. Students are informed of assessment requirements for each subject during the first week of classes.

Course subjects
Students enrolled in the Bachelor of Social Science (Psychology) must undertake their first major in Psychology. A second major must be chosen from majors within the Bachelor of Social Science, Bachelor of Arts, Bachelor of Business or any other approved major from elsewhere in the University. The Psychology major consists of the following subjects:

**Stage 1**
- AY100 Psychology 100
- AY101 Psychology 101
- MA103 Statistics and Research Methods

**Stage 2**
- AY205 Cognition and Human Performance
- AY206 Developmental Psychology
- AY207 Social Psychology
- MA278 Design and Measurement 2A

**Stage 3**
- AY308 The Psychology of Personality
- MA378 Design and Measurement 3
- AY309 Psychological Measurement
- AY321 Abnormal Psychology

Subject to timetable compatibility, students may choose as a second major any other major from the Bachelor of Social Science, Bachelor of Arts or the Bachelor of Business degrees or any other approved major from elsewhere in the University.

**Bachelor of Social Science Majors**
- Politics
- Psychology
- Sociology

**Bachelor of Arts Majors**
- Asian Studies
- Australian Studies
- Cultural Studies
- European Studies
- Italian Language & Culture
- Japanese
- Korean
- Literature
- Media Studies
- Philosophy & Cultural Inquiry

**Bachelor of Business Majors**
- Accounting
- Business Law
- Business Modelling
- Economics
- Finance
- International Business
- Information Systems
- Management
- Manufacturing Management
- Marketing
- Human Resource Management/Organisation Behaviour

**Entry requirements**
Applicants must have completed satisfactorily the Victorian Certificate of Education (VCE) or its equivalent, with Grade D or better in four VCE subjects including English. Fasses may be accumulated over more than one year.

Applicants who do not have a Year 12 qualification or have a non-competitive Year 12 score and no other tertiary study, and have at least five years related work.
experience, may be considered for admission if they can demonstrate motivation and ability to succeed.

Because of restrictions on numbers of places, not all eligible applicants can be offered a place.

Credit transfer

An advanced credit transfer system, known as the Pathways program, is in place at Swinburne. Through Pathways, students with one or more of a wide range of post-secondary qualifications (both local and international) can gain entry into Arts and Social Science programs with advanced standing. Certain subject requirements must be met and an acceptable standard of results achieved in order to gain admission and for maximum credit to be granted.

Application procedure

Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information

Contact the School of Social and Behavioural Sciences on (03) 9214 5209.

Email: sbsadmin@swin.edu.au.

Website: http://www.swin.edu.au/sbs/
Year 4

Semester 1
- Fieldwork Placement
- Fieldwork Placement - Individual Facilitation
- Fieldwork Tutorial 2

Semester 2
- Fieldwork Placement
- Fieldwork Placement - Individual Facilitation
- Counselling
- Fieldwork Tutorial 2

Note that the Fieldwork Placements and associated studies will be conducted over two semesters during Year 4.

Entry requirements
- Applicants must either have completed VCE, or equivalent, with a grade average of at least D in English Units 3 and 4.
- Applicants are also required to have at least one year voluntary or paid work experience or equivalent in the field of study.
- Selection is based on work experience and TER where appropriate. As such the course is not generally available to current VCE students. Selection is also based on an interview and a short written exercise.

Credit transfer
- An advanced credit transfer system, known as the Pathways program, is in place at Swinburne. Through Pathways, students with one or more of a wide range of post-secondary qualifications (both local and international) can gain entry into Social Science programs with advanced standing.
- Certain subject requirements must be met and an acceptable standard of results achieved in order to gain admission and for maximum credit to be granted.

Application procedure
- Application must be made through the Victorian Tertiary Admissions Centre (VTAC).
- Further information: Contact the School of Social and Behavioural Sciences on (03) 9214 5209. Email: sbasadmin@swin.edu.au. Website: http://www.swin.edu.au/sbs/

Bachelor of Social Science / Diploma of Community Services (Psychiatric Disability Support)

1999 VTAC course codes: 34131 (F/T) 34133 (Q/S Fee)

1998 ENTER: Individual offer

The Bachelor of Social Science/Diploma of Community Services (Psychiatric Disability Support) is an innovative course taken over four years of full time study and resulting in students gaining awards in both the Bachelor of Social Science and the Diploma of Community Services (Psychiatric Disability Support).

The major areas of study are designed to foster individual student development, to develop workplace skills and encourage investigation and enquiry which may be applied to a range of human service contexts. Swinburne has long held the belief that industry and workplace contexts require graduates who have broadly-based education but who are also able to make particular contributions in specific fields. These outcomes help to direct future career paths for graduates.

Location
- Hawthorn / Prahran campuses.

Career opportunities
- Employment in these fields includes the ability to work in a variety of settings in the area of social and community services. The course structures for each of the specialist fields are designed to ensure there is a combination of theory and practice and the inclusion of learning situations which are work-focused, including practical placements.

Professional recognition
- The Swinburne Psychology major within the Bachelor of Social Science is accredited by the Australian Psychological Society (APS). To become eligible for associate membership of the APS and/or to Register as a probationary psychologist in the State of Victoria.

Course duration
- Four years full-time.

Course subjects

Bachelor of Social Science Components

Year 1

Semester 1
- AY100 Psychology 100
- MA103 Statistics and Research Methods
- AS100 Sociology 1A (Introductory Sociology)
- AP100 Australian Politics

Semester 2
- AY101 Psychology 101
- AS101 Sociology 1B (Comparative Sociology)
- AP215 Modern Australia

Year 2

Semester 1
- AY206 Developmental Psychology
- MA278 Design and Measurement 2A
- AS298 Sociology of Deviance and Social Control

Semester 2
- AY205 Cognition and Human Performance
- ASP305 Models of Social Analysis
- AS299 Sex and Gender in Society

Year 3

Semester 1
- ASP302 Methodology of Social Research
- AS310 Sociology of Organisations

Semester 2
- AY207 Social Psychology
- ASP304 Sociology and Social Policy

Year 4

Semester 1
- AY312 The Psychology of Personality
- SM378 Design and Measurement 3

Semester 2
- AY319 Psychological Measurement
- AY321 Abnormal Psychology

TAFE Components

Year 1
- Introduction to SACS (10 hrs)

Year 2
- Psychiatric Disability Support 1 - Introduction
- Principles and Practice in SACS
- Working with Groups 1

Year 2
- Semesters 1
- Casework
- Elective Module
- Occupational Health and Safety

Semester 2
- Consumer Health and Safety
- The Psychiatric Services System
- Working with Groups 2
Bachelor of Social Science / Diploma of Community Services (Welfare Studies)

Year 3
Semester 1
Psychiatric Disability Support 2
Elective Module (Double Elective)
Fieldwork 1 *
Semester 2
Counselling Skills
Professional Integration Tutorials 1 and 2
Fieldwork 1 *
* Note that the Fieldwork 1 component and associated studies will be conducted throughout Year 3.

Year 4
Semester 1
Fieldwork 2 *
Managing Crisis
Psychiatric Disability Support 3 (Worker Focus)
Professional Integration Tutorials 3
Semester 2
Fieldwork 3 *
Psychiatric Disability Support 4 (Program Design)
Counselling
Individual Professional Integration Tutorials 3
Supervision and Support
* Note: Fieldwork 2 and 3 and associated studies are combined throughout Year 4.

Entry requirements
Applicants must either have completed VCE, or equivalent, with a grade average of at least D in English Units 3 and 4.
Applicants are also required to have at least one year voluntary or paid work experience or equivalent in the field of study.
Selection is based on work experience and TER where appropriate. As such the course is not generally available to current VCE students. Selection is also based on an interview and a short written exercise.

Credit transfer
An advanced credit transfer system, known as the Pathways program, is in place at Swinburne. Through Pathways, students with one or more of a wide range of post-secondary qualifications (both local and international) can gain entry into Social Science programs with advanced standing.
Certain subject requirements must be met and an acceptable standard of results achieved in order to gain admission and for maximum credit to be granted.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)
Further information
Contact the School of Social and Behavioural Sciences on (03) 9214 5209.
Email: sbssadmin@swin.edu.au.
Website: http://www.swin.edu.au/sbs/

Bachelor of Social Science Components

Year 1
Semester 1
AY100 Psychology 100
MA103 Statistics and Research Methods
AS100 Sociology 1A (Introductory Sociology)
API00 Australian Politics
Semester 2
AY101 Psychology 101
AS101 Sociology 1B (Comparative Sociology)
AP215 Modern Australia

Year 2
Semester 1
AY206 Developmental Psychology
MA278 Design and Measurement 2A
AS298 Sociology of Deviance and Social Control
Semester 2
AY205 Cognition and Human Performance
ASP305 Models of Social Analysis
AS299 Sex and Gender in Society

Year 3
Semester 1
ASP302 Methodology of Social Research
AS310 Sociology of Organisations
Semester 2
AY207 Social Psychology
ASP304 Sociology and Social Policy
Year 4
Semester 1
AY312 The Psychology of Personality
MA378 Design and Measurement 3
Semester 2
AY319 Psychological Measurement
AY321 Abnormal Psychology

TAFE Components

Year 1
Semester 1
Introduction to SACS (10 hrs)
Welfare Practice
Semester 2
Law for Welfare Work

Career opportunities
Employment in these fields includes the ability to work in a variety of settings in the area of social and community services. The course structures for each of the specialist fields are designed to ensure there is a combination of theory and practice and the inclusion of learning situations which are work-focused, including practical placements.

Professional recognition
The Swinburne Psychology major within the Bachelor of Social Science is accredited by the Australian Psychological Society (APS). To become eligible for associate membership of the APS and/or to Register as a probationary psychologist in the State of Victoria.

Course duration
Four years full-time.

Course subjects

Bachelor of Social Science Components

Year 1
Semester 1
AY100 Psychology 100
MA103 Statistics and Research Methods
AS100 Sociology 1A (Introductory Sociology)
API00 Australian Politics
Semester 2
AY101 Psychology 101
AS101 Sociology 1B (Comparative Sociology)
AP215 Modern Australia

Year 2
Semester 1
AY206 Developmental Psychology
MA278 Design and Measurement 2A
AS298 Sociology of Deviance and Social Control
Semester 2
AY205 Cognition and Human Performance
ASP305 Models of Social Analysis
AS299 Sex and Gender in Society

Year 3
Semester 1
ASP302 Methodology of Social Research
AS310 Sociology of Organisations
Semester 2
AY207 Social Psychology
ASP304 Sociology and Social Policy
Year 4
Semester 1
AY312 The Psychology of Personality
MA378 Design and Measurement 3
Semester 2
AY319 Psychological Measurement
AY321 Abnormal Psychology

TAFE Components

Year 1
Semester 1
Introduction to SACS (10 hrs)
Welfare Practice
Semester 2
Law for Welfare Work

Location
Hawthorn / Prahran campuses.

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**Business**

**A055 Bachelor of Business**

1999 VTAC course codes: 34411 (F/T), 34701 (P/T)

1999 ENTER: 86.35 (F/T), 80.05 (P/T)

The Bachelor of Business is a vocationally oriented course that is designed to assist in the intellectual, social and personal development of the student as preparation for entrance to a range of specialist and generalist business professions. The program prepares students for a career in business, whether domestic or international, recognising that the business world is a global one as we step into the 21st Century. It also produces educationally rounded people, capable of taking their places in their chosen professions and in the community in which they live. Swinburne particularly takes pride in producing business graduates who are employment-ready, of immediate practical relevance to their employers and capable of excellent career development from a strong commencing base.

The objectives are achieved by:

- Ensuring that the body of knowledge and technology imparted in the course will be relevant to immediate and potential employment opportunities.
- Developing self confidence through a learning experience aimed at an understanding of the subject areas and including the development of life-long learning skills.
- Offering industry based learning (IBL) opportunities which rapidly link theoretical learning with applied practical work experience.
- Developing creativity and analytical skills.
- Providing an understanding of the conventional ways of seeking answers to particular problems, including use of library and other reference sources such as modern internet and electronic information sources.
- Developing multi-disciplinary applied research skills through the honours year option.
- Developing both written and oral communication skills, and team work capacities.
- Developing perspective and general knowledge by a study of a variety of disciplines and of their relationship to one another, forming an integrated, holistic business understanding.
- Developing an ability and willingness to adapt to change, given the turbulent, competitive and volatile nature of many businesses.
- Developing a broad understanding of the business and social environment, and especially its global and complex nature.
- Developing skills and attitudes conducive to lifelong learning.

The following strategies are used in the delivery of the Bachelor of Business to achieve the generic skills described in the course objectives:

- Assessment and workload expectations encourage students to be self directed.
- Many assignments rely on peer assisted learning for successful completion.
- Current research projects in many subjects require students to seek out active businesses as case studies in their completion.

Specific subjects are not the best way of nurturing these skills. They are better developed in the context of normal subject content.

The course leading to the award of Bachelor of Business offers major, minor and elective studies. The following Business specific major/minors are available:

- Accounting
- Business Law
- Business Modelling
- Economics
- Finance
- Human Resource Management/Organisation Behaviour
- Information Systems
- International Business
- Management
- Manufacturing Management
- Marketing
The following majors/minors are available from Arts:

- Australian Studies
- Asian Studies
- Cultural Studies
- European Studies
- Italian
- Japanese
- Korean
- Literature
- Media Studies
- Sociology
- Political Studies
- Psychology
- Philosophy and Cultural Inquiry

Key features of the Business specific major streams are described in the Business Specialisations section below.

**Location**

Hawthorn campus.

**Professional recognition**

The following professional recognition applies to studies in the Bachelor of Business. To be eligible for membership of the various professional associations, students must complete the following requirements.

**Australian Computer Society (ACS) (subject to re-accreditation)**

Students requiring ACS accreditation should complete the following subjects:

- IT1025 Introduction to Information Systems (core)
- IT1089 Business Programming 1
- IT2010 Business Programming 2
- IT2013 COBOL Programming
- IT2016 Database 1
- IT2049 Systems Analysis and Design
- IT3044 Professional Issues in Information Technology

Plus 4 of:

- IT3008 Business Data Communications
- IT3017 Database 2
- IT3018 Database 3
- IT3034 Information Systems Project
- IT3036 Information Technology Strategies
- IT3048 Software Platforms and the Internet
- IT3056 Software Engineering 1
- IT3084 Electronic Commerce: A Business Perspective
- IT3085 Electronic Commerce: A Technical Perspective

**Australian Human Resources Institute (AHRI)**

To be eligible for associate membership of AHRI graduates must have completed the following post-core subjects:

- BH220 Organisation Behaviour 1
- BH221 Human Resource Management 1
- BH222 Organisation Design
- BH223 Dynamics of Diversity in the Workplace
- BH224 Legal Aspects of Human Resource Management
- BH330 Organisation Behaviour 2
- BH331 Human Resource Management 2
- BH332 International Human Resource Management
- BH334 Managing Workplace Relations
- BH341 Strategic Human Resource Management

**Australian Institute of Certified Practising Accountants (ASCPA) and Institute of Chartered Accountants in Australia (ICAA)**

To be eligible for associate membership of the ASCPA or entry to the professional year of the ICAA, graduates must have completed the following post-core subjects:

- BC220 Accounting 2
- BC221 Corporate Accounting
- BC222 Management Accounting 1
- BC223 Management Accounting 2
- BC224 Financial Management 1
- BC225 Auditing
- BC330 Accounting Theory
- BC331 Taxation
- BE220 Macroeconomics
- BL220 Contract Law
- BL221 Company Law

Students seeking advanced standing for studies undertaken outside Australia are advised that credit granted by the University may not, in all cases, be recognised by the ASCPA. The ASCPA does provide guidelines and individual advice regarding recognition of advanced standing. Students should contact the ASCPA directly regarding recognition of exemptions based on studies undertaken outside Australia.

**Australian Institute of Banking and Finance**

The Australian Institute of Banking and Finance accepts the Bachelor of Business degree as an approved degree for the purpose of Affiliate membership of the Institute. Affiliate membership is a transitional level leading to Senior Associate status. An Affiliate member is required to undertake specialist banking subjects to complete the educational requirements for Senior Associate status.

Student membership of the Australian Institute of Banking and Finance is open to all full-time students undertaking the Bachelor of Business degree.

**Australian Institute of Management**

Accreditation is currently being sought.

**Australian Marketing Institute (AMI)**

Graduates of this course who have completed a Marketing major are eligible to become Associates of AMI. In addition, this course also fulfils the educational requirements for recognition as a Certified Practising Marketer.

**Financial Planning Association of Australia**

The Financial Planning Association of Australia will grant, students who complete the appropriate four subjects listed below, up to two exemptions in the Diploma of Financial Planning, a diploma necessary to become a Certified Financial Planner. The exemptions are granted on the following basis:

- One exemption for:
  - BC331 Taxation and
  - BC336 Advanced Taxation
- and one exemption for:
  - BC224 Financial Management and
  - BC337 Personal Investment

**Institute of Corporate Managers, Secretaries and Administrators**

Completion of the Bachelor of Business fulfills the educational requirements for associate membership of the Institute of Corporate Managers, Secretaries and Administrators.

**Course duration**

The Bachelor of Business is a three year full-time or six year part-time degree course (plus one year optional Industry Based Learning).

**Structure**

Students undertake a total of twenty-four subjects, consisting of a core of seven subjects, and a combination of majors, minors and electives. A major consists of six post-core subjects (at least two at Stage Three) from one specialisation. A minor consists of four post-core subjects (at least one at Stage Three) from one specialisation.

Students may complete a combination of majors, minors and electives to fulfil the degree requirements (refer diagram for choice of structure options) however, at least one major from the Business specific majors listed above must be completed.
The above formula for majors and minors in the Bachelor of Business applies to all Business specific streams except where specific requirements are specified under individual majors of study information outlined on the following pages. These major/minor formulas also apply to Arts majors studied as part of a Bachelor of Business except in the case of a minor in Languages where a minor is all Stage One and Two Language subjects, with no Stage Three requirement and a minor in Psychology is AY100, AY101, MA278, AY206, and AY205 or AY207 (or equivalent) with no Stage Three requirement.

Course restrictions

Students should note the following restrictions:

- A maximum of twelve subjects from any discipline (e.g. Accounting - 'BC', Business Law - 'BC' subject code prefix);
- A maximum of ten Stage One subjects (e.g. BC110 - Stage One subjects have a 1 immediately following the two-letter code);
- A minimum of four Stage Three subjects (e.g. BC330 - Stage Three subjects have a 3 immediately following the two-letter code);
- The subject AT119 Academic Communication Skills cannot be used for credits towards the Bachelor of Business;
- A subject can only be counted once as part of a major or minor or as an elective - one subject cannot be counted twice (e.g. the subjects BC331 Taxation and BC336 Advanced Taxation may be counted towards either an Accounting or Business Law major or minor, but not both);
- Students are not permitted to enrol in subjects where they have completed another subject that is deemed to be equivalent. Equivalent subjects cannot both be used for credit;
- BI300 Industrial Project cannot be used for credit towards the Bachelor of Business;
- Students will be allowed to study a maximum of twenty-six subjects as part of a Bachelor of Business.

Special course of study for students who have completed an Associate Diploma in Business

Students enrolled in this course who have completed an approved Associate Diploma in Business or equivalent must complete all the normal requirements for the course except they are only required to complete four of the seven business core subjects (which may include matched subject credits). However, all core subjects required as prerequisite for later Stage subjects selected for study must be completed.

The seven core subjects are:

- BC110 Accounting I
- BE110 Microeconomics
- BH110 Organisations and Management
- BL111 Law in Global Business
- BM110 The Marketing Concept
- IT1025 Introduction to Information Systems
- MB110E/MB110F Quantitative Analysis (enabling/international students) and
- MB110 Quantitative Analysis A
- or
- MB111 Quantitative Analysis B

Course structure options

- mandatory core subjects
- one major in a business specialisation
- options

Prerequisites/Corequisites

Students must have passed prerequisites/corequisites listed for each subject and must check that they have fulfilled these requirements before enrolling. Subject conveners must be consulted if students wish to enrol in a subject for which they do not have the stated requisite.

Industry Based Learning (IBL)

The Bachelor of Business includes an optional Industry Based Learning segment, in which students are placed in paid, supervised employment as part of their degree course. Students require a credit grade average for acceptance into the IBL program. Whilst enrolment in the Industrial Project completed as part of Industry Based Learning is not for credit, it gives eligible students invaluable practical experience to add to their academic studies, and is a proven advantage in the graduate job market. All Industry Based Learning placements are subject to availability and require suitable English language skills. Entry requirements Applicants must have completed satisfactorily the Victorian Certificate of Education (VCE) or its equivalent, with Grade D or better in four VCE subjects including English. Passes may be accumulated over more than one year. Applicants who do not have a Year 12 qualification or who have a non-competitive Year 12 score and no other tertiary study, and normally have at least five years business related work experience, must apply through VTAC (both full and part-time) and register with VTAC to sit the Special Tertiary Admissions Test (STAT). A STAT registration fee is payable to VTAC. Not all eligible applicants can be offered a place as quotas do apply.

Application procedure

Application must be made through the Victorian Tertiary Admissions Centre (VTAC).

Further information

Contact the School of Business on (03) 9214 5046.
**BUSINESS SPECIALISATIONS**

**Accounting**

Accounting is the basic language of business. The accounting subjects offered by the School of Business cover the many different aspects that accounting embraces in today's business activities. The overall emphasis is on providing information and analytical tools which improve the decision-making process throughout the organisation.

Stage One accounting gives students an overview of accounting from a user's perspective: how to read and analyse accounting reports. Accounting information is an important basis on which many decisions in all areas of business are made.

Stage Two subjects introduce both the process of creating accounting reports and developing other accounting information for decision-making. Students learn to use a variety of analytical tools and recording processes. Subjects cover a range of areas from accounting as a business information system, to developing information to assist the marketing, purchasing, production and administrative functions, through to financial management of the firm.

In Stage Three, subjects can be taken which provide students with additional analytical tools used in decision-making in a wide variety of business problems. In addition, further specialist subjects in tax, auditing, financial reporting and personal investment can be studied.

Some accounting subjects may work in any of these areas and in addition may work in public accounting. Students who undertake a course leading to professional accounting qualifications may have rewarding work in industry, commerce, the public sector, the financial industry or business consulting.

**Career opportunities**

Students with accounting majors or minors find rewarding work in industry, commerce, the public sector, the financial industry or business consulting.

Students who undertake a course leading to professional accounting qualifications may work in any of these areas and in addition may work in public accounting.

**Course subjects**

**Stage One (core subject)**

BC110 Accounting 1

**Stage Two**

BC220 Accounting 2 (A)
BC221 Corporate Accounting (A)
BC222 Management Accounting 1 (A)
BC223 Management Accounting 2 (A)
BC224 Financial Management 1 (A)
BC225 Auditing (A)
BC227 Financial Risk Management

**Stage Three**

BC330 Accounting Theory (A)
BC331 Taxation (A)
BC332 Strategic Cost Management
BC333 Advanced Auditing
BC334 Financial Accounting
BC336 Advanced Taxation
BC338 Personal Investment

(A) Mandatory subjects for professional recognition by ASCPA or ICAA

**Further information**

Contact the School of Business on (03) 9214 5046.

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**Business Law**

The Business Law major will provide students with the knowledge necessary to appreciate the impact law has on the business environment. With the increasing legal regulation of society it is essential that students are aware of the factors which either encourage or inhibit business activities.

The core subject, Law in Global Business, introduces students to basic legal concepts and important areas of business law. The subject concentrates on the interrelationship of law, business and society. A wide range of electives deal with various aspects of business law including: contract; company; marketing; employment; international trade; retailing; finance and computing law.

Law subjects emphasise skills such as the ability to understand arguments, to manipulate abstract concepts and to communicate verbally and in writing. These skills highlight the vocational value of law subjects to students.

**Career opportunities**

While not leading to a legal qualification, a business law major can lead to a range of careers and positions in insurance, banking, finance and the public sector. Legal knowledge would be valuable to a property officer, accountant, trust officer/administrator, company legal officer, company secretary or local government administrator.

**Course subjects**

**Stage One (core subject)**

BL111 Law in Global Business

**Stage Two**

BL220 Contract Law (A)
BL221 Company Law (A)
BL222 Marketing Law
BL224 Retailing Law
BL226 Information Technology and Communications Law

**Stage Three**

BL331 International Business Law
BL332 Employment Law
BL333 Finance Law
BL334 Asian Legal Systems

Note: BC331 Taxation and BC336 Advanced Taxation may be counted towards either an accounting or business law major or minor but not both.

(A) Mandatory subjects for professional recognition by ASCPA or ICAA

**Further information**

Contact the School of Business on (03) 9214 5046.

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**Business Modelling**

The Business Modelling major will provide a comprehensive set of skills necessary for the successful analysis of everyday business problems which assist in the task of decision-making.

A Business Modelling major or minor will provide students with valuable tools and skills that will complement majors or minors undertaken in other disciplines.

The applied approach to business modelling and data analysis adopted within the discipline is designed to meet the needs of both industry and the business community.

Stage One provides students with an introduction to basic business modelling and data analysis tools required to support subsequent studies, both within business modelling and other disciplines.

Stage Two introduces a variety of analytical tools and provides the additional skills that can be applied directly to everyday problems in the business world; resource allocation (fundamental to the world of commerce); business forecasting (essential for business survival); managing inventory; basic decision-making and planning for changes in Australia's population attributes (necessary to understand changing business markets).

Stage Three provides students with additional tools that are necessary to enable an analysis of a number of real-world business modelling problems. This stage is also designed to strengthen and focus the skills already obtained, enhancing the value of possessing these skills to the business community.

**Career opportunities**

In today's business world, very little can be achieved without the application of business modelling practices and techniques. Students completing a major or...
minor sequence of study in business modelling will also inherit valuable multi-disciplinary skills that are extremely marketable within the business community and may find employment in roles such as market analysts and business consultants.

Course subjects

Stage One (core subject)
MB110E/Quantitative Analysis (Enabling/International Students) and MB110 Quantitative Analysis A, or MB111 Quantitative Analysis B

Stage Two
B220 Business Forecasting
B223 Business Demography
B225 Economic Techniques for Business
B228 Management Decision Techniques
B229 Marketing Research
B230 Electronic Marketing

Stage Three
B330 Market Modelling
B332 Advanced Marketing Research (cannot be undertaken if B221, B225 or B227 have been completed)
B335 Quality Mechanisms and Measures

Further information
Contact the School of Business on (03) 9214 5046.

Economics

Understanding economics is a fundamental requirement for a career in business. An economic approach to important social and business problems is the focus of the economics major.

Stage One is designed to familiarise students with the operation of markets, the economic principles underlying government environmental policy and competition policy.

Stage Two allows students to focus on macroeconomic issues such as unemployment, inflation and foreign debt. In addition, units are available in specialist areas such as environmental economics, industrial relations and managerial economics.

Stage Three provides insight into a number of specific areas in economics, such as managerial economics.

Career opportunities

Finance is one of the fastest growing employment areas. Graduates may find employment as an investment advisor, in corporate treasury, money dealing, sharebroking, or portfolio management.

Course subjects

Stage One (core subjects)
BC110 Accounting 1
BE110 Microeconomics

Stage Two
BE224 Financial Management 1
BE227 Financial Risk Management
BE220 Macroeconomics

Stage Three
BE338 Personal Investment
BE333 Financial Institutions and Monetary Policy
BE335 International Finance

Further information
Contact the School of Business on (03) 9214 5046.

Human Resource Management/ Organisation Behaviour (HRM/OB)

The subjects in this integrated area broadly cover many aspects of organisations and the human behaviour and processes which occur within those settings.

As a sequence of study it aims to:

- prepare students for a range of human resource management and management roles in business
- develop a strong understanding of human resource management practices, organisation theory and structures, the behaviour of groups, the individuals who comprise those groups and the dynamic interrelationships among all these parts and aspects
- develop students’ capacity to reflect upon and understand their own and others’ behaviour
- develop communication and personal competence so that students are better equipped to fill the organisational roles which require interpersonal skills

The HRM/OB study area can be taken as a vocational preparation for human resource management (HRM), leading to associate membership of the Australian Human Resources Institute (course accredited by AHRI). To gain such eligibility, students would need to take all ten subjects offered in the HRM/OB area, in appropriate sequences.

Many students will wish to take HRM/OB studies without a career in HRM in mind. Such a major/minor would provide excellent insight into human behaviour in organisations and the management of people, and would combine well with any other vocational major. All business professionals ultimately work in or with organisations and with people.

A large proportion of the course material in these major streams is taught in an experiential manner which requires active involvement by students, structured reflection, linkage with ‘outside’ experiences, and thinking through application issues.

In each subject, students will have time to work on the development of self-directed and interdependent learning skills.
## Stage One

### Course subjects

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>BH110</td>
<td>Organisations and Management</td>
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</tbody>
</table>

### Stage Two

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>BH220</td>
<td>Organisation Behaviour 1</td>
</tr>
<tr>
<td>BH221</td>
<td>Human Resource Management 1</td>
</tr>
<tr>
<td>BH222</td>
<td>Organisation Design</td>
</tr>
<tr>
<td>BH223</td>
<td>Dynamics of Diversity in the Workplace</td>
</tr>
<tr>
<td>BH224</td>
<td>Legal Aspects of Human Resource Management</td>
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</tbody>
</table>

### Stage Three

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>BH330</td>
<td>Organisation Behaviour 2</td>
</tr>
<tr>
<td>BH331</td>
<td>Human Resource Management 2</td>
</tr>
<tr>
<td>BH323</td>
<td>International Human Resource Management</td>
</tr>
<tr>
<td>BH324</td>
<td>Managing Workplace Relations</td>
</tr>
<tr>
<td>BH341</td>
<td>Strategic Human Resource Management</td>
</tr>
<tr>
<td>BH335</td>
<td>HRM/OB Reading Unit (may only be taken by students wanting AHRI accreditation and who are in their final semester of study for the Bachelor of Business, and who are unable to enrol in a third year subject which is required to complete the major sequence of study)</td>
</tr>
</tbody>
</table>

Further information: Contact the School of Business on (03) 9214 5046.

### Information Systems

In today's world, information technology has pervaded every aspect of business organisations. As such, the study of computing and information systems and the supporting technology is vital for any business student. There are a number of related areas of study within the discipline and students can select majors or minors based on interest or career aspirations. These options can be categorised under three main headings:

#### Business computing

Studies in this area would be taken by students who see themselves as users of information systems rather than computer professionals. The emphasis is on the effective use of information technology within an organisation and the development of skills for solving business problems.

#### Business systems

Studies in this area would be taken by students who wish to focus on the analysis of business information needs as a basis for specification of computer based information systems rather than the technical aspects of design and development.

#### Software development

Students undertaking studies in this area will use a wide range of computer software. They will be seeking to specialise in the design, development and implementation of computer based systems in the business environment.

Selecting one of these options in combination with other relevant business studies enables the graduate to effectively apply information technologies in the solving of business problems.

Students who have commenced majors and minors under a prior course structure should consult subject conveners or course administrators for assistance in subject selection.

### Career opportunities

Graduates may find employment in systems analysis, project management, computer programming, software support.

### Course subjects

#### Stage One

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
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<tbody>
<tr>
<td>IT1025</td>
<td>Introduction to Information Systems (core subject)</td>
</tr>
<tr>
<td>IT1099</td>
<td>Business Programming 1 (non-core subject)</td>
</tr>
<tr>
<td>IT1051</td>
<td>Software Development 1 (non-core subject)</td>
</tr>
</tbody>
</table>

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## Stage Two

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
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<tbody>
<tr>
<td>IT2006</td>
<td>Business Computing</td>
</tr>
<tr>
<td>IT2010</td>
<td>Business Programming 2</td>
</tr>
<tr>
<td>IT2013</td>
<td>COBOL Programming</td>
</tr>
<tr>
<td>IT2016</td>
<td>Database 1</td>
</tr>
<tr>
<td>IT2024</td>
<td>Introduction to Human Computer Interaction</td>
</tr>
<tr>
<td>IT2049</td>
<td>Systems Analysis and Design</td>
</tr>
</tbody>
</table>

### Stage Three

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT3002</td>
<td>Introduction to Artificial Intelligence</td>
</tr>
<tr>
<td>IT3007</td>
<td>Business Computing Applications</td>
</tr>
<tr>
<td>IT3008</td>
<td>Business Data Communications</td>
</tr>
<tr>
<td>IT3017</td>
<td>Database 2</td>
</tr>
<tr>
<td>IT3018</td>
<td>Database 3</td>
</tr>
<tr>
<td>IT3029</td>
<td>Information Systems Analysis</td>
</tr>
<tr>
<td>IT3034</td>
<td>Information Systems Project</td>
</tr>
<tr>
<td>IT3036</td>
<td>Information Technology Strategies</td>
</tr>
<tr>
<td>IT3038</td>
<td>Knowledge-Based Systems</td>
</tr>
<tr>
<td>IT3048</td>
<td>Software Platforms and the Internet</td>
</tr>
<tr>
<td>IT3056</td>
<td>Software Engineering 1</td>
</tr>
<tr>
<td>IT3084</td>
<td>E-Commerce: A Business Perspective</td>
</tr>
<tr>
<td>IT3085</td>
<td>E-Commerce: A Technical Perspective</td>
</tr>
</tbody>
</table>

Further information: Contact the School of Business on (03) 9214 5046.

## International Business

International Business is a multi-disciplinary major. Industry, government and educational institutions recognise that increasingly business is carried on in a global market place. International business does not simply mean the export of goods. It includes the export of services, such as accounting, trade in intellectual property, foreign direct investment, overseas portfolio investment and electronic commerce. The Swinburne major in international business reflects this diversity and complexity.

The International Business major consists of six subjects including three mandatory subjects and three subjects chosen from a number of offerings to reflect individual students’ priorities. At least one of these additional subjects must be from the Business subjects. The mandatory subjects are International Business, International Trade and International Business Law.

The minor in International Business consists of four subjects. These must include at least two of the three mandatory subjects with the remaining subjects taken from the list of approved subjects. At least one of these additional subjects must be from the Business subjects.

A major or minor in International Business can be seen as a support to other majors in business especially majors in marketing, finance or accounting. A major in International Business may also be relevant to Arts students especially those undertaking majors in Politics, Asian studies or European studies.

### Career opportunities

Graduates may find employment in international trade, business management, business consultancy.

### Structure

To complete a major in International Business six of the subjects listed below must be completed, including the three mandatory subjects (as specified below), with a maximum of two arts subjects.

To complete a minor in International Business four of the subjects listed below must be completed, including at least two of the three mandatory subjects (as specified below), with a maximum of one arts subject.

### Course subjects

#### Mandatory subjects

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
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<tbody>
<tr>
<td>BE 334</td>
<td>International Trade</td>
</tr>
<tr>
<td>BE 340</td>
<td>International Business</td>
</tr>
<tr>
<td>BL 331</td>
<td>International Business Law</td>
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</tbody>
</table>

#### Business subjects

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>BE335</td>
<td>International Finance</td>
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</tbody>
</table>
To complete both a Management and Marketing major the following post-core subjects must be completed towards the Management major: BC222; BC224; BH221; BM222; either BM330 or BM331 or BH331; and BM338. A Management minor is not offered.

To complete both a Management and Marketing major the following post-core subjects must be completed towards the Marketing major: BG222; BC224; BH221; BM222; either BM330 or BM331; and BM341. A Marketing minor is not offered.

Further information
Contact the School of Business on (03) 9214 5046.

Management
Management is a multi-disciplinary area of study which aims to prepare students for a range of management roles in business. Students develop a strong understanding of the ways in which key resources both human and financial need to be planned, positioned and controlled and the products and services marketed to achieve an organisation's strategic goals.

The major aims to develop students’ capacity to think strategically and in an integrated way about complex management issues and problems. In a number of subjects, students will also be encouraged to develop communication skills and personal competence so that they are better equipped to fill the organisational roles with supervisory and management elements.

This major sequence of study requires students to combine studies in finance and management accounting, human resource management and marketing as three strands of expertise which are then integrated in a ‘capstone’ final year subject studying Business Strategy.

Emphasis is placed on sound analysis of problems and practical application of knowledge. Students are encouraged to think through problems and develop workable solutions. In this way, the Management major will develop sound judgement and problem-solving capacity in Business graduates.

Career opportunities
There are many opportunities for Management graduates, both as general management cadets and trainees in larger organisations, or as managers of small and medium enterprises. Naturally, new graduates do not begin their management careers ‘at the top’ but the integrated general management education obtained in the major will equip graduates for many organisational roles with supervisory and management elements.

Graduates who move into their own family or other businesses will also find this major excellent preparation, especially if combined with a second more personal competence so that they are better equipped to fill the organisational roles with supervisory and management elements.

Further information
Contact the School of Business on (03) 9214 5046.

Manufacturing Management
The manufacturing and processing of consumer and industrial products of food, beverages, automobiles, metals, plastics and minerals is an important part of the Australian economy. Following the deregulation of the early 1980’s it is fair to say that today’s Australian companies in the dynamic manufacturing and processing industries are at or close to world class competitive standards.

These industries are large employers and graduates with a major in manufacturing management are well positioned for a wide range of employment opportunities in operations management, human resource management, marketing, financial analysis, information systems, management accounting or technology management and innovation.

Industry Based Learning (IBL)
The Industry Based Learning year is strongly recommended for Manufacturing Management students, and it is expected that the sponsor of Manufacturing Education at Swinburne, FAME (the Foundation of Australian Manufacturing Education) will be offering scholarships and other financial assistance for those taking the Manufacturing Management major and financial help in the IBL year.

Career opportunities
The study of Manufacturing Management at Swinburne when allied with other Bachelor of Business majors/minors and double degree options can provide an interesting variety of employment and career opportunities, including: general management, small and medium enterprises, management traineeships and cadetships in large businesses and organisations.

Course subjects

Stage One

The following subjects are mandatory core pre-requisites for Stages Two and Three Management subjects.

BC210 Accounting 1
BH110 Organisations and Management
BM110 The Marketing Concept

Stage Two

BC222 Management Accounting 1
BC224 Financial Management 1
BH221 Human Resource Management 1
BM222 Marketing Planning

Stage Three

One of:

BH331 Human Resource Management 2
BM330 Product Management
BM331 Services Marketing and Management

AND

BM341 Business Strategy (capstone subject)

Further information
Contact the School of Business on (03) 9214 5046.

Compulsory subjects

BH224 Legal Aspects of Human Resource Management
BP228 Manufacturing Management 1
BP338 Manufacturing Management 2
BP337 Managing Technology and Innovation

Two subjects from one of the following groups of subjects:

Accounting

BC222 Management Accounting 1
BC223 Management Accounting 2
BC224 Financial Management 1
BC332 Strategic Cost Management

Business Law

BL220 Contract Law

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Marketing

Successful companies take the path of ‘market focus’, that is, their strategies are customer driven. Marketing deals with the building and implementation of customer focus.

The meaning of marketing is often misunderstood. One need look no further than the many advertisements without any real substance as to customer benefits and/or the delivery of these benefits. Frequently no distinction is made between selling and marketing. Unfortunately marketing has been introduced into many organisations as the ‘in word’, a kind of cosmetic change, the solution to the company’s problems, without changing the focus and the attitudes prevailing in the organisation. It has not worked, resulting in companies becoming disillusioned with marketing.

These companies did not understand the meaning of marketing. What does it mean? The answer is relatively simple: put yourself inside the skin of your customers and forget yourself for a while. That in itself is difficult to do, but that is exactly the difference between superficial and real marketing.

To make this transition involves a rethink on your part. Instead of thinking on behalf of your customers you have to learn to listen to your clients, accept what they say at face value and execute what they want. At Swinburne we explain the components of a business plan and marketing’s central role in strategy. Students are introduced to topics such as consumer behaviour, demand determinants, customer focus, marketing research, marketing planning, product and services management, advertising and promotion, international marketing and business environments of some European and Asian countries.

Students are encouraged to think through problems and to find their own answers. They are assisted in exploring their thinking processes to ensure that they make the most of their abilities. Practical application and real life subjects are the key features of a marketing major at Swinburne. In addition each subject has an international orientation.

Structure

Specific requirements for Marketing major and minors

To complete a Marketing major the following post-core subjects must be completed: BM220; BM222; BM223; BQ229; either BM330 or BM331; BM333; and BM341.

To complete a Marketing minor without a Marketing Major four of the following post-core subjects must be completed, with at least one at Stage Three: BM220; BM222; BM223; BQ229; BM330 or BM331; BM333; and BM341.

Course subjects

**Stage One (core subject)**

- BM110 The Marketing Concept

**Stage Two**

- AM208 New Media: The Telecommunications Revolution
- BL222 Marketing Law
- BM220 Market Behaviour (highly recommended as first subject studied in Marketing major/minor post-core)
- BM222 Marketing Planning
- BM223 International Marketing
- BQ229 Marketing Research
- BQ230 Electronic Marketing

**Stage Three**

- BM330 Product Management
- BM331 Services Marketing and Management
- BM333 Communications Strategy
- BM336 European Business Studies
- BM338 Asian Pacific Business Practice
- BM341 Business Strategy (capstone subject)
- BG332 Advanced Marketing Research

Further information

Contact the School of Business on (03) 9214 5046.
The Bachelor of Business (Human Resource Management) is a three year full-time, or six year part-time degree course (plus one year optional industry based learning).

**Course duration**

The Bachelor of Business (Human Resource Management) is a three year full-time, or six year part-time degree course (plus one year optional industry based learning).

**Structure**

To complete the requirements of this course 24 subjects must be completed. In addition to the subjects listed below an additional major or minor and elective(s) must also be completed.

**Course restrictions**

Refer to those listed in the Bachelor of Business (Hawthorn campus) course description in this Handbook.

**Course subjects**

**Stage One**

- BH110 Organisations and Management
- BL110 Law in Global Business
- BM110 The Marketing Concept
- IT1025 Introduction to Information Systems
- MB110E/Quantitative Analysis (Enabling/International Students) and
- MB110 Quantitative Analysis A or
- MB111 Quantitative Analysis B

**Stage Two**

- BC220 Accounting 2
- BC221 Corporate Accounting
- BC222 Management Accounting 1
- BC223 Management Accounting 2
- BC224 Financial Management
- BC225 Auditing
- BE220 Macroeconomics
- BL220 Contract Law
- BL221 Company Law

**Stage Three**

- BC330 Accounting Theory
- BC331 Taxation

**Additional subjects**

Six additional subjects must be completed. These subjects may be taken as a major or a minor and two electives.

**Entry requirements**

Applicants must have completed satisfactorily the Victorian Certificate of Education (VCE) or its equivalent, with Grade D or better in four VCE subjects including English. Passes may be accumulated over more that one year.Special entry

Applicants who do not have a Year 12 qualification or who have a non-competitive Year 12 score and no other tertiary study, and normally have at least five years business related work experience, must apply through VTAC (both full and part-time) and register with VTAC to sit the Special Tertiary Admissions Test (STAT). AS STAT registration fee is payable to VTAC.

Not all eligible applicants can be offered a place as quotas do apply.

**Application procedure**

Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

**Further information**

Contact the School of Business on (03) 9214 5046.
A044 Bachelor of Business (Marketing)
1999 VTAC course codes: 34411 (F/T), 34701 (P/T)
34413 (O/S Fee)
1998 ENTER: 88.35 (F/T), 80.05 (P/T)

The Bachelor of Business (Marketing) is recommended for students who aspire to a career within the Marketing profession as it provides a comprehensive study in Marketing and leads to professional recognition.

Location
Hawthorn campus.

Career opportunities
Public relations, advertising, product/brand management, market research, direct marketing, international marketing.

Professional recognition
Graduates of this course are eligible to become associates of the Australian Marketing Institute. In addition, this course also fulfils the educational requirements for recognition as a Certified Practising Marketer.

Course duration
The Bachelor of Business (Marketing) is a three year full-time, or six year part-time degree course (plus one year optional industry based learning).

Structure
To complete the requirements of this course 24 subjects must be completed. In addition to the subjects listed below an additional major or minor and elective(s) must also be completed.

Course restrictions
Refer to those listed in the Bachelor of Business (Hawthorn campus.) course description in this Handbook.

Course subjects
Stage One
BC110 Accounting 1
BE110 Microeconomics
BH110 Organisations and Management
BL111 Law in Global Business
BM110 The Marketing Concept
IT1025 Introduction to Information Systems
MB110E/FSQuantitative Analysis (Enabling/International Students) and
MB110F Quantitative Analysis A or
MB111F Quantitative Analysis B

Stage Two
BM220 Market Behaviour
BM222 Marketing Planning
BM223 International Marketing
BQ229 Market Research
BL222 Marketing Law

Stage Three
BM330 Product Management
BM331 Services Marketing and Management
BM333 Communications Strategy
BM341 Business Strategy (studied in the final semester of the course) and one of (from Stage 2 or 3):
BQ330 Electronic Marketing
BQ332 Advanced Marketing Research
BM336 European Business Studies
BM338 Asia-Pacific Business Practice
AMC08 New Media: The Telecommunications Revolution

Additional subjects
Seven additional subjects must be completed. These subjects may be taken as a major and an elective or a minor and three electives.

Entry requirements
Applicants must have completed satisfactorily the Victorian Certificate of Education (VCE) or its equivalent, with Grade D or better in four VCE subjects including English. Passes may be accumulated over more that one year.Special entry
Applicants who do not have a Year 12 qualification or who have a non-competitive Year 12 score and no other tertiary study, and normally have at least five years business related work experience, must apply through VTAC (both full and part-time) and register with VTAC to sit the Special Tertiary Admissions Test (STAT). A STAT registration fee is payable to VTAC.

Not all eligible applicants can be offered a place as quotas do apply.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)

Further information
Contact the School of Business on (03) 9214 5046.

DOUBLE DEGREES
Bachelor of Business / Bachelor of Arts (Language)
The Bachelor of Business/Bachelor of Arts (Language) is a four year full-time or eight year part-time double degree course with a one year optional industry based learning segment. The course comprises thirty-two semester subjects and is designed to enable students to complete the compulsory requirements for any business major and minor together with the full range of Italian, Japanese or Korean subjects in order to complete the requirements of the two degrees.

Location
Hawthorn campus.

Career opportunities
Graduates of the double degree course enjoy job opportunities wherever their chosen language is spoken, with particular advantages in organisations where there are either joint country business ventures or offices located in the country of the chosen language. All the languages provide unique market opportunities.

The business majors provide graduates with skills in a wide range of professional occupations. For career opportunities based on business majors refer to Business specialisations described in the Bachelor of Business course entry.

Professional recognition
For full details on professional recognition pertaining to this course refer to the Bachelor of Business course entry.

Industry Based Learning
For information about IBL please see the beginning of this chapter.

Course structure
The requirements of this course should be read in conjunction with the Bachelor of Business course description.

Students must complete the core subjects of the business degree (seven subjects) and a major and minor chosen from one of the approved business specialisations (refer Bachelor of Business specialisations) - a minimum of seventeen business specific subjects; plus eleven mandatory subjects from the chosen language; and four elective subjects (or an additional minor) either of which may be selected from subjects offered in the Bachelor of Arts or Bachelor of Business specialisations or other disciplines outside the School of Business by approval. For full details of Business specialisations pertaining to this course refer to the Bachelor of Business course entry.

Course restrictions
Students should note the following restrictions on subjects that can be credited towards the Bachelor of Business/Bachelor of Arts (Language) apply:

- A maximum of twelve subjects from any discipline (e.g. Accounting BC subject code prefix or Business Law BL subject code prefix);
- A maximum of twelve Stage One subjects (e.g. BC110 - Stage One subjects have a 1 immediately following the two letter code);
- A minimum of four Stage Three subjects must be completed in addition to the mandatory Stage Three language subjects (e.g. BM330 - Stage Three subjects have a 3 immediately following the two letter code);
- The subject AFT119 Academic Communication skills cannot be used for credit towards the double degree;
- A subject can only be counted once as part of a major or minor or as an elective - one subject cannot be counted twice (e.g. the subjects BC331 Taxation and BC236 Advanced Taxation may be counted towards either an Accounting or Business Law major or minor, but not both).

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- Students are not permitted to enrol in subjects where they have completed another subject that is deemed to be equivalent. Equivalent subjects cannot both be used for credit.
- BI300 Industrial Project cannot be used for credit towards the double degree.
- Students will be allowed to study a maximum of thirty-four subjects as part of the double degree.

Whilst the structure of the double degree is the same for all Language streams, students enrol in separate courses specific to the language of study as specified below. Language and business subjects must normally be studied simultaneously throughout the duration of the course. The following Language stream subjects are studied depending upon the chosen language of specialisation. 

Note: Students enrolled prior to 1998 should consult the relevant Language Convenor for the appropriate Language subjects to complete the requirements of their course.

### Double degree structure

<table>
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<tr>
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<td>AA281 Italian 2X</td>
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</tr>
<tr>
<td>AA183 Italian for Beginners</td>
<td>AA283 Italian 2Z</td>
<td>AA388 Contemporary Italy</td>
</tr>
</tbody>
</table>

#### A058 Bachelor of Business / Bachelor of Arts (Italian)

**Course subjects**

**Beginner’s stream**

- **Stage One**
  - AA181 Italy and Its Language 1
  - AA182 Italy and Its Language 2
  - AA183 Italian for Beginners

- **Stage Two**
  - AA281 Italian 2X
  - AA282 Introductory Business Italian (2Y)
  - AA283 Italian 2Z
  - AA287 Post-War Italy

- **Stage Three**
  - AA381 Italian 3X
  - AA387 Advanced Business Italian
  - AA388 Contemporary Italy

**Advanced Stream**

- **Stage One**
  - AA184 Advanced Italian 1A
  - AA185 Advanced Italian 1B
  - AA186 Advanced Italian 1C

- **Stage Two**
  - AA284 Advanced Italian 2A
  - AA285 Introductory Business Italian (2B)
  - AA286 Advanced Italian 2C
  - AA287 Post-War Italy

- **Stage Three**
  - AA384 Individual Project
  - AA387 Advanced Business Italian
  - AA388 Contemporary Italy

**Recommended electives**

- BI389 Work Experience in Europe
- BI390 Study Tour to European Union
- BI392 European Union - Business Context

### A057 Bachelor of Business / Bachelor of Arts (Japanese)

**Course subjects**

**Beginner’s stream**

- **Stage One**
  - AJ107 Introductory Japanese 1A
  - AJ108 Written Japanese 1B
  - AJ109 Spoken Japanese 1B

- **Stage Two**
  - AJ215 Intermediate Japanese 2A
  - AJ217 Written Japanese 2B
  - AJ218 Spoken Japanese 2B

- **Stage Three**
  - AJ318 Written Japanese 3A
A059 Bachelor of Business / Bachelor of Arts (Korean)  
1999 VTAC course codes: 34171 (F/T), 34491 (P/T)  
34173 (O/S Fee)  
1998 ENTER: 74.75 (F/T), Individual offer (P/T)  

Course subjects
Beginners' Stream
Stage One  
AK105 Introductory Korean 1A  
AK106 Written Korean 1B  
AK107 Spoken Korean 1B  
Stage Two  
AK209 Intermediate Korean 2A  
AK211 Written Korean 2B  
AK212 Spoken Korean 2B  
Stage Three  
AK306 Written Korean 3A  
AK307 Spoken Korean 3A  
and any two subjects out of:  
AK309 Written Korean 3B  
AK310 Spoken Korean 3B  
AK308 Reading Korean Newspapers  
AK311 Korean for Business and Industry  
Advanced Stream  
Stage One  
AK110 Advanced Korean 1A  
AK111 Advanced Written Korean 1B  
AK112 Advanced Spoken Korean 1B  
Stage Two  
AK215 Advanced Korean 2A  
AK216 Advanced Written Korean 2B  
AK217 Advanced Spoken Korean 2B  
Stage Three  
AK312 Advanced Written Korean 3A  
AK313 Advanced Spoken Korean 3A  
and any two subjects out of:  
AK314 Advanced Written Korean 3B  
AK315 Advanced Spoken Korean 3B  
AK308 Reading Korean Newspapers  
AK311 Korean for Business and Industry  
Mandatory subject for both streams  
AK214 Korean Politics and Economy  
Recommended electives  
AK102 Traditional Korea  
AK213 Korean Society  

Entry requirements
Applicants must have completed satisfactorily the Victorian Certificate of Education (VCE) or its equivalent, with Grade D or better in four VCE subjects including English. Passes may be accumulated over more than one year.Special entry
Applicants who do not have a Year 12 qualification or who have a non-competitive Year 12 score and no other tertiary study, and normally have at least five years business related work experience, must apply through VTAC (both full and part-time) and register with VTAC to sit the Special Tertiary Admissions Test (STAT). A STAT registration fee is payable to VTAC.  
Not all eligible applicants can be offered a place as quotas do apply.

Application procedure
Application must be made through the Victorian Tertiary Admissions Centre (VTAC)  
Further information  
Contact the School of Business on (03) 9214 5046.

HONOURS YEAR
A063 Bachelor of Business (Honours)

The Bachelor of Business (Honours) course provides students with demonstrated academic ability, the opportunity to pursue their undergraduate studies to an advanced level, to deepen their intellectual understanding in their major area of study and to develop their research skills. The Honours course is a recognised point of entry into postgraduate research studies. Students concentrate on their chosen area of study, gaining a better understanding of the academic discipline which they study and the research techniques appropriate to the discipline. The requirement to complete a substantial original piece of research for their dissertation ensures that honours graduates develop abilities to conceptualise problems, devise research strategies and carry out individual research work under the supervision of a member of staff with expertise in the area.

For students wishing to seek employment following their undergraduate degree, the honours course affords the opportunity to extend their knowledge of their chosen discipline and to specialise in an area within it. The course's strong orientation to research instructs students in the principles and techniques of original research and prepares them for areas of professional employment in which conceptual, organisational and research skills are in demand.

Location  
Hawthorn campus.

Career opportunities
Students with a Bachelor of Business (Honours) degree will have enhanced employment opportunities in their chosen area: Accounting, Business, Law, Business Modelling, Economics, Finance, Human Resource Management/ Organisation Behaviour, Information Systems, International Business, Management, Manufacturing Management, Marketing.
Course duration
The Bachelor of Business (Honours) program may be undertaken over one year full-time or over two consecutive years part-time.

Structure
The Honours course consists of a 20% research methodology component, a 20% advanced reading component and a 60% dissertation component. Students must satisfactorily complete all three subjects to achieve an overall honours assessment.

Students will be required to complete both coursework and dissertation requirements in one of the major areas of study listed below:
- Accounting
- Business Law
- Business Modelling
- Economics
- Finance
- Human Resource Management/Organisation Behaviour
- Information Systems
- International Business
- Management
- Manufacturing Management
- Marketing
- Any of the above areas of study combined with a language component from one of Italian, Japanese or Korean

Research methodology component
The research methodology subject (BQ405) aims to equip students with the necessary research skills to conduct studies for higher degrees. It is designed to facilitate the development of independent learning skills. Students will be presented with various research methodologies appropriate to their chosen discipline as well as those used in other disciplines. Assessment will be based on assignments and class exercises and teaching methods will include formal lectures and tutorial discussion groups and will make extensive use of library resources. This subject is compulsory for all Bachelor of Business (Honours) students and no prerequisite is necessary. Subject to approval from the School of Business Honours Committee, a pass in an equivalent subject at a graduate level may entitle the student to an exemption from this subject.

Advanced reading component
The discipline specific subject (Bx401) aims to allow a breadth and depth of exploration of the area of study chosen by the student. This is an exploratory approach which is intended to help the student arrive at a viable topic for their dissertation. Students will be expected to read both textual and journal articles, and attend recommended seminars of current business and social topics. A structured seminar approach will form the basis of the content.

Dissertation component
Normally a student will produce, under supervision, a dissertation between 10,000 and 15,000 words. The structure of the dissertation will be consistent with the proposal development in the Advanced Reading subject, and with the quality expectations that are carried with a work of this kind.

As part of the Bachelor of Business (Honours) course, students may be required to make class presentations at progressive stages in their course and to attend and participate fully in a series of seminars conducted by staff.

Students who successfully complete the above components will be graded as follows:
- First Class Honours (H1) 85–100%
- Upper Second Class Honours (H2A) 75–84%
- Lower Second Class Honours (H2B) 65–74%
- Third Class Honours (H3) 50–64%

Entry requirements
To be eligible for admission into the Bachelor of Business (Honours) course, a student must have satisfied the requirements of an undergraduate pass degree with a business major (completed within the last five years) from a university approved by Swinburne.

The student must have achieved an average level of attainment of a credit (C) or better in an appropriate undergraduate course (or range of disciplines) considered by the School of Business Honours Committee to be acceptable for entry into the Bachelor of Business (Honours) course.

Applicants for the language component must also have achieved a credit average in language studies.

Students interested in the Honours course should complete an application form available from the School of Business Student and Course Administration Office.

Credit transfer
Applicants may be eligible for an exemption from BQ405 Research Methodology based on previous studies. All applications for exemptions should be submitted on the appropriate form at the time of application for consideration by the School of Business Honours Committee.

Further information
Contact the Honours Convenor, Dr Barbara Lasky on (03) 9214 5350 or the Student and Course Administrator, Vicki Ryan on (03) 9214 5096.
IT5031 Introduction to Software Engineering

12.5 Credit Points  •  one semester  •  Hawthorn  •  Prerequisite: IT5051  •  Corequisites: IT5052  •  Teaching methods: Lectures: 2 hours per week. Tutorials: 1 hour per week  •  Assessment: Assignments; Examinations

Aims and objectives
• To introduce the basic problems that are encountered in the development of software in a small team environment.
• To examine some of the current techniques and tools which are used by industry to address the above problems.
• To allow students to experience the preparation of systems development documentation, working as members of small (2-4 person) teams using an object-oriented development perspective.

Content
• What is software engineering?
• The software development lifecycle
• Techniques for requirements elicitation
• Software Design as an incremental, iterative process
• Computer aided software engineering (CASE)
• Software defect management, including defect identification and fault detection
• Software Validation and Verification

Recommended reading
Graham, I., Migrating to Object Technology, Addison-Wesley, 1995
Sommerville, I., Software Engineering, 5th Edn., Addison-Wesley, 1995
Schach, S., Software Engineering with Java, Irwin, 1997

IT5051 Software Development 1

12.5 Credit Points  •  one semester  •  Hawthorn  •  Prerequisite: IT5051  •  Corequisites: IT5052  •  Teaching methods: Lecture: 2 hours per week. Laboratory: 3 hours per week (including 1 hour of classroom work)  •  Assessment: Assignments; Examinations

Aims and objectives
• To introduce basic concepts of object-oriented analysis and design
• To introduce object-oriented programming using Java
• To study the main features of the software development process in an object-oriented framework

Content
• The object-oriented world view
• Introduction to object-modelling
• Introduction to implementation of objects and classes
• Contracts: pre and post conditions and assertions
• Control structures
• Input-output
• Event-driven programs
• Introduction to class libraries
• Use of an OOD notation

Recommended reading
Lewis, J. & Loftus, W., Java Software Solutions, Addison-Wesley, 1998
Allen, R.K., Bluff, K., Oppenheim, A., Object-Oriented Software Development 1, 2nd Edn., 1998, Swinburne 1998 (contains lecture notes and laboratory material)

IT5052 Software Development 2

12.5 Credit Points  •  one semester  •  Hawthorn  •  Prerequisite: IT5051  •  Corequisites: IT5052, IT5055  •  Teaching methods: Lecture: 2 hours per week. Laboratory/Tutorial: 2 hours per week  •  Assessment: Assignments; Examinations; Tutorials

Aims and objectives
• To extend and strengthen basic concepts of object-oriented analysis and design
• To continue and extend object-oriented programming using Java
• To study the main features of the software development process in an object-oriented framework
• To study the GII development process using Java

Content
• Advanced object-modelling
• The dynamic model
• Java language and Java system
• The Java awt
• Exceptions
• Files and streams
• Design principles and design heuristics

Recommended reading
Allen, R.K. & Creek, M. J., Object-Oriented Software Development 2, Swinburne 1998
Allen, R.K., Bluff, K., Oppenheim, A., Object-Oriented Software Development 1, Swinburne, 1998

IT5055 Software Development Project

12.5 Credit Points  •  one semester  •  Hawthorn  •  Prerequisite: Approval required  •  Teaching methods: Lecture, contact with supervisor and project team sessions  •  Assessment: Assignments

Aims and objectives
• To introduce techniques and strategies for the management of software project utilising development technologies that enable the realisation of management objectives;
• To give project teams experience in the management of time and resources and the preparation of the full range of project and software documentation and deliverables.

Content
A selection of topics relating to project management theory and practice:
• Introduction to software development projects;
• Project concept and software life cycle;
• Project team structure, roles and responsibilities; project cost/benefit analysis;
• Project risk management;
• Software documentation standards;
• Project planning and estimation;
• Project monitoring and control;
• Quality control; project politics;
• Project Team practice - requiring analysis, design and implementation with full documentation, of a software product. This must be conducted in a 4-6 person teams, and it is expected that the project will exercise technical skills covered elsewhere in the course.

Recommended reading
Humphrey, S. Watts, Managing the Software Process, Addison-Wesley, New York, 1990

IT5072 Introduction to C++

12.5 Credit Points  •  8 sessions usually run over 4 weeks  •  Hawthorn  •  Prerequisite: Proficiency in at least one procedural programming language  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per session. Laboratory: 2 hours per session  •  Assessment: Assignments; Examinations

Bridging subject for MIT.

Aims and objectives
• To introduce the fundamentals of C++ programming.
Subjects Details

- to explore the basic features of the C+ programming language as a vehicle for object oriented programming

Content
- Introduction to C+ programming - simple programs and control structures
- Arrays
- Pointers and strings
- Classes and data abstraction
- Operator overloading
- Inheritance
- Virtual functions and polymorphism
- C+ Stream Input/Output
- Templates
- File processing

Recommended reading

IT5073  Computer and Network Technologies

12.5 credit points  Hawthorn  Prerequisites: must satisfy course entry requirements  Assessment: exam and assignments

Aims and objectives
To introduce computing concepts and skills as part of the core IT skills required for the course. To develop an understanding of communication protocols and computer networks

Content
- Fundamentals of computing
- Operating systems
- Common desktop applications
- Client/Server
- LAN/WAN
- Internet
- Database
- Information integrity & availability
- Security
- Programming concepts

Recommended reading
Halsall, F, Data Communications, Computer Networks and Open Systems, 5th Ed., Addison-Wesley, 1997
Breyda, W., Basic Data Communications, Prentice Hall
Black, U., Computer Networks and Distributed Processing, 3rd Ed., Addison-Wesley

IT5074  Database Concepts and Applications

12.5 credit points  Hawthorn  Prerequisites: must satisfy course entry requirements  Assessment: exam and assignments

Aims and objectives
Introduce students to database and programming concepts in the context of the information systems within the enterprise. To provide a solid theoretical foundation to the fundamentals of database design and database systems development.

Content
- Overview of Financial, HR, MIS, CAD, etc
- The Relational Data Model
- Structured Query Language (SQL)
- Functional Dependency Diagrams
- Client server database technologies
- Normalisation of Data
- Data & OO models
- DBMS terminology and concepts
- Data Integrity

Recommended reading
Beyda, W., Basic Data Communications, Prentice Hall

IT5075  Practical IT Project Management

12.5 credit points  Hawthorn  Prerequisites: Basic computing knowledge  Assessment: assignments

Aims and objectives
Introduction to project management with focus on developing practical skills as applied to a wide range of information technology projects. To provide an overview on a range of project management tools and methodologies

Content
- Project management techniques
- Project phases, life cycles, quality issues
- Project team structure, roles and responsibilities
- Risk assessment
- Project monitoring and control
- Configuration management
- Project management tools
- Organisational influences, human resources, procurement
- Working with subcontractors and consultants

Recommended reading
McLeod E. and Smith D., Managing Information Technology Projects; Course Technology, 1996.

IT5076  Management of Information Technology

12.5 credit points  Hawthorn  Prerequisites: basic computing knowledge  Assessment: assignments

Aims and objectives
To focus on the information technology related management issues in strategic planning and operational activities within an enterprise. To explore implications of trends and structural changes in companies and organisations with new technologies.

Content
- IT and Strategic planning
- Strategic management of IT
- IS/IT planning
- Technological trends in computing and telecommunications
- Developing and managing customer expectations
- Establishing effective customer focus support
- Controlling IT resources

Recommended reading
Tozer E., Strategic IS/IT Planning, Butterworth-Heinemann, 1996.
Andrew Hiles, Service Level Agreements, Chapman & Hall, 1993.

IT5077  Event Based Programming

12.5 credit points  Hawthorn  Prerequisites: basic computer knowledge  Assessment: assignments and exam

Aims and objectives
To give students a understanding of sound software engineering principles through programming in structured language within an event-driven environment (currently Visual Basic).

Content
- program structure
- data structure
- algorithm design

Recommended reading
IT5078  Object Oriented Design and Programming

12.5 credit points  Hawthorn  Prerequisites: basic computer knowledge  Assessment: exam and assignments

Aims and objectives
To introduce basic concepts of object-oriented analysis and design. To introduce object-oriented programming using Java. To study the main features of the software development process in an object-oriented framework.

Content
- the object-oriented world view
- introduction to object-modelling
- introduction to implementation of objects and classes
- contracts: pre and post conditions and assertions
- control structures
- input-output
- introduction to class libraries
- use of an OOD notation

Recommended reading
Lewis, J. & Loftus, W., Java Software Solutions, Addison Wesley, 1998
Allan, T.R., Bluff K. & Oppenheim, A.B., Object-Oriented Software Development I, 2nd Ed., 1998, Swinburne (contains lecture notes and laboratory material)

IT5088  Customising Enterprise Systems

12.5 credit points  Hawthorn  Prerequisites: basic computing, networking and programming  Assessment: assignments

Aims and objectives
To allow students to understand and develop skills in programming and customising an enterprise system.

To investigate issues of multi-vendor environment.

Content
- Programming and customising using one of the SAP/JDE/Visual ERP system within manufacturing enterprises
- Investigate issues related to multi-vendor environments
- Issues of legacy systems and migration

Recommended reading
Compiled lecture notes and reference manuals supplied by system vendors

IT5089  Technical Programming

12.5 credit points  Hawthorn  Prerequisites: basic computing knowledge  Assessment: exam and assignments

Aims and objectives
To introduce structured programming using C/C++ programming language

Content
- Program Design Methodology
- C/C++ Basics
- The simple data types (int, float, etc.)
- Control of flow
- Arrays
- Functions
- String Handling with standard libraries
- Data structures and data types
- File I/O with the standard libraries
- Common Algorithms - Sorting and Searching
- Pre-processor commands

Recommended reading

(Many other texts using ANSI C/C++ are suitable.)
• To consider how such solutions can work with the people within organisations.
• To enhance verbal and written communication skills.

Content
• Business computing from the manager’s and user’s point of view.
• Hands-on exercises to build upon the practical skills gained in earlier subjects.
• The utilisation and evaluation of business packages.
• Advanced skills in business software packages.

Recommended reading
A detailed reading guide will be issued for each topic and will include articles from industry journals and newspapers.

IT6010 Business Programming 2
12.5 Credit Points • one semester • Hawthorn • Prerequisite: IT5009 • Teaching methods: Lecture: 1 hour Tutorial / laboratory: 2 hours per week • Assessment: Assignments; Examinations

Aims and objectives
• To build on the programming skills and concepts learned in Business Programming 1.
• To give students an understanding of sound software engineering principles through programming in structured language within an event-driven environment (currently Visual Basic).

Content
Topics covered include the following:
• program structure
• data structure
• algorithm design
• data validation
• multiple dimension arrays
• subprocedures and functions
• modules and multiple forms
• reporting
• database links and manipulation
• testing
• user defined data types and classes
• Active-X controls

Recommended reading

IT6013 COBOL Programming
12.5 Credit Points • one semester • Hawthorn • Prerequisite: IT5009 or IT5051 • Corequisites: Nil • Teaching methods: Lecture: 1.5 hours per week. Tutorial/ laboratory: 1.5 hours per week • Assessment: Assignments; Examinations

Aims and objectives
• To give students a sound understanding of the principles and practice of procedural programming.
• To produce students worthy of immediate hire as trainee programmers in a commercial environment.

Content
• programming process, from problem definition through to program testing;
• principles of structured programming;
• importance and philosophy of testing, and designing a testing strategy for a given program specification;
• designing a logical structured solution to a problem using structure charts and pseudocode;
• reading, understanding, modifying and debugging COBOL programs;
• how to design, write, test and document attractive, well-structured programs in COBOL involving - sequential files, indexed files, reports, control breaks, data validation, character string manipulation, tables, arithmetic, multiple sequential files.

Recommended reading
COBOL course notes

IT6016 Database 1
12.5 Credit Points • one semester • Hawthorn • Prerequisite: IT5015 or IT5025 • Corequisites: IT5025 • Teaching methods: Lecture: 1.5 hours per week Laboratory/ Tutorial: 2 hours per week • Assessment: Assignments; Examinations

Aims and objectives
• To provide a solid theoretical foundation to the fundamentals of database design and database systems development.
• To provide sufficient practical exposure to designing and using database so as to equip students for basic database tasks in industry and government.
• To provide students with experience in the analysis, design and generation of a simple inquiry and update system, using Microsoft Access or ORACLE.
• To provide an understanding of the problem in its context, the need for adequate documentation of the system and management of this data to ensure that the information produced is relevant, accurate and maintainable. Students will use conceptual data analysis methods to produce a logical data model.

Content
• Information in the Organisation
• The Relational Data Model
• Structured Query Language (SQL)
• Functional Dependency Diagrams
• Entity Relationship Analysis
• Client server database technologies
• Normalisation of Data
• Data & OO models
• DBMS terminology and concepts
• Data Integrity
• Building On-line Transaction Systems

Recommended reading
Eden, P., Entity Relationship Analysis, 3rd Edn., 1997

IT6020 Data Communications
12.5 Credit Points • one semester • Hawthorn • Prerequisite: IT5051 • Corequisites: Nil • Teaching methods: Lectures: 2 hours per week. Laboratory: 2 hours per fortnight • Assessment: Assignments; Examinations

Aims and objectives
• to introduce the fundamental concepts and components involved in data communications
• to develop an understanding of communication protocols and computer networks

Content
• historical evolution of computer communications, standards, codes, introduction to the ISO reference model.
• basic communication theories and terminologies: transmission media, signal types, interface standards
• protocol basics: error control methods, flow control, link management
• terminal based networks: statistical multiplexers, concentrators, front-end processors and terminal network protocols
• local area networks: topologies and access methods, LAN management
• public data networks: characteristics, packet-switched data networks, circuit switched data networks, ISDN, standards, wide area networks
• OSI: the seven layer model, layer interaction, comparison of architectures

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IT6024 Introduction to Human Computer Interaction

12.5 Credit Points  one semester  Hawthorn  Prerequisite: Nil  Corequisites: Nil  Teaching methods: Lecture 1 hour per week; Tutorial 1 hour per week; Laboratory 1 hour per week  Assessment: Assignments; Examinations

Aims and objectives
- To introduce the process of user centred system design.
- To introduce the technology of the user interface.
- To introduce the basic underlying theory of interaction.

Content
- What is HCI and why is it needed;
- Human user;
- Performance, behaviour, cognition and social action;
- Interface technology, devices, styles and applications;
- Development paradigms, formal cognitive, participative and usability approaches;
- Up stream usability engineering, task, user and situation analysis;
- Down stream usability engineering, experimental, interpretive and predictive evaluation;
- Guidelines, standards and metrics;
- Tools, user-interface management systems;
- Groupware and Computer Supported Cooperative Work;
- Organisational issues.

Recommended reading

IT6049 Systems Analysis and Design

12.5 Credit Points  one semester  Hawthorn  Prerequisite: IT5025  Corequisites: Nil  Teaching methods: Lecture: 1.5 hours per week; Laboratory: 2 hours per week  Assessment: Assignments; Examinations

Aims and objectives
- To utilise skills learnt in previous units, relating to the analysis, design and implementation of a straightforward transaction processing system, emphasizing procedural aspects.
- To extend basic IT user and data analysis skills to the analysis of business problems with a view ultimately to building of an information system to support the business functions.

Content
- Understanding a problem in its business context;
- The tools and techniques the analyst can use in the adequate documentation of the system to ensure that the information produced is relevant and accurate;
- Classical and structured tools for describing data flow, data structure, process flow, input and output design;
- Modelling organisational data;
- modelling organisation activities;
- setting implementation priorities;
- estimation;
- database design; forms, screen and reports design; process design;
- development strategies;
- implementation and installation;
- evaluation.

Recommended reading
Power, M., Cherry, P. & Crow, G., Structured Systems Development, Boyd & Fraser, 1990

IT6053 Software Development 3

12.5 Credit Points  one semester  Hawthorn  Prerequisite: IT6052  Corequisites: Nil  Teaching methods: Lecture: 2 hours per week; Laboratory: 1 hour per week  Assessment: Assignments; Examinations

Aims and objectives
To increase skills in OO analysis, design and programming to present the C++ language, and its differences from Java.

Content
Advanced Java
- Java 1.1 event model
- threads
- serialisation
- Java Beans C++ language
- fundamentals: intrinsic types, classes and inheritance, console I/O,
- compiler directives, separate compilation, exceptions
- pointers, references and polymorphism
- file I/O
- introduction to templates
- introduction to operator overloading

Recommended reading

IT6054 Software Development 4

12.5 Credit Points  One semester  Hawthorn  Prerequisite: IT6053  Corequisites: Nil  Teaching methods: Lecture: 2 hours per week Laboratory: 1 hour per week  Assessment: Assignments; Examinations

Data structures in C++ using the Standard Template Library. More design patterns.

Aims and objectives
- to present the implementation of standard data structures;
- to study the fundamentals of design patterns and software architecture.

Content
- Algorithm complexity;
- stacks and queues, table implementations, trees, heaps and priority queues, graphs;
- generic and standard container classes, using container classes in implementation;
- Object-oriented design patterns;
- Object-oriented frameworks.

Recommended reading
Gamba, E., Helm, R., Johnson, R. & Villidrose, J., Design Patterns - Microarchitecture for Reusable Object-Oriented Software, Addison-Wesley, Reading, Mass., 1994

IT6080 Introduction to Programming

12.5 Credit Points  one semester  Hawthorn  Prerequisite: Nil  Corequisites: Nil  Teaching methods: Lecture: 2 hours per week Laboratory: 2 hours per week  Assessment: Assignments; Examinations

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IT7008 Business Data Communications

Aims and objectives
- To look at data communication technology and its potential uses in business and industry.
- To give an understanding of how data communications has developed, future trends of data communications, the technology available and its impact on the information systems industry.
- To examine important standards and how these are used in data communications.
- To examine the different network architectures.
- To give an understanding of how groupware has changed the way an organisation works.
- To study technologies of different networks in organisations from local to wide area networks.
- To identify the issues involved in selecting, designing and implementing networks.

Content
- Principles of data communications, covering the fundamental concepts.
- Local area networks, covering all the different aspects of network architectures used including medium access methods and topologies and network operating systems.
- Internetworking which looks at the devices and technology used in expanding and communicating across different network architectures.
- Wide area networks: ATM technology, SONET architecture, other switching technologies.
- Client-Server Architecture: advantages and disadvantages; use of enterprise networking and intranets to implement more flexible, scalable networks; how software and hardware are distributed across the network.
- Network Administration: network development life cycle, network management, and network security when implementing a network.
- Multimedia Networks: the current move to electronic delivery of documents and other media including voice, the requirements of a network and its impact on shared networks.
- Trends to watch in Data Communications & The Internet.

Recommended reading
- Curle, K., Data Communications in Australia, John Wiley & Sons, 1st Edn., 1996
- Halsall, F., Data Communications, Computer Networks and Open Systems, Addison-Wesley, 5th Edn., 1997


- data independence,
- transaction management,
- concurrency control,
- recovery,
- triggers,
- stored procedures,
- cursors.

- Designing on-line database transactions using a forms tool.
- Performance issues.

**Recommended reading**

Connolly, T., Begg, C., Strachan, A., *Database Systems*, Addison-Wesley, 1996  
Date, C.J., *An Introduction to Database Systems*, Addison-Wesley, 6th Edn. 1995  
Krohn, M., Using Oracle Toolkit, Addison-Wesley, 1993

**IT7018 Database 3**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT7017  
Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week. Laboratory: 1 hour per week. Tutorial: 1 hour per week.

**Aims and objectives**

- To build upon the concept and skills gained in Database 1, by examining database design, implementation and performance issues in both local and distributed client-server environment.

**Content**

- Programming using embedded SQL embedded in a third generation language.
- Physical design issues.
- The use of database and transaction analysis and optimiser plan information to check/improve performance.
- The effective use of views to achieve data independence.
- Design and implementation of distributed systems.
- Object-oriented and Object-relational systems.

**Recommended reading**

Bell, D. and Grimson, J., *Distributed Database Systems*, Addison-Wesley, 1992  
Connolly, T., Begg, C., Strachan, A., *Database Systems*, Addison-Wesley, 1996  
Date, C.J., *An Introduction to Database Systems*, Addison-Wesley, 6th Edn. 1995

**IT7029 Information Systems Analysis**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT6016, IT5009 or IT5040  •  Corequisites: Nil  •  Teaching methods: Lecture/ tutorial.

**Aims and objectives**

- To provide a thorough understanding of the requirements of information systems to meet the needs of businesses and organisations.
- To give practice in problem solving using a variety of object-oriented techniques applied to business type problems.
- To introduce the fundamental principles of object-orientation: a method for information systems analysis which employs techniques such as class, state and use case modelling.
- To explore popular methods from the literature.
- To enable students to apply these approaches to analysis correctly to produce an object oriented model for a given case study.

**Content**

- Introduction, object oriented paradigm, object modelling;
- Class modelling;
- Dynamic modelling;
- Specification modelling;
- Case studies.

**Recommended reading**


**IT7034 Information Systems Project**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT7017 and IT6010 or IT5052  •  Corequisites: Nil  •  Teaching methods: Class presentations.

**Aims and objectives**

- To provide students with the opportunity to work in a formal project team environment in the areas of analysis, design, development and implementation of an information system, using a variety of software engineering and development tools.
- To increase the depth and breadth of the students’ understanding of practical computing, and reinforce the theory learned in other subjects.

**Content**

- Students will employ the skills learned in other subjects, such as:
  - systems analysis strategies
  - software engineering techniques
  - project control
  - standards development
  - database implementation
  - programming
  - unit and system testing
  - software package implementation design
  - risk analysis

**Recommended reading**

Connolly, T., Begg, C., Strachan, A., *Database Systems*, Essex, Addison-Wesley, 1996  

**IT7036 Information Technology Strategies**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: Any four subjects in the program  •  Corequisites: Nil  •  Teaching methods: Lecture: 1 hour per week.  
Tutorials: 2 hours per week.  •  Assessment: Reports

**Aims and objectives**

- To examine the information systems requirements of business and other organisations;
- To examine the history of software development methods applicable to IS; the main methods currently in use, and associated technical, managerial and social issues;
- To examine appropriate methods of information system development;
- To understand the need for careful analysis, risk assessment and control procedures suitable for different system development approaches;
- To investigate current trends and competing claims about future directions.

**Content**

- Information System Development - an Organisational Context
- Information Systems - Establishing the framework
- Evolution of information systems in organisations.
- The Information Technology (IT) Perspective
- Application development life cycle
- Life cycle variations and managing IT development.
- Newer technologies
- Business Perspectives
- End-User developed applications.
- Software risk and software quality.
- Business, management, and information systems in organisations.
- Information and systems as a resource.
- Ethics
- Building a responsive IT infrastructure; ethics issues (community concerns, privacy etc.)

**Recommended reading**

IT7038 Knowledge-Based Systems

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT6016 and IT5009 or IT5081 • Corequisites: Nil • Assessment: Assignments; Examinations

Aims and objectives
- To develop in students an understanding of the nature and uses of Expert Systems in business and industry;
- To explore the related fields of Artificial Neural Networks, Natural Language Processing and Case Based Reasoning;
- To provide students with the opportunity to design and build an Expert System prototype.

Content
- basic concepts of Artificial Intelligence, Knowledge Based Systems and Expert Systems;
- what expert systems are, how they are developed and who is using them;
- how expert systems differ from conventional software programs and human beings who perform tasks expertly;
- basic concepts of knowledge engineering that affect design and implementation;
- various forms of knowledge representation;
- evolutionary process of knowledge acquisition needed to put expertise into a machine;
- principles of rule based systems and induction systems;
- handling of uncertainty;
- inference;
- use of PC based Expert Systems Shell;
- introduction to natural language processing, neural networks and case-based reasoning.

Recommended reading
Zahedi, F., Intelligent Systems for Business, Expert Systems with Neural Networks, Belmont, California, 1993

IT7041 Multimedia Web Development

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT5051 • Corequisites: Nil • Teaching methods: Lectures: 2 hours per week. Laboratory: 1 hour per week • Assessment: Assignments; Examinations

Aims and objectives
To introduce the technologies, concepts and techniques associated with the development of multimedia World Wide Web systems.

Content
- Introduction to Multimedia - definition, fundamental concepts, media types and application areas
- Introduction to the World Wide Web - definition, history and fundamental concepts
- HTML - document structure, tags, images, links, image maps, tables, frames, applets
- Web Site Architecture - site development tools, server tools, principles of navigation, page design principles, intranets
- JavaScript - applications of JavaScript, entities, variables, operators, statements, functions, event handling, objects, forms processing
- CGI programming - principles, JavaScript and CGI scripts
- Advanced WWW Development - style sheets, push and pull technology, agents
- Standards - HTML, W30
- Multimedia Web Development - ActiveX, plug-ins, VRML, streaming audio and video, Quicktime, Shockwave, Adobe Acrobat

Recommended reading
Jeworski, J., Mastering JavaScript, Sybex, 1997

IT7048 Software Platforms and the Internet

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT7008 • Corequisites: Nil • Teaching methods: Lecture/ tutorial/ laboratory • Assessment: Assignments; Examinations

Aims and objectives
- to introduce the concepts and notations of software process modelling and the place of software process models in the improvement of software development practice involving large software development teams;
- to present the techniques and tools necessary for the successful management of medium to large-scale software development projects.

Content
- Software Project Management
- Software Costing and Scheduling
- Software Risk Management
- Software Quality Management
- Software Process Improvement
- Software Metrics

Recommended reading
Sallis, P., Tate, G., MacDonell, S., Software Engineering, Practice, Management, Improvement, Addison Wesley, 1995

IT7056 Software Engineering 1

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT5031 or IT6049 • Corequisites: IT6016 • Teaching methods: Lecture: 2 hours per week. Tutorial: 1 hour per week • Assessment: Assignments; Examinations

Aims and objectives
- to introduce the concepts and notations of software process modelling and the place of software process models in the improvement of software development practice involving large software development teams;
- to present the techniques and tools necessary for the successful management of medium to large-scale software development projects.

Content
- Software Project Management
- Software Costing and Scheduling
- Software Risk Management
- Software Quality Management
- Software Process Improvement
- Software Metrics

Recommended reading
Sallis, P., Tate, G., MacDonell, S., Software Engineering, Practice, Management, Improvement, Addison Wesley, 1995
IT8000  Advanced Database

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT8016 or IT8005 equivalent • Corequisites: Nil • Assessment: Assignments; Examinations; Labs

Aims and objectives
- To give an understanding of advanced database concepts and theory, particularly as relevant to client-server databases, including transaction management and distributed databases.
- To use three sample client-server databases which are significant in current industry, namely the relational databases Oracle and SQL Server and the object-oriented database Objectstore.
- To focus on building PC clients on the Microsoft Windows platform to access relational and object-oriented database servers.
- To give some understanding of Microsoft's developing data access standards, especially ODBC.
- To provide a foundation to build client-server systems in the subject Advanced Database.

Content
- Introduction. Objectstore Overview
- Objectstore: Writing C+ Client Applications & Transactions
- Objectstore: Exceptions & Pointers and References
- Objectstore: Collections
- Objectstore: Relationships
- Objectstore: Queries & Indexes
- ODBC: Oracle
- ODBC: SQL Server
- ODBC: Microsoft Access
- Transaction Management
- Locking Strategies
- Distributed Databases

Recommended reading
Kemer, A. & Moerkotte, G., Object-Oriented Database Management, Prentice Hall, 1994

IT8001  Automated Development Methods

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT8026 recommended • Corequisites: Nil • Assessment: Research Paper

Aims and objectives
- To introduce a number of topics and issues related to the theory and practice of CASE technologies and the design and development of information systems.
- To give students the opportunity to utilise an integrated CASE tools with emphasis on applying theory to practice.

Content
Topics covered in this subject include:
- introduction to computer aided software engineering (CASE) technology;
- designing information systems, methods for designing in forms suitable for automated development;
- software development, including software implementation, maintenance;
- reverse versus re-engineering.

Recommended reading
Hares, J., Information Engineering for the Advanced Practitioner, Addison-Wesley, 1992
Springer, Advanced Information Systems Engineering (LNCS3438) Berlin, 1993
Spurr, K. and Layzell (Eds.), CASE on Trial, Wiley, Chichester, 1990

IT8003  Business Analysis

12.5 Credit Points • One semester • Hawthorn • Prerequisite: relevant experience • Corequisites: Nil • Assessment: Teaching methods: Lecture/Tutorial • Assessment: Assignments; Group Work

Aims and objectives
- to develop a formal awareness of the process of analysing and developing systems while at the same time emphasising the necessary communication skills for success;
- to focus on the business application of technology, the role of users in systems and the development of analytical skills for business

Content
- further understanding the system development process
- evaluation of the effectiveness of computerised information systems
- the development of techniques for successful communication with both users and other computing professionals
- written skills of report writing and essays
- fact gathering techniques of interviewing, questionnaires, sampling etc.
- verbal communication skills for various forms of presentations
- examination of, and justification for, typical systems in business

Recommended reading

IT8012  Current Issues in Information Systems

12.5 Credit Points • One semester • Hawthorn • Prerequisite: completion of any four subjects from MIS (mgmt) • Corequisites: Nil • Teaching methods: Lecture Tutorial • Assessment: Assignments; Group Work; Oral Presentation

Aims and objectives
To examine current information technology trends so that students will be able to make critical appraisals of state of the art developments, and evaluate them for relevance to their own environment. The systematic examination of these topics will serve as an introduction to research methodology which will be used throughout the course.

Content
Organisational demand for effective enabling information technologies (IT) is examined in terms of current IIT trends which vary over time. To survive in the global marketplace, modern organisations currently need to:
- gain an advantage through electronic commerce by effective use of the Internet and the World Wide Web (WWW);
- exploit the opportunity to transform their core business processes and their organisation structures;
- choose to undertake business process reengineering (BPR) which may be supported by object-oriented methodologies;
- make use of object management methods and technologies to enhance effective use of the WWW and to facilitate access to On-line Analytical Processing (OLAP);

The research themes for the semester embrace these interlinking organisational needs through the investigation of a research proposition

Recommended reading
Students will be expected to access numerous periodicals and journals which are available in print and in many cases electronically and to search the WWW for suitable material. An up to date starter kit of references is provided at the beginning of the semester.

IT8014  Systems Strategies

12.5 Credit Points • 2 Hours per Week • Prerequisite: Nil • Assessment: assignment/project work (100%) • Instruction: lecture / tutorial

A subject in the Master of Information Systems.

Swinburne University of Technology | 1999 Higher Education Handbook
Aims and objectives

- to study the influence of automated development methods on the systems development process
- to develop awareness of a range of approaches to meeting the information systems requirements of organisations.

Content

Architecture of information systems; standard solutions; packages and templates; application re-use; evolutionary development of information systems; reverse engineering; system integration; methodologies.

References

To be advised.

IT8019 Database for Client-Server

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT8027 • Corequisites: Nil • Assessment: Assignments; Exams; Labs

Study and develop database and network software using Java. Introduction to web-based database technology.

Content

- Threads
- Sockets
- RMI
- Java IDL
- Client Server development using Java
- ObjectStore with Java on the web
- Web database development using Java

Textbook


References

Other books on Java Networking and Web Database Technology

IT8021 Distributed Object Technology

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT8085 • Corequisites: Nil • Teaching methods: Lectures: 2 hours per week. Laboratory: 2 hours per week • Assessment: Assignments; Exams

Aims and objectives

- to study WindowsTM programming paradigms such as COM, DCOM and ActiveX
- to provide a theoretical and practical background for the development of distributed software

Content

- Dynamic Link Libraries
- OLE
- COM
- DCOM
- ActiveX
- CORBA
- Emerging technologies (Voyager)

IT8023 Human Computer Interaction

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures: 2 hours per week. Workshop: 2 full day workshops per semester • Assessment: Assignments; Class presentations; Exams

Aims and objectives

- To appreciate the need for, and the role and characteristics of, human-computer interaction;
- To acquire and demonstrate competency in the major methodological phases of user interface design, specifically task analysis and evaluation;
- To appreciate the role and nature of psychological models in HCI.

This subject is an introductory unit designed to introduce the major themes and concepts that characterise the design discipline of Human-Computer Interaction (HCI).

Recommended reading


IT8026 Information Modelling 1

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT8016 • Corequisites: Nil • Teaching methods: Lecture/ tutorial • Assessment: Assignments

Aims and objectives

To extend students' knowledge and understanding of and competency in the modelling of data requirements in a business oriented setting.

Content

- The aims of data modelling and its role in information systems development.
- The NIAM approach to developing a fact model.
- The underlying assumptions and limitations of NIAM.
- Development of a fact model diagram using the NIAM approach for a given business scenario.
- Conversion of a NIAM conceptual schema into relational logical schema.
- Conversion of NIAM fact models into equivalent Entity Relationship models.
- Optimizing a NIAM conceptual schema using appropriate schema transformations.

Recommended reading


IT8027 Information Modelling 2

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT8026 • Corequisites: Nil • Teaching methods: Lectures: 2 hours per week • Assessment: Assignments

Aims and objectives

- develop students' understanding of the event/state (dynamics) perspective of information systems
- introduce several analysis and design techniques for dealing with information systems dynamics
- develop students' critical awareness of the role of object-orientation for information systems

Content

- Requirements engineering,
- conceptual modelling,
- object-oriented analysis and design.
current practice and current research.

Implementation aspects of dynamic requirements such as relational database triggers and user interfaces.

Recommended reading
- Rumbaugh, J. et al., Object-Oriented Modeling and Design, Prentice Hall, 1992

IT8028 Interactive System Design

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT8023 • Corequisites: Nil • Assessment: Assignments; Examinations; Tests

Aims and objectives
To introduce students to the concepts and methodologies relevant to the systematic analysis and design of interactive technology.

Content
- The role of HCI in systems development;
- HCI and systems methodologies;
- approaches to user involvement in development;
- task/requirements analysis;
- principles, guidelines, standards and rules;
- specification techniques: design prototyping, storyboard, animation and video, rapid prototype implementation;
- predictive modelling;
- user guidance integrated into user interfaces.

Recommended reading

IT8030 Information Systems Modelling Project

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT7017 • Corequisites: Nil • Assessment: Reports

Aims and objectives
To integrate and extend students’ knowledge of the kinds of models used during analysis and design of information systems, with an emphasis on models that are useful in the requirements specification phase.

To develop students’ skills in preparing and using such models.

To acquaint students with a framework for understanding information systems at several different levels of abstraction.

Content
- Behaviour models. Scenarios and use-cases. Analysis of changes to behavioural requirements. Documentation of behaviour model.

Recommended reading

IT8032 Information Systems Management

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Case Studies, Seminars; Research Paper

Aims and objectives
To address number of topics and issues related to the theory and practice of Information Systems Management.

Content
- the relationship between corporate and Information Systems strategic planning;
- infrastructure, policies, procedures, technical, financial and human resources;
- the role of the I.S. division in the organisation and balancing of competing demands made on its services;
- the responsibilities of the various I.S. functional areas and the coordination of their interaction selecting and appraising I.S. personnel;
- negotiation for hardware and software.

Recommended reading
- Ward, J., Strategic Planning for Information Systems, 1990
- Roche, E.M., Managing Information Technology in Multinational Corporations, New York, McMillan

IT8033 Information Systems Development Project

12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT7017 and IT8026 • Corequisites: Nil • Assessment: Reports

Aims and objectives
Object-oriented and object-relational database management systems pose new challenges for database designers, who are faced with more complex design choices than hitherto. This subject aims:

- to offer students the opportunity to investigate the capabilities of modern database products;
- to investigate and apply suitable design methods.

Content
- Object-oriented and object-relational database management systems.
- Object-oriented analysis and design methods.
- Information-oriented design methods.

Recommended reading

IT8035 Information Technology Effectiveness

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lecture; Tutorial • Assessment: Assignments; Research Paper

Aims and objectives
To develop an understanding of the financial management of the Information Technology Department, the management of productivity and quality in software development and the application of metrics to the management of information technology.

Content
- financial management
- cash flow, charge-out, budgets and capital expenditure evaluation
- quality - overview of total quality management, factors affecting productivity and quality in software development, approaches to controlling quality, quality standards, measurement of quality
- metrics- measuring information technology performance quality, operations and productivity measured at both strategic and tactical levels, evaluation
Aims and objectives
To provide an extensive exposure to Java as a language in a fairly intensive way.

Content
- Classes, instance variables, constructors and methods
- Control of flow, Object references, arrays, Inheritance, polymorphism, abstract classes, abstract methods, interfaces
- Applets and applications, GUI Components
- The JDK 1.1 event model
- Exceptions, Files and Streams
- Graphics, Vectors
- JDBC
- Threads
- Client-Server Systems
- Networking

Textbooks

Recommended reading
Carlson, W.M. and McNurlin, B.C., Uncovering the Information Technology Payoffs, United Communications Group, 1992
Quinlan, T.A., EDP Cost Accounting, Wiley 1989

Recommended reading

Recommended reading
Koege-Buford J. F., Multimedia Systems, Addison-Wesley, 1994
Gibbs S. J. & Tischritzis, D.C., Multimedia Programming: Objects, Environments and Frameworks, Addison-Wesley, 1995

Recommended reading
Koege-Buford J. F., Multimedia Systems, Addison-Wesley, 1994
Gibbs S. J. & Tischritzis, D.C., Multimedia Programming: Objects, Environments and Frameworks, Addison-Wesley, 1995

Recommended reading

Recommended reading
W. Stallings, Local and Metropolitan Area Networks. Prentice Hall, 1996

IT8040 Multimedia Systems

Aims and objectives
To introduce the technologies, concepts and techniques associated with the development of multimedia systems.

Content
- Introduction and review - definition, fundamental concepts, media types and application areas
- Media Types - text, graphics, images, audio, animation, video - digital representation, formats, standards, capturing hardware, processing software
- Compression - compression methods, binary image compression schemes, color, grey scale and still-image compression, video image compression audio compression
- Multimedia hardware and software - components of a multimedia system, optical storage, input and output technologies, authoring software, processing software
- Multimedia documents, databases and hypertext - hypertext, SGML, HTML, OpenDoc, MHEG
- Multimedia user interfaces and design fundamentals - general design issues and approaches, navigation issues, methodologies
- Multimedia communication systems - multimedia servers, high speed LANs, distributed multimedia databases, video conferencing and collaborative work environments
- Evaluation of multimedia systems - evaluation techniques and methods
- Current research and future directions

IT8042 Object-Oriented Systems 1

Aims and objectives
To introduce to Object Oriented (OO) software engineering with emphasis on analysis and design techniques and project management.

Content
- Introduction to Object Oriented concepts,
- comparison of object oriented analysis and design methods,
- detailed study of OPEN methodology,
- tasks and techniques in OPEN.

Recommended reading

Recommended reading

Recommended reading
IT8043 Object-Oriented Systems 2

Aims and objectives
To introduce advanced techniques of Object Oriented Programming to explore software engineering principles supported by such techniques.

Content
- Introduction,
- Mechanisms in programming.
• Evaluating C++ as a language
• Concrete data types
• Advanced inheritance issues
• True object-oriented programming
• Programming and design interaction
• Reuse and patterns
• Frameworks

**Recommended reading**
Gamma, E., Helm, R., Johnson, R. & Vlissides, J., *Design Patterns: Elements of Reusable Object-Oriented Software*, Addison-Wesley, 1995
Pree, W., *Design Patterns for Object-Oriented Development*, Addison-Wesley, 1994

**IT8045 Personal Software Process**
12.5 Credit Points • One semester • Hawthorn • Prerequisite: IT5052 and IT7056

**Aims and objectives**
• To establish the need for discipline in software engineering;
• To guide students to discover the methods of software development which make them personally most effective (e.g., time and defect recording, coding standards, size measurement, task planning, schedule planning, design reviews, design templates, code reviews);
• To provide students with the knowledge base required to manage their own personal software process and to come to believe that the methods are of benefit to them.

**Content**
The course follows closely the 'Personal Software Process' course developed by Watts S. Humphrey, Software Engineering Institute, Carnegie Mellon University, USA.
It addresses:
• the baseline personal process;
• time/defect recording, coding standards, size measurement;
• the personal planning process;
• size estimating, task planning, schedule planning;
• personal quality management;
• design reviews, design templates, code reviews;
• cyclic personal process;
• cyclic process improvement.

**Recommended reading**

**IT8059 The Software Process**
12.5 Credit Points • One semester • Hawthorn • Prerequisite: An introductory software engineering subject • Corequisites: Nil • Teaching methods: Class: 2 hours per week • Assessment: Assignments; Examinations

**Aims and objectives**
• To introduce the notion of the software process model and its place in the improvement of software development practice;
• To introduce a number of the techniques and tools necessary for the successful management of medium to large-scale software development projects.

**Content**
• Software Project Management
• Software Costing and Scheduling
• Software Risk Management
• Software Quality Management
• Software Process Improvement
• Software Metrics

**Recommended reading**

**IT8060 Systems Project Management**
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Assessment: continuous

**Aims and objectives**
After completing this subject, students should be able to
• understand the main reasons for success or failure of information systems projects;
• coordinate the skills of a systems development team, users and operators;
• understand how formal planning and control methods, including measurement, can be applied to the development process;
• plan and control the implementation of new systems.

**Content**
Topics covered include
• estimation
• project leadership
• project planning and control
• project administration
• quality management
• systems development productivity techniques
• risk management
• implementation of systems projects

**Recommended reading**

**IT8062 Technological Forecasting and Innovation**
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Completion of 4 MIS subjects • Corequisites: Nil • Teaching methods: Lectures; Seminars • Assessment: Case Studies

**Aims and objectives**
• identify the appropriate approach to adopt for a forecasting problem (i.e. differentiate between the approaches of predictive, casual and more importantly for users and workers in the field of information technology) qualitative forecasting (specifically technological forecasting);
• be able to carry out a technological forecasting exercise and then, via the medium of management report, communicate the findings to the appropriate people;
• to create an awareness of the strategies and problems of innovation diffusion in industry;
• to develop skills to manage the innovation of technology

**Content**
• general introduction to forecasting approaches, time based forecasting techniques, technological forecasting, scenario analysis, latest development
in IT and emerging technologies, their diffusion through the workplace and industry in general;

- selection of technologies for examination is subject to developments at the time that the subject is offered.

**Recommended reading**


**IT8063 UNIX Systems Programming**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: *Introductory C programming and a basic knowledge of UNIX*  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week; Laboratory: 2 hours per week  •  Assessment: Assignments; Examinations

**Aims and objectives**

- To study the implementation of the UNIX system by a consideration of a selection of the system calls;
- To study the development of network-aware software.

**Content**

- Low level I/O;
- file system access and manipulation; time under UNIX ;
- process control;
- accessing user information;
- signals and interrupts;
- interprocess communication and networking;
- remote procedure calls (RPC) and distributed computing environment (DCE) services;
- I/O to terminals and device control.

**Recommended reading**


**IT8064 Wide Area Networks**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT8039  •  Corequisites: Nil  •  Teaching methods: Lecture: 2 hours per week; Laboratory: 2 hours per week  •  Assessment: Assignments; Examinations

**Aims and objectives**

To give students an understanding of the operational principles of wide area networks and Internet protocols

**Content**

- A Review of Metropolitan Area Network (MAN) and Wide Area Network (WAN) technologies
- Internetworking concept and architectural model
- Connectionless datagram delivery
- Routing IP datagrams
- Error and control messages (ICMP)
- Subnet and supernet address extensions
- User Datagram Protocol (UDP)
- Reliable stream transport service (TCP)
- Routing: Core, peers, and algorithms (GGP)
- Autonomous systems (EGP)
- Routing in an autonomous system (RIP, OSPF, HELLO)
- Internet multicasting (IGMP)
- The Domain Name System (DNS)
- Internet security and firewall design
- The future of TCP/IP and the Internet (IPv4, IPv6, Internet-II)

**Recommended reading**


**IT8065 Windows Programming**

12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: IT8053 or IT5072 or equivalent  •  Corequisites: Nil  •  Teaching methods: Lectures: 2 hours per week. Laboratory: 2 hours per week  •  Assessment: Assignments; Examinations

**Aims and objectives**

- To study the WindowsTM interface programming paradigm
- To provide a theoretical and practical background for the development of software under Windows NTTM

**Content**

- WindowsNT interface and architecture
- The Microsoft Foundation Class Library
- Documents and Views
- Dialogue Boxes, Menus, Toolbars
- Enhanced Views
- Dynamic Link Libraries
- Object Linking and Embedding
- Processes and Threads
- Data Management via Data Access Objects
- A brief look at Delphi

**Recommended reading**


**IT8067 Minor Thesis**

12.5 Credit Points  •  Two semesters  •  Prerequisite: Approval needed  •  Corequisites: Nil  •  Teaching methods: Supervised reading, field work and individual consultation as required.  •  Assessment: Class presentations

**Aims and objectives**

To provide an opportunity for students to develop analytical, research and report writing skills while exploring a topic in depth.

**Content**

Students will work on an approved project under staff supervision. Projects will require a literature survey and a theoretical or experimental investigation. A preliminary proposal of the project to be undertaken must be submitted for approval by the Program Manager and it is expected that topics will be related to the current research interests of staff. There will be a requirement for formal monthly reporting by the candidates, both oral and written throughout the project. Failure to meet satisfactory standards of progress may preclude final submission for the Masters degree. Students will present their research results to staff and students in a school seminar or equivalent. The thesis will be examined by at least two examiners.

**Recommended reading**

There is no prescribed text. Students will be directed to appropriate books and journal articles.

**IT8068 Research Seminar**

12.5 Credit Points  •  One year  •  Hawthorn  •  Prerequisite: Approval needed  •  Corequisites: Nil  •  Teaching methods: Instruction team. Individual consultation with supervisor  •  Assessment: Oral Presentation

**Aims and objectives**

To provide an opportunity for students to develop, in a team, a significantly complex software system, using appropriate object-oriented methodologies.

**Content**

- The system will be developed by a team of students, following a software process model appropriate for an object-oriented development methodology.
• Students will consider all management and technical issues associated with such a development, and will use a state-of-the-art software development environment to develop a system.

**IT8069 Research Paper**

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Approval needed • Corequisites: Nil • Teaching methods: Supervised reading, field work and individual consultation as required • Assessment: Class presentations

**Aims and objectives**

To provide a flexible program of study which allows the student to undertake a special project. This would require research into a topic that is relevant to the course but alternative to the prescribed subjects in Stage 2.

**Content**

Students will work on an approved project under staff supervision. Projects will usually require a literature survey and a theoretical or experimental investigation. Students will present their research results to staff and students in a school seminar or equivalent.

**Recommended reading**

There is no prescribed text. Students will be directed to appropriate books and journal articles.

**IT8070 Research Report**

12.5 Credit Points • Two semesters • Hawthorn • Prerequisite: Approval needed • Corequisites: Nil • Assessment: Class presentations

**Aims and objectives**

To provide a flexible program of study which allows the student to undertake a special project. This would require research into a topic that is relevant to the course but alternative to the prescribed subjects in Stage 2.

**Content**

Students will work on an approved project under staff supervision. Projects will usually require a literature survey and a theoretical or experimental investigation. Students will present their research results to staff and students in a school seminar or equivalent.

**Recommended reading**

There is no prescribed text. Students will be directed to appropriate books and journal articles.

**LAC100 Computing Fundamentals**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: Nil • Assessment: Assignments, Continuous, Examinations

A stage 1 subject in the Bachelor of Applied Science (Information Technology) which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

Provision of the fundamental aspects of computing in terms of hardware, operating systems, data communications and algorithmic processing.

**Content**

Students apply the basic principles of computing, hardware, software and functions of computer systems to solve small but realistic problems. Also, students translate these solutions, where applicable into C++ programs using the language at an elementary level.

- Computer Architecture and Instruction
- Set Design Assembly Language Instructions
- The Operation of Basic System Utilities - Assembler, Linker & Loader
- An Introduction to I/O Programming
- Memory, Cache Memory, Virtual Memory Systems
- The Operation of the CPU, etc.

**Recommended reading**

Brookshear, J.G. [1997] Computer Science Fundamentals Addison-Wesley,

**LAC200 Programming**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LAC100 and/or LAS100 • Assessment: Assignments; Examinations

A stage 2 subject in the Bachelor of Applied Science (Information Technology) which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

Students become competent in computer programming concepts and techniques, including specification, design, testing, documentation etc.

**Content**

Students cover the basics such as program control, decision-making, subroutines, input/output handling and documentation

**Recommended reading**


**LAC210 Data Structures and Algorithms**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LAC100 • Assessment: Assignments; Continuous; Examinations

A stage 2 subject in the Bachelor of Applied Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

Students are exposed to the requirements of writing efficient solutions to specific classes of problems and the principles of storage, processing and retrieval alternatives of various problem situations.

**Content**

An introduction to abstract data structures used for the solution of common computing problems, including sets, strings, tables, linked lists and trees. Currently the programming language is C++.

- Data Types - Simple, Structured, and Abstract File Organisation and Processing
- Typical Operations on Data Structures, e.g sorting, searching, indexing, updating
- Implementation and Representation, e.g internal representation of data types, file index structures

**Recommended reading**

Main M., Savitch W., [1997] Data Structures and Other Objects Using C++, Addison-Wesley

**LAC220 Systems Programming and Architectures**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LAC100 • Assessment: Assignments; Examinations

A stage 2 subject in the Bachelor of Applied Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

Students are exposed to the requirements of writing systems level programs and the principles of operation of various components of a computer system.

**Content**

Students examine computer architectures from the systems point of view and gain an understanding of the general features of operating systems and what distinguishes them from other systems. Students undertake some systems programming using multi-user OS e.g. UNIX.

**Recommended reading**

Wang, P.S. [1997] Introduction to Unix with X and the Internet, Course ITP.

**LAC300 IT Professional and Ethical Issues**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: Any 3 stage 2/3 units from the Information Technology Discipline subjects • Assessment: Assignments

A stage 3 subject in the Bachelor of Applied Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

To provide students with a framework for the development of personal and corporate ethics appropriate for the information technology professional, and to allow students to explore the uses and implications for society of contemporary developments in computing.
Subjects Details

Content
Topics include legal, social, ethical, and privacy issues as well as the impact of automation on organisations.

Recommended reading

LAC310 Advanced Programming and Systems Project
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: LAC100 and LAC200 • Assessment: Assignments; Examinations
A stage 3 subject in the Bachelor of Applied Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
Student build on the concepts and practices of programming learned earlier and learn to develop Object-Oriented techniques

Content
Advanced functionality of the selected programming language is developed using more complex problems. Investigation of object-Oriented programming techniques and their application. Currently the programming language is C++.

Recommended reading

LAI100 Information Systems Fundamentals
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: nil • Assessment: Assignments; Continuous; Examinations
A stage 1 subject in the Bachelor of Applied Science (Information Technology) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
Students are encouraged to take a holistic and organisational view of information, systems, information technology and information systems; these relationships to individuals and organisations

Content
Predominantly students develop a knowledge and understanding of systems & organisation theory. Students also use and analyse currently popular computer packages, and obtain advanced knowledge and experience in areas such as personal productivity, WWW & Internet, and PC based systems.

Recommended reading

LAI210 Database Concepts and Modelling
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: LAI100 or LAC100 (BAppSci (IT) students) • Assessment: Assignments; Examinations
A stage 2 subject in the Bachelor of Applied Science (Information Technology) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The development of conceptual and practical skills of database concepts, data modelling, relational and object models, and proficiency in SQL. The student acquires the foundation knowledge necessary to progress to evaluating database management systems.

Content
Topics include: abstraction and modelling, relational and object data models, normalisation and Structured Query Language.
- Abstraction and Modelling
- Entity relationship modelling - entity types, relationship types and attribute types
- The Relational Data Model
- Normalisation
- The Structured Query Language

Recommended reading

LAI230 Management Support Systems
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: LAI100 or LAI101 • Assessment: Assignments; Examinations
A stage 2 subject in the Bachelor of Applied Science (Information Technology) which may also be undertaken in any other degree program at

Aims and objectives
Students look at the effective use of information technology for personal productivity and decision making in organisations

Content
Students are familiarised with a range of statistical, financial and modelling methods commonly used in the decision support area. Students apply the techniques learnt to solve business problems and to present the results using PC based software packages. Students also construct a Decision Support System, and study each type of information system (TPS, MIS, DSS, EIS, KBS, etc.). The focus is on the application of information technology to data in organisations for the solution of management problems.

Recommended reading

LAI240 Electronic Communications and Applications
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: LAI100 or LAI101 • Assessment: Assignments; Examinations
A stage 2 subject in the Bachelor of Applied Science (Information Technology) which may also be undertaken in any other degree program at Swinburne at Lilydale

Aims and objectives
Students engage in leveraging data communication applications, in particular Web-based, Virtual and Electronic Commerce

Content
Students discuss the application and technical contents of the data communications field in order to expose them to why and how data communications systems work. The major components of a data communications system are described as well as the way they fit together. The course also provides description of the terminology and discussion of current standards and legislation, and recent changes coming from carriers and providers of communications services.
- Communications Techniques
- Communications Techniques Media
- Networking
- Local Area Networks
- Wide Area Networks
- Network Management
- Network Security
- Network Applications

Recommended reading

LAI260 Human-Computer Interaction
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: Any 2 Stage 2 or 3 Information Technology Discipline units • Assessment: Assignments; Examinations
A stage 2 subject in the Bachelor of Applied Science (Information Technology) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
At the end of the subject, the successful student will have acquired an understanding of key HCI concepts and their application to modern computing and business. The student should be able to communicate to others the true role of HCI in the modern business environment, and explain the concepts and practices

Recommended reading
typically used by HCI designers/developers to influence and guide the actions of others. The student should be able to relate the HCI theories to practice, and discuss sensibly the implications of HCI in their day-to-day lives.

**Content**

This subject provides students with a series of lectures, exercises and assignments designed to give opportunities to explore basic Human Computer Interaction (HCI) concepts from a variety of practically-oriented perspectives. Including:

- HCI an introduction;
- Developing interactive systems;
- Interacting with computers;
- Psychology and human factors; and
- Frontiers in HCI

**Recommended reading**


**LAI270 Interactive Multimedia Technologies Development**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LAI100 and/or LAI101 • Assessment: Assignments; Examinations

A stage 2 subject in the Bachelor of Applied Science (Information Technology) which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

The student is to gain understanding and skills in the development of interactive multimedia applications.

**Content**

The study of Multimedia (IMM) development starts with a historical perspective and investigates the IMM artefact. This lays the foundation for human-technology and technology-technology interface development. The technologies and software development options are considered, which includes the application of at least one programming language (e.g. Java). Developments will include web based applications and development, multimedia data transfer and Ecommerce.

**Recommended reading**


**LAI300 Readings in Information Systems and Technology**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: Any 3 stage 2/3 units from the Information Technology Discipline • Assessment: Assignments; Examinations

A stage 3 subject in the Bachelor of Applied Science (Information Technology) which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

Students are equipped with a practical and conceptual knowledge of database management systems. Also, students examine database design, implementation and performance issues in both local and distributed client-server environments, including data warehousing.

**Content**

- File Processing
- File Structure Concepts
- Schema Architecture
- Query Languages, foundations, query processing and optimisation
- Concurrency Control
- Crash Recovery and Transaction Management

**Recommended reading**


**LAI350 eCommerce and Business Computing Applications**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LAI100 and preferably LAI280 • Assessment: Assignments; Examinations

A stage 3 subject in the Bachelor of Applied Science which may be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

The emphasis in the unit is predominantly on the business applications of IT. Students study business functions and how they can exploit IT. Students investigate in detail different business and organisation information systems applications (e.g. MRP, ERP, Finance, Marketing). As a significant theme students also study the application of information technology for delivery and management of Electronic Commerce and Internet applications.

**Recommended reading**


**LAS100 Software Engineering Concepts**

12.5 Credit Points • 3 hours per week • 13 weeks per week or equivalent • Lilydale • Prerequisites: nil • Assessment: Assignments; Continuous; Examinations

A stage 1 subject in the Bachelor of Applied Science (Information Technology) which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

Software engineering is a strategy for producing quality software; therefore students study what differentiates good from bad software, the use of computers and programming languages as tools to be used in designing and implementing a solution to a problem, and problem solving approach of analysis and synthesis. Software engineering is about designing and developing high-quality software. Students study all aspects of software engineering including all facets of the systems life cycle. Programming and other areas such as analysis and design are framed within the broader systems perspective.

**Content**

Topics include: theoretical foundations for Software Engineering, developing software systems, development principles and life cycle, software quality and testing.

**Recommended reading**


**LAS200 Systems Analysis and Design**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LAS100 • Assessment: Assignments; Examinations

A stage 2 subject in the Bachelor of Applied Science (Information Technology) which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

Students advance data modelling and conceptual database knowledge are extended to include development and management of databases. Students are equipped with a practical and conceptual knowledge of database management systems. Also, students examine database design, implementation and performance issues in both local and distributed client-server environments, including data warehousing.

**Content**

- File Processing
- File Structure Concepts
- Schema Architecture
- Query Languages, foundations, query processing and optimisation
- Concurrency Control
- Crash Recovery and Transaction Management

**Recommended reading**

which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To develop an understanding of the principles and practices of systems analysis, translating user needs into software specifications. Students will concentrate on the procedural aspects of systems requirements determination and recording.

Content
Topics include: role of IS in organisations, systems development methods, fact-finding techniques, business analysis and modelling.

Recommended reading
Shelley, Cashman, [1997]; Systems Analysis and Design, Course ITP.

LAS310 IT Strategies and Project Management

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale

Prerequisites: Any 3 stage 2/3 units from the Computing & Information Technology Discipline subjects • Assessment: Assignments; Examinations

A stage 3 subject in the Bachelor of Applied Science (Information Technology) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
This course examines the relationship between information technology and its organisation context. Also an understanding of the tools, techniques and concepts of project management are essential.

Content
Students will study the ways in which information technology can be used for competitive advantage and planning methods that integrate information systems and business strategies. Students will also consider recent issues in outsourcing, client-server and other methodologies. Students develop an awareness of estimating and metrics approaches necessary for management of information systems and technology developments.

Recommended reading

LAS320 Software Engineering and CASE

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale

Prerequisites: LASC500 and LAS200 • Assessment: Assignments; Examinations

A stage 3 subject in the Bachelor of Applied Science (Information Technology) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To advance the knowledge and concepts developed in LAS100 and LAS200, and to now develop design knowledge and the relationship of design to other systems development phases.

Content
Students concentrate on software development/engineering and on the latter stages of the systems development life cycle, particularly design, testing, quality, metrics, etc. In particular structured and object design, interface design and evaluation, implementation and maintenance. Students will be encountering CASE as their main software engineering and development platform (e.g. Oracle Designer 2000).

Recommended reading

LBC100 Accounting 1

12.5 Credit Points • 4 hours per week • 12 weeks or equivalent • Lilydale

Prerequisites: Nil • Assessment: Assignments; Computer Based Tests; Examinations

A stage 1 subject in Bachelor of Business which may also be taken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To provide a basic introduction to accounting concepts, financial accounting, management accounting and finance.

Content
Accounting theory and practice are examined in an historical cost accounting system. This subject includes the following topics: an introduction to accounting and financial statements; revenue and expenses; cost classification; cost, flow, profit analysis; planning and evaluating merchandising activities; internal performance evaluation; working capital management; capital structure and leverage, cash flow statements.

Recommended reading

LBC200 Computer Accounting Systems

12.5 Credit Points • 4 hours per week • 12 weeks or equivalent • Lilydale

Prerequisites: LBC100 • Assessment: Assignments; Computer Based Tests; Oral Presentation

A stage 2 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The development of the accounting process as an information flow to provide the basis from which management control and decision making stems.

Content
The computerised processing of information is examined and an accounting package for microcomputers is used to facilitate the same. The accounting equation is re-examined in order to prepare the balance sheet and profit and loss statement. The control of cash, debtors, stock and fixed assets are included, as are balance day adjustments and bank reconciliation statements. The internal control implications of aspects of accounting systems are also assessed.

Recommended reading

LBC201 Corporate Accounting

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale

Prerequisites: LBC200 • Assessment: Assignments; Examinations; Tests

A stage 2 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The overall objective of the subject is to develop in students an ability to think through corporate accounting issues and specifically:

- to develop in students an awareness of the financial accounting function within a company;
- to develop students’ problem-solving abilities in the application of the principles of corporate accounting to the solution of practical problems;
- to develop student awareness of contemporary issues in the practice of financial accounting, by reference to actual situations where appropriate;
- to develop student awareness of the interrelationship between corporate accounting and corporate law.

Content
The subject covers the following areas:
LBC204 Financial Management 1
12.5 Credit Points  • 3 hours per week  • 12 weeks or equivalent  • Lilydale  • Prerequisites: completion of all core subjects and LBC100  • Assessment: Assignments; Examinations
A stage 2 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The objectives of this subject are:
• to provide students with an understanding of the concepts of corporate finance;
• to develop in students the skills of analysis and evaluation needed to apply the concepts of corporate finance to financial management.

Content
The course is structured from the point of view of orientating the student to the fundamentals of managing the financing and investment aspects of a business and covers the following specific topics:
• concepts of valuation;
• evaluation and selection of investment projects;
• cost of capital;
• sources of finance and financial intermediaries;
• dividend policy;
• financing methods and impact on capital structure.

Recommended reading
Brealey, R.A. and Myers, S.C., Principles of Corporate Finance, 4th edn.
Peirson, G. , Bird, R. , Brown, R., and Howard, R., Business Finance, 6th edn

LBC300 Accounting Theory
12.5 Credit Points  • 3 hours per week  • 12 weeks or equivalent  • Lilydale  • Prerequisites: All second year subjects required for professional accounting recognition  • Assessment: Essays; Examinations; Tutorial tasks/tests
A stage 3 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The objectives of this subject are:
• to examine the development of theory accounting and the methodology used by accounting theorists;
• to describe and critically analyse a framework of accounting concepts including assets, liabilities and income;
• to use the methodology and the framework developed in the subject to study specific issues in financial accounting including the development of accounting standards, agency theory, current cost accounting ethics and accounting for income tax, intangibles, mining and foreign currency translation;
• although the subject is concerned with theory, considerable use is made of practical problems in parts of the course, to illustrate the application of theory.

Recommended reading
**LBC301 Taxation**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LBC201 • Assessment: Assignments; Examinations

A stage 3 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

The overall course objective is to develop in students an understanding of the Income Tax Assessment Act together with those acts which are complementary to the Assessment Act.

Specifically, the course will:

- familiarise students with recent court and Administrative Appeals Tribunal decisions in the area of income taxation;
- develop research skills in students in relation to current and landmark taxation cases;
- introduce students to the complexities of taxation in relation to various taxable entities;
- with the aid of income tax rulings and the aforementioned tax cases, develop in students an understanding of the basic concepts of income, capital, and the rules governing deductions;

It is recommended these students also complete LBL305 Advanced Taxation.

**Content**

Topics covered include the nature of assessable income, specific income types, source residency and derivation, eligible termination payments, capital gains tax, fringe benefits tax, allowable deductions and the provisions relating to companies, partnerships, and individuals.

**Recommended reading**

- LBC301 Learning Guide, Swinburne, 1999
- Australian Income Tax Assessment Act; CCH Australia Ltd, North Ryde, N.S.W.;
- Australian Master Tax Guide; CCH Australia Ltd, North Ryde, N.S.W.
- Barkocz, S., Australian Tax Casebook, CCH Australia Ltd, North Ryde, N.S.W., 1997
- Australian Federal Tax Reporter, CCH Australia Ltd.
- Lehmann, G., Coleman, C. Taxation Law in Australia. 4th edn, Butterworths, Sydney, 1995

**LBC302 Auditing**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LBC201 • Assessment: Assignments; Examinations

A stage 3 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

The subject aims to familiarise students with the underlying concepts, objectives and reporting function of the auditor. The subject deals with both theoretical and practical aspects of auditing. The aim is to integrate the concepts of auditing with practical approaches taken by the auditor to ensure students gain a complete picture of the auditing process.

**Content**

Theoretical topics studied include auditing methodology and the formulation of auditing standards; audit independence; the rights, duties and legal liability of auditors; ethical considerations; the audit report and the concept of risk; materiality and audit evidence; encompassing a review of internal control structures and the attendant control risk. Consideration is given to the impact of EDP auditing techniques and different sampling methodologies. Students are also introduced to the area of public sector auditing.

**Recommended reading**

- LBC302 Learning Guide, Swinburne, 1999

Current auditing readings as required

**LBC303 Strategic Cost Management**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LBC203 LBC204 • Assessment: Case Studies; Research Paper

A stage 3 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

This is a final year subject designed to develop and integrate, within a strategic framework, the planning, control and decision-making techniques and skills introduced in management accounting and financial management.

**Content**

The topics explored in this subject are developed within the framework of an analysis of competitive strategy and the role of strategic management accounting. Through the use of the business case method, traditional approaches to project planning, product costing, product and customer profitability analysis and performance evaluation are questioned and alternative contemporary approaches evaluated.

Contemporary developments in manufacturing technology and in the provision of services in the context of an increased focus on quality, customer service and worlds best practice in a global market place provide the context for a critical evaluation of management accounting responses to these challenges.

**Recommended reading**

- Shank, J.K., Govindarajan, V. Strategic Cost Management. The Free Press 1993

Current journals, especially Journal of Cost Management and Management Accounting

**LBC304 Financial Management 2**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LBC204 • Assessment: Assignments; Examinations

A stage 3 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale. This subject may be counted towards either an accounting major/minor or a finance minor.

**Aims and objectives**

The purpose of this subject is to help participants learn how to manage their money and develop the skills to be better able to advise others in managing their investments. To achieve this purpose it is necessary to learn about the investment alternatives available today and more importantly, to develop a way of thinking about investments that will remain in the years ahead when new investment opportunities arise as a result of the inevitable changes to our financial system.

More specifically, the course objectives are:

- to acquaint participants with the various avenues for the investment of funds, including shares, fixed-interest securities and property;
- to review the impact of taxation on investment planning;
- to consider the fundamental principles of modern portfolio theory;
- to consider the process of portfolio selection and ongoing investment strategies;
- to review the characteristics of financial futures and options and how they may be used to modify the risk-return profile of investment portfolios.

**Recommended reading**


**LBC305 Advanced Taxation**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LBC301 • Assessment: Case Studies; Research Paper

A stage 3 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale

**Aims and objectives**

This is a final year subject designed for students who require additional experience of taxation issues. The objective of the subject is to acquaint students with the areas of taxation of practical utility by concentrating on the taxation implications of various taxable entities with an emphasis on current developments.
in the area. An introduction to the area of indirect taxation is also given. Students will be expected to develop a research-oriented problem-solving approach to the subject.

Content
Topics covered include:
- the role of tax agents
- administrative provisions
- trusts, beneficiaries
- superannuation funds
- tax planning
- Part IVA and tax avoidance
- state indirect taxes
- federal indirect taxes
- tax reform

Recommended reading
Income Tax Assessment; Act (1938 as amended)
Lehman, G., Coleman, C., Taxation Law in Australia. 3rd edn, Sydney, Butterworths, 1994
Australian Master Tax Guide; North Ryde, CCH Australia Ltd. 1996, or
Australian Tax Handbook 1996, North Ryde, Butterworths Ltd
Australian Federal Tax Reporter. North Ryde, CCH Australia Ltd.
Australian Tax Cases; North Ryde CCH Australia Ltd.

LBE100 Microeconomics
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: Nil • Assessment: Examinations; Texts; Tutorial tasks/tests
A stage 1 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To introduce key microeconomic concepts and to encourage and assist students to apply economic reasoning to issues facing individuals, business, non-profit organisations and government.

Content
This subject introduces students to microeconomic concepts and their application within the framework of the Australian economy. The subject begins with the concepts of scarcity, choice and opportunity cost, then examines the role of markets in allocating resources and distributing output. This is followed by an examination of the firm's production, costs and revenues in a variety of market structures. The significance of microeconomic concepts for both business and government policy is emphasised throughout.

Recommended reading
McTaggart, D., Findlay, C., Parkin, M., Microeconomics, 2nd edn, Sydney, Addison Wesley, 1996

LBE200 Macroeconomics
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: LBE100 • Assessment: Assignments; Examinations; Texts
A stage 2 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To provide students with an understanding and appreciation of macroeconomic concepts, issues and policies pertaining to the Australian and global economy.

Content
This subject begins with an introduction to the meaning and measurement of economic performance. It then deals in depth with the macroeconomic issues of unemployment, inflation and external imbalance and emphasises their significance for government, business and individuals. The subject examines the major schools of thought on these issues, and compares their views on the causes of, and possible solutions to, macroeconomic problems. It also analyses the policies available to governments seeking to solve these problems, and assists students to evaluate the impact of government macroeconomic policy on individuals, business and economic activity.

Recommended reading
Freebairn, M.L, et al., Introduction to Australian Macroeconomics with a Global Perspective; Hawthorn, Vic., Swinburne Press, 1997

LBE201 Managerial Economics
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: LBE100 also LCR100 • Assessment: Assignments; Examinations; Texts
A stage 2 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To show the relevance of microeconomic concepts to business decision-making.

Content
This subject emphasises the practical application of economic concepts to the decision making processes of business and government, using case studies and problems as illustrations. Topics include demand analysis and forecasting, risk and uncertainty, information and decision-making, optimal pricing, competitive strategies, project evaluation and an introduction to the principles of cost-benefit analysis.

Recommended reading
Pappas, J.L., Hinshey, M., Managerial Economics, 7th Edn, Fort Worth, Dryden Press, 1993

LBE203 Environmental Economics
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: LBE200 • Assessment: Assignments; Examinations
A stage 2 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The main objectives of this subject is to familiarise students with economic techniques that can be applied to problems of environmental and natural resource management.

Content
Topics include the costs and benefits of environmental regulation; the importance of property rights; the environmental impact of poverty and economic growth; the need for sustainable development; the population problem; the management of depletable and renewable natural resources; and the economics of pollution control.

Recommended reading

LBE300 Economic Policy in Society
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: LBE100 LBE200 • Assessment: Assignments; Examinations
A stage 3 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To provide students with an understanding and appreciation of the inter-relationships between economics, policy and society.

Content
This subject considers the ways in which economic analysis can contribute to the solution of policy issues which concern society, and the interaction between
economic and non-economic aspects of such issues. Students can choose to concentrate on particular policy issues such as health, education, taxation reform, income distribution, globalisation, and privatisation.

**Recommended reading**
No set text. Reference lists will be provided.

**LBE301 International Trade and Finance**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LBE100 and LBE200 • Assessment: Assignments; Examinations; Tests

A stage 3 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**
To provide students with the theoretical and analytical skills necessary for the understanding and evaluation of international trade and financial issues.

**Content**
This subject reflects the increasing interdependence of national and global markets. It considers first some fundamental trade issues including the basis for trade, the gains from trade, trade restrictions and their effects, risks associated with international trade, methods of payment and the role of countertrade. This is followed by examining the role and nature of the foreign exchange market, with particular attention to forecasting and hedging techniques. The subject concludes with an examination of the historical development of the international monetary system. Particular attention is paid to the role and risks of international banking, the Euromarkets, the Third World debt crisis, and Country Risk analysis.

**Recommended reading**
There is no prescribed textbook for this subject. Reference lists will be provided.

**LBI200 Data Analysis and Design**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LCI100 • Assessment: Assignments; Examinations

A stage 2 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**
The subject database is the study of organisational and technical issues associated with the development of databases. This course teaches the solid foundation of relational data theory together with structured query language and practical aspects of developing databases.

**Content**
- introduction to databases processing
- components of a database system
- the entity-relationship model
- foundations of relational implementation
- structured query language (SQL)
- data administration and database administration
- database: state of the art

**Recommended reading**

**LBI201 Business Computing**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LBI200 • Assessment: Assignments; Examinations

A stage 2 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale

**Aims and objectives**
The subject is specifically for students taking the business computing major or minor or non-computing majors.

The Objective is to enable students to understand the development process for business systems and to apply techniques to the development of end-user systems. The emphasis moves away from the ‘LC100 Information Technology’ aim of understanding the technology, to an identification and evaluation of the technological solutions which may be applied to business problems. The subject also aims to enhance skills in the verbal and written presentation of system studies. The subject is structured for a study of business computing from the user’s point of view rather than from that of the Information Systems Department.

**Content**
Hands-on exercises are used to build upon the practical skills gained in first year, with emphasis on the utilisation and evaluation of business packages.

Skills previously developed with business software packages will be enhanced and extended.

**Recommended reading**
A detailed reading guide will be issued for each topic and will include articles from industry journals and newspapers. Recent references used: Laudon, K.C. and Laudon, J.P. Management Information Systems, 4th edn, New York, Macmillan, 1996


**LBI202 Business Computing Applications**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LBI201 • Assessment: Assignments; Examinations

A stage 2 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**
The subject builds on the knowledge and skills developed in Business Computing. The aim is to give students skills and understanding relevant to current business systems.

**Content**
Typical business systems such as manufacturing, finance, human resources systems are examined. High level software solutions to management problems are investigated.

**Recommended reading**
Recent references used

**LBI300 Information Technology Strategies**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: any two Stage 2 Business Computing subjects • Assessment: Assignments; Examinations

A stage 3 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**
This subject examines the relationship between information technology and its organisational context. Students will study the ways in which information technology can be used for competitive advantage and planning methods which integrate information systems and business strategies. The role of an information system as part of an overall business plan will be examined and associated costs, benefits and risks will be considered.

At the end of the subject the student will be able to:
- understand the way that managers think and work and the need for computer systems to improve their effectiveness in decision making;
- justify the need for careful analysis, risk assessment and control procedures suitable for different system development approaches;
- understand the strategic role of information technology and the need to achieve alignment between IT and corporate strategy.

**Content**
Topics covered:
- information systems theory;
- information systems issues for management;
- information systems planning network;
- the organisational role of end user computing;
- aligning IT with business strategy

**Recommended reading**
To be advised
Aims and objectives

To introduce students to basic legal concepts;

to develop an understanding of the nature and function of contract law.

Content

The Australian legal system;

the nature of contract;

making a contract;

the terms of a contract;

vitiating a contract;

breach of Contract;

remedies.

Recommended reading


Khoury, D., and Yamouni, Understanding Contract Law, Butterworths, 1991

Lipton, P., Herzberg, A. Understanding Company Law 5th edn, Sydney, Law Book Co, 1993

McGraw-Hill, 1994

Healey, D., Terry, A. Misleading or Deceptive Conduct. North Ryde, CCH Australia Ltd, 1993


Livermore, J., Clark, E., Marketing Law Sydney, Law Book Co, 1993

Healey, D, Terry, A. Misleading or Deceptive Conduct, North Ryde, CCH Australia Ltd, 1993

LBM100 The Marketing Concept

Aims and objectives

This subject explores basic business and marketing concepts from a variety of perspectives. The subject provides common year students with a series of lectures, tutorial exercises and assignments designed to give them an opportunity to explore basic business and marketing concepts from a variety of perspectives. Related issues of concern to non-profit organisations are also explored.

Textbooks

To be advised.

Recommended reading


Other supporting material will be prescribed when appropriate, in lectures. It is expected that extensive use will be made of the large collection of relevant material in the library - both texts and current journals.
Acquiring and maintaining competitive advantage by having a consistently superior business/marketing planning system will be one of the most vital strengths of successful businesses of the future. This subject gives students the opportunity to achieve a working understanding of various methods of marketing planning and the ability to apply them appropriately in developing and implementing marketing strategies that respond to the challenges of the environment.

Specific aims:
- to allow students to consolidate and develop upon the concepts developed in LBM100 and LBM200;
- to enhance students’ capacity to critically analyse business situations from a marketing viewpoint;
- to give students a working understanding of the methods and concepts of strategy analysis and how these can be applied in practice;
- to expose students to a systematic approach to the development of marketing strategy; and the program decisions needed to implement the overall marketing strategy;
- to further build students’ analytical and communication skills.

Discussion of prescribed articles forms a major part of the course. The emphasis on business report writing is continued, with more complex reports required. The major assignment requires formulation of a marketing plan for an organisation.

Framework:
- The structure and process of marketing planning;
- sources of information in marketing planning;
- the external environment analysis the customer and the industry;
- the corporate appraisal;
- analytical tools;
- tools in marketing planning;
- developing marketing objectives;
- marketing programs;
- product, promotion, distribution and price planning.

Textbook
To be advised

Recommended reading

Other supporting material will be prescribed when appropriate. It is expected that extensive use will be made of library resources.

LBM202 Marketing Communications
12.5 Credit Points • 3 Hours per week • 12 weeks or equivalent • Lilydale •
Prerequisites: LBM201 and UOD200 for Marketing Major • Assessment: Assignments, Class presentations, Examinations

A stage 2 subject which is a mandatory requirement for a major sequence in marketing and may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The Marketing Communications industry is a rapidly growing sector of marketing. This fascinating subject explores the various promotional strategies utilised by marketers. It provides insights into how to adapt advertising, media, event management, public relations, sales promotion, and direct marketing for achieving campaign objectives and effective implementation.

Content
Topics include:
- the communication process;
- planning the communication budget;
- inside an advertising agency;
- media relations;
- public relations and publicity;
- sales promotion;
- direct marketing;
- international advertising;
- evaluating the effectiveness of the communication strategy.

Recommended reading

LBM300 Product Management
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale •
Prerequisites: For marketing major: LBM202. For marketing minor: LBM200 •
Assessment: Assignments, Examinations

A stage 3 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale. This subject is a mandatory requirement for a major sequence in marketing.

Aims and objectives
Students enrolling in this subject come prepared with an understanding of basic marketing concepts from first year studies, that have in turn been enriched at second year level with the subjects Market Behaviour and Marketing Planning. The objective of this subject is to enable students to apply their marketing knowledge to the specific area of product management. Within this broad subject objective, there are a number of specific objectives. These specific objectives address the subject from the management approach, that is to say, with a lesser emphasis on other approaches such as economic, technical or purely creative.

These areas are not ignored but treated as contributory disciplines.

Content
- to explore the meaning, importance and function of the product management role in business today;
- to examine the impact of product management practices on the development of goods and services based products;
- to examine the range of concept-generating techniques used for new product development;
- to examine the means of evaluating new product ideas;
- to examine the preparation of a product, a product launch plan and its importance as a marketing control tool for new products, product maintenance and product ‘re-launches’;
- to understand the importance of product positioning within the target marketing process, branding, packaging;
- and the importance of successful working relationships with advertising, marketing, research, promotion agencies, etc. in the product management process;
- to explore the international aspects of product management;
- to understand the importance of successful working relations within the organisation, particularly with sales, production, supply and research and development, in the product development process.

Recommended reading

LBM301 Services Marketing and Management
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale •
Prerequisites: For marketing major: LBM202. For marketing minor: LBM201 •
Assessment: Assignments, Case Studies, Examinations

A stage 3 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale. This subject is a mandatory requirement for a major sequence in marketing.

Aims and objectives
The services business is the fastest growing sector nationally as well as globally. This subject explores the major differences between the marketing of services as distinct from product marketing, and aims at providing students with special skills required to develop and implement marketing strategies in service businesses.

Content
Topics include:
- distinctive aspects of service marketing;
- market research in services environment;
- communication and services;
- demand management;
**LCI101 Information Methods**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale •
Prerequisites: LBM100 and LBQ200 • Corequisite: for Marketing major LBM201 •
Assessment: Assignments; Class presentations; Examinations

A stage 1 subject in all degree programs at Swinburne at Lilydale.

**Aims and objectives**

This subject introduces the theory and practice of research in a marketing environment. The main focus of the unit is the application of theory to the design and conduct of a major research assignment, and an evaluation of student experiences. Students will design and test a quantitative data collection instrument.

**Content**

- Introduction to survey research - survey versus census
- Sampling techniques
- Collecting data
- Data analysis
- Presentation of findings - report writing and oral presentation

**Recommended reading**


**LCR100 Statistics and Research Methods**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale •
Prerequisites: nil • Assessment: Class presentations; Examinations; Hurdle Test; Workshops

A stage 1 core subject in all degree programs at Swinburne at Lilydale.

**Aims and objectives**

To introduce students to the research process, and to develop basic skills and appropriate methodology to collect, describe, analyse and present statistical data across a range of disciplines.

**Content**

- data collection;
- statistical analysis methods;
- preparing a research report

**Recommended reading**

Babbie, Earl., The Practice of Social Research, Wadsworth, California, 1992

Moore, D. The Basic Practise of Statistics, Freeman, 1995

**LCS100 Computer Science 1**

12.5 Credit Points • 5 hours per week • 12 weeks or equivalent • Lilydale •
Prerequisites: Nil • Assessment: Assignments; Examinations

A first stage subject in the Bachelor of Applied Science (Computing) which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

The aims of this subject are:

- to provide an introduction to Computer Science;
- to develop relevant problem solving skills;

**Content**

Upon successful completion of this subject the student will be able:

- to apply the basic principles of the discipline to solve small but realistic Computer Science problems;
• to translate these solutions, where applicable, into well written and well documented C++ programs using the language at an elementary level.

LCS200 Computer Science 2
12.5 Credit Points • 5 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LCS100 and LCS100 • Assessment: Assignments; Examinations
A first stage subject in the Bachelor of Applied Science (Computing) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The main objectives of this subject are to:
• learn how to develop robust programs
• learn logic programs and correctness
• acquire broader knowledge of computing social and discipline context
• gain knowledge of C++ and programming skills in developing larger and more sophisticated programs

Content
• program robustness and testing
• logic and program correctness
• logic and computers
• programs and computers
• the social context of computing
• computing as a discipline
• functions
• arrays
• structures
• pointers

Recommended reading
Deitel, H.M., Deitel, P.J., C++ How to Program, 1994

LCS204 Formal Methods
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LCS100 • Assessment: Assignments; Examinations
A subject in the Bachelor of Applied Science (Computing) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
This subject examines the scope, role and application of mathematics in contemporary software development. Particular emphasis is placed on the use of discrete mathematics for formal specification.

After completing LCS204, a student will be able to apply the discrete mathematics taught in the course to system modelling.

Content
Propositional Calculus; proof and argument; set theory; relations; functions; sequence; formal specification languages.

Recommended reading
To be advised.

LCS300 Data Structures and Algorithms
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LCS100 and LCS200 • Assessment: Assignments; Examinations
A second stage subject in the Bachelor of Applied Science (Computing) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
Data Structures and Algorithms: this subject pursues the goal of good programming (correctness, flexibility, adaptability, portability, utility, clarity) through the concepts modularity and abstract data types.

Syllabus: common data structures, associated algorithms and applications; stacks, queues, trees, binary search trees, balancing; heaps, sets; graphs; hash tables.

Recommended reading

LCS305 Database
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Assessment: Assignments; Examinations
A second stage subject in the Bachelor of Applied Science (Computing) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The subject database is the study of organisational and technical issues associated with the development of databases. This course teaches the solid foundation of relational data theory together with structured query language and practical aspects of developing databases.

Content
• introduction to database processing
• components of a database system
• the entity-relationship model
• the relational implementation
• structured query language (SQL)
• transaction processing and data languages
• data administration and database administration
• client server and related applications
• database: state of the art
• introduction to object oriented databases

Recommended reading
To be advised.

LCS306 Human-Computer Interaction
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: Nil • Assessment: Assignments; Examinations
An elective subject in the Bachelor of Applied Science (Computing) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To introduce students to the process of user interface design.

Content
• Technology: usability of input/output devices and interaction styles.
• Methodologies: formal, cognitive and usability approaches to developing appropriate human-computer interaction.
• Theories: theoretical foundations of HCI.

LCS404 Software Engineering/Systems Analysis
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LCS200 • Assessment: Assignments; Examinations
A second stage subject in the Bachelor of Applied Science (Computing) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To introduce students to the process of user interface design.

Content
• The Product
• The Process
• Software Project Planning
• Software Quality Assurance
• Software Configuration Management
• Computer Systems Engineering
• Requirements
• Analysis
• Design Concepts and Principles
• Design
• Programming Languages and Coding
• Software Testing Techniques
• Software Testing Strategies
Technical Metrics for Software
Business Reengineering
Computer-Aided Software Engineering

Recommended reading

LCS407 Data Communications
12.5 Credit Points  3 hours per week  12 weeks or equivalent  Lilydale
Prerequisites: Nil  Assessment: Assignments; Examinations
A second stage subject in the Bachelor of Applied Science (Computing) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
An introduction to the fundamental concepts in modern computer to computer communications. Topics covered include: physical aspects of data communications; data link control; terminal base networks; Telstra data communication services, OSI, Open Systems Interconnection.

LCS409 Artificial Intelligence
12.5 Credit Points  3 hours per week  12 weeks or equivalent  Lilydale
Prerequisites: Nil  Assessment: Assignments; Examinations
An elective subject in the Bachelor of Applied Science (Computing) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
- To give students an introduction to some of the basic concepts and tools of symbol-based artificial intelligence research and their application in expert systems.
- To contrast the symbol-based AI paradigm with the more recently emergent non-symbolic artificial neural network research and applications.
- Upon completion of the course the students should have gained an appreciation of the difficulties involved in encoding knowledge, even in restricted domains, in such a fashion that 'intelligent behaviour' can be elicited.

Content

Recommended reading
To be advised.

LCS412 Systems Programming
12.5 Credit Points  3 hours per week  12 weeks or equivalent  Lilydale
Prerequisites: Nil  Assessment: Assignments; Examinations; Project
An elective subject in the Bachelor of Applied Science (Computing) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To introduce students to the UNIX operating system; to teach the use of shell scripts as a method of prototyping system software; to examine systems programming in a UNIX environment via consideration of various system calls.

Content
Introduction to UNIX operating systems; UNIX file management; commands and filters; electronic mail; structure of the operating system; tools _ make, SCDS, lint and sdb; shell programming (differences between Bourne and C shell); systems programming (low level I/O, accessing the file system, creating and controlling processes, communication between processes, device control networks); system administration.

Recommended reading
To be advised.

LCS606 Computing in the Human Context
12.5 Credit Points  3 hours per week  12 weeks or equivalent  Lilydale
Prerequisites: Nil  Assessment: Essays; Examinations
A stage three core subject in the Bachelor of Applied Science (Computing) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To provide students with a framework for the development of personal and corporate ethics appropriate for the information technology professional, and to allow students to explore the uses in and implications for society of contemporary developments in computing.

Content
Ethical and legal issues in computing, and their relationship to the computing profession; a selection of other topics, exemplified by:
- philosophy and artificial intelligence;
- computers and the arts;
- futures.

LCS613 Computer Science Team
12.5 Credit Points  3 hours per week  12 weeks or equivalent  Lilydale
Prerequisites: LCS300, LCS304, LCS305  Assessment: Assignments
A stage 3 core subject in the Bachelor of Applied Science (Computing) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
In this subject, students will apply the software engineering skills acquired throughout the degree, to a substantial group software development project. Student groups will choose from a range of projects and will then have to analyse the projects requirements, design and then develop the system to the best of their ability in the time available. Subject to the approval of the lecturer, students may generate their own project.

LCT100 Science, Technology and Society
12.5 Credit Points  4 hours per week  12 weeks or equivalent  Lilydale
Prerequisites: nil  Assessment: Continuous
A stage 1 core subject in all degree programs at Swinburne at Lilydale.

Aims and objectives
To introduce students to fundamental concepts about science, scientific and technological change in the context of our emerging electronic society. Applications of communications technology by students will complement the conceptual framework of the subject.

Content
Science, and scientific method; science and technology in contemporary economies; technological innovation and transfer; historical modes of communication;
- changing modes of communication: electronic society?
- power bases: whose information revolution?
- functional and institutional convergence: media, information technology and telecommunications;
- forces for globalisation;
- superhighways or superhighways?
- cultural impact of new communications technologies;
- changing communication process: VIPS- visual, intelligent, personal;
- construction of society and new modes of communication: eg. Internet, virtual reality.
- threats: misuse of information, privacy, inequality.

Recommended reading
Dunbar, R. 'The Trouble with Science', Faber and Faber, 1996
Thwaites, T., Davis, L., Mules, W., Tools For Cultural Studies, Macmillan, 1994
Wolpert, L. 'The Unnatural Nature of Science', Faber and Faber, 1992
LSM100 Texts and Contexts
12.5 Credit Points • 12 weeks or equivalent • Lilydale • Prerequisites: nil • Assessment: Discussion threads; Essays
A stage 1 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
This subject introduces the key concepts and ideas which are explored by Media Studies at Swinburne at Lilydale. It offers the proposition that everything around us is a kind of text which can be written by yourself, and “read” and interpreted by others. It demonstrates how texts are cultural products which have explicit and implicit cultural meanings. It also introduces a range of theories which can be used to help create frameworks for understanding the issues addressed in the other subjects offered by Media Studies at Lilydale.

Content
- Myself as a learner, myself as a text
- Signs and significations: what constitutes a text?
- Texts and contexts: how we construct our realities
- Iconography: how we represent ideas in our culture
- Our sustaining myths
- The Australian ramp onto the superhighway
- Texts and theoretical contexts
- A feminist reading of Australian history
- Print to multimedia: the information revolution

Recommended reading
CD ROM: Oz21: Australia’s Cultural Dreaming
Links on the LSM 100 subject web site.

LSM200 Popular Culture
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LSM100 • Assessment: Discussion threads; Essays
A stage 2 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
This subject develops further the key concepts and ideas which are introduced in LSM 100 Texts and Contexts. It offers extensive insights into the construction of Australian popular culture and critical tools with which to deconstruct it for further understandings.

Content
Social stories: what are their significance and how do we read them?
How we read our cultural environment
Alternative Australian youth cultures
The wired world
Cinema in Australia
Adaptation from the local to the global
Writing and the IMMaterial world of interactive multimedia
Australia reimagined in the global world of cyberspace

Recommended reading
CD ROM: Oz21: Australia’s Cultural Dreaming
Links on the LSM 200 subject web site.

LSM201 Writing for the Media
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LSM100 • Assessment: Folio Presentations
A stage 2 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To offer a theoretical and practical introduction to media writing skills. The focus is on the textuality and discourse of the mass media and surveys writing for the print media, radio, television and the World Wide Web (WWW). The subject explores the relationship between the message and the medium, that is, the way in which information is written changes in relationship to the medium it is presented through.

Content
- What is news? - News writing - hard news, human interest news, features;
- Form and content;
- Writing for print news publications;
- Writing radio news;
- Writing television news;
- Writing for the WWW;

Recommended reading
Links on LSM201 subject web site

LSM202 New media
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LSM100 • Assessment: Discussion threads; Essays
A stage 2 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To develop an understanding of the key political, policy and mass media industry issues which shape the nature of the mass media industry today. To survey the implications of the convergence between mass media and telecommunications technologies and their impact on the kind of information we get access to.

Content
- Convergence of mass media and telecommunications technologies - who benefits?
- Government policies on ownership and content;
- Pay television, interactive television and the World Wide Web;
- The impact of globalisation;
- Access and equity;
- New media information deliveries.

Recommended reading
CD ROM: Oz21: Australia’s Cultural Dreaming.
Links on the LSM 202 subject web site.

LSM301 Electronic Writing
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LSM100 • Assessment: Folio Presentations
A stage 3 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The purpose of this subject is to explore the convergence of print with electronic publishing. Students explore the implications and potentials of interactivity and cybertext by first creating a printed document using a desktop publishing application and then reconceptualising and representing the information as a cybertext.

Content
- Writing and electronic culture;
- Communications theories;
- Desktop publishing;
- Identifying audience information needs;
- Interactivity;
- Writing cybertext;
- Integrating interactivity and multimedia.

Recommended reading
CD ROM: Oz21: Australia’s Cultural Dreaming.
Links on the LSM 301 subject web site.

LSM302 Information Society
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LSM100 • Assessment: Discussion threads; Essays
A stage 3 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To offer an exploration of the impacts of convergence between mass media and telecommunications technologies and the ways in which we are impacted in terms of the kinds and quantity of media we use and the kinds of stories we tell.

Content
- New media information deliveries;
- The impact of globalisation;
- Our sustaining myths;
- The wired world;
- Alternative Australian youth cultures;
- Social stories: what are their significance and how do we read them?
- How we read our cultural environment;
- The wired world;
- Cinema in Australia;
- Adaptation from the local to the global;
- Writing and the IMMaterial world of interactive multimedia;
- Australia reimagined in the global world of cyberspace.
Aims and objectives
To explore the implications of the convergence of broadcasting, information technology and telecommunications in the context of political economic and social changes associated with the concept of an information society. A particular focus is the implications of globalisation.

Content
- Information society: conceptual paradigms;
- Theoretical frameworks for an information society;
- Political economy of information society: control, competition and choice;
- Australian telecommunications: beyond the duopoly;
- Globalisation: cultural imperialism revisited;
- National information policies: Australia, Singapore;
- Technologies of the information society;
- Social implications: privacy, equity.

Recommended reading
CD ROM: Oz21: Australia's Cultural Dreaming.

LSM303 Interactive Multimedia Project
12.5 Credit Points  3 hours per week  12 weeks or equivalent  Lilydale
Prerequisites: LSM100  Assessment: Folio Presentations

A stage 3 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
This subject provides students with the opportunity to develop a project which combines theory and practice. The project proposal will be developed by each student in consultation with staff.

Content
Projects may include: reading in an area related to a topic of interest in Media Studies and interactive multimedia theory; a web-based or interactive multimedia project for a business, organisation of community group; a creative web-based or interactive multimedia project, etc.

LSM304 Screen Studies
12.5 Credit Points  3 hours per week  12 weeks or equivalent  Lilydale
Prerequisites: LSM100  Assessment: Discussion threads; Essays

A stage 3 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To develop an understanding of the textuality and discourse of the electronic media on screen: at the cinema, on TV and on the computer screen. The subject looks at what the screen shows and in doing so demonstrates that while everything on the screen may have an integrity as a text in itself, it is also heavily implicated in the broader cultural context. The subject also explores and applies theories introduced in other Media subjects.

Content
- Book to film;
- Small screen versus large screen;
- Interactivity; three-dimensionality;
- Genre and genre criticism;
- Characterisation;
- The role of ideology and the enactment of the digital enhancement of special effects;
- The digital video camera and its role in interactive multimedia;
- Film theories and screen applications: auteurism and the death of the author; feminism and the display of the female.

Recommended reading
CD ROM: Oz21: Australia’s Cultural Dreaming.

LSQ200 Design and Measurement 2
12.5 Credit Points  4 hours per week  12 weeks or equivalent  Lilydale
Prerequisites: LCR100  Assessment: Computer Based Tests; Examinations; Tests

A stage 2 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
A first-semester subject in research design and statistical analysis planned to complement concurrent and future studies in psychology.

Content
In this subject the emphasis is on understanding the methodology of basic research design and how the associated statistical analysis can provide answers to research questions. Students also receive instruction in the use of Statistical Package for the Social Sciences (SPSS). This computer package will be used to analyse data both in this course and in second and third stage courses in psychology.

Topics to be studied include an introduction to computer based analysis, one and two-way factorial design and corresponding analysis of variance, and mixed design analysis of variance.

Recommended reading
To be advised

LSQ201 Survey Research Methods
12.5 Credit Points  3 hours per week  12 weeks or equivalent  Lilydale
Prerequisites: LCR100  Assessment: Assignments; Class presentations; Examinations

A stage 2 subject in the Bachelor of Business and the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
This subject introduces the theory and practice of survey research. The main focus of the unit is the application of theory to the design and conduct of a major research assignment, and an evaluation of student experiences. Students will design and test a quantitative data collection instrument.

Content
- Introduction to survey research - survey versus census
- Sampling techniques
- Collecting data
- Data analysis
- Presentation of findings - report writing and oral presentation

Recommended reading

LSQ202 Qualitative Research
12.5 Credit Points  3 hours per week  12 weeks or equivalent  Lilydale
Prerequisites: LCR100  Assessment: Assignments; Class presentations; Examinations

A stage 2 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
This subject aims to develop an understanding of qualitative research methods including and introduction to qualitative research, grounded theory, data collection, theoretical sensitivity, coding, ethical issues, and presentation of results.

Content
- Introduction to qualitative research - Rationale, historical background
- Nature of qualitative data
- Approaches-Interpretation, Social anthropology, Collaborative social research, Content analysis, Action research
- Grounded theory
- Data collection-Conceptualising, Formulating questions, Bounding
- Theoretical Sensitivity
- Coding - Open, Axial, Selective
- Ethical Issues
- Presenting results

Swinburne University of Technology | 1999 Higher Education Handbook
LSQ300 Design and Measurement 3

12.5 Credit Points • 4 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LSQ200 • Assessment: Computer Based Tests; Examinations; Tests

A stage 3 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Content
A stage 3 subject in research design and statistical analysis that is designed to complement concurrent and future studies in psychology. In this subject the topics included in LSQ200 are extended and further topics in design and analysis are considered. The SPSS package will be used to perform the various statistical analyses. Topics to be studied include correlation and introduction to multiple regression, multivariate analysis of variance and factor analysis.

Recommended reading
To be advised.

LSQ301 Research Project

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: Any two of LSQ200, LSQ201, LSQ202 • Assessment: Class presentations; Project Report

A stage 3 subject in Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
To provide students with the opportunity to strengthen their social statistics and research methods knowledge and skills by applying them in real world context.

Content
- formulate and refine a theoretically sound research question
- locate and obtain the data necessary to address this question
- prepare the data for analysis
- choose appropriate analyses to perform on these data
- understand the assumptions and limitations involved in the analyses
- write an informative report on the research topic
- make a formal presentation of the conclusions

Recommended reading

LSQ100 Introduction to Sociology

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: Nil • Assessment: Class; Examinations; Essays; Tutorials

A stage 1 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The subject is an introduction to sociology and to some of the critical issues in understanding social life. It considers a number of important sociological concepts such as culture, identity, socialization; it provides an overview of major theoretical approaches in explaining society and the place of the individual within it and it examines key methodological issues in the study of both the structures of society and the behaviour of individuals and groups.

In addition, the subject explores the three dimensions of social inequality; class, gender and ethnicity and examines a number of social institutions such as the family, education, work and religion.

The subject also offers an introduction to current debates about the nature/nurture dichotomies as well as to postmodernism as a contentious alternative paradigm in sociological inquiry.

Recommended reading

LSQ200 Difference, Deviance and Conformity

12.5 Credit Points • 12 weeks or equivalent • Lilydale • Prerequisites: LSS 100 or equivalent from another institution • Assessment: Class presentations; Debate; Essays; Tutorials

A stage 2 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The course introduces students to sociological approaches dealing with social problems, deviance/crime and social control. It aims to enhance students understanding of the ways in which individuals and their actions are defined as socially unacceptable and the attempts to control and reform them.

The subject focuses on, and analyses in some detail the three major forms of social control; the legal system, the medical system and the welfare system.

In addition, the course explores the ways in which sociological insights can inform policy formulation and implementation in a number of ‘social problem’ areas such as corporate crime, family violence, homelessness, anorexia and AIDS.

Content
- Definitions and Explanations of Deviance, Crime and Conformity
- Analysis of Sociological Perspectives of Deviance and Crime
- The Role of Institutional Social Control mechanisms 51; the Medical, Legal and Welfare Systems

Recommended reading
Anleu, S. Deviance, Conformity and Control 2nd ed. Australia, Longman, 1995

LSQ201 Sociological Perspectives

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LSS 100 or equivalent from another institution • Assessment: Class presentations; Essays; Examinations; Participation

A stage 2 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
No application of sociological techniques can be productive without understanding the theoretical issues which inform sociological explanation.

This subject will assist students to consolidate and extend their knowledge of sociological theory. In addition, it will enable students to explore ways in which a variety of sociological perspectives may be used to address practical issues such as formulating social policy, and conducting sociological research. Class discussions aim to encourage students to identify links between theoretical debates and current social issues.

Content
- The role of the Enlightenment and the Counter-Enlightenment in the development of nineteenth century sociological thought.
- The contributions of Classical sociological theorists, Marx, Durkheim and Weber.
- Development of sociological perspectives in the twentieth century including Interpretivist Theories, Feminism and Postmodernism.
- Analysis of perspectives including their core assumptions, ideological foundations, and approaches to knowledge and explanation.
LSS202 Ethnicity, Culture and Diversity Management: Australia in the Global Context

12.5 Credit Points  • 3 Hours a week, plus independent study  • 12 weeks or equivalent  • Lilydale  • Prerequisites: LSS 100 or equivalent from another institution  • Assessment: Class presentations; Debate; Essays; Tutorials

A stage 2 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The subject explores how ethnic, racial, social and cultural factors have shaped, and continue to shape the social, economic, and political development of Australian society since 1788. It examines in some detail how immigration policies and patterns, as well as settlement practices have contributed to the creation and maintenance of Australia as a nation. The subject also provides an understanding of new patterns and influences in relation to Australia’s experience in contemporary global migration movements and the concomitant need to develop skills for managing an increasingly diverse workplace and population.

Content
• Historical and Contemporary Immigration Patterns in Australia
• Comparative Analysis of Settlement Practices 51; Australia, Germany and the USA
• Theories of Migration
• Perspectives on Ethnicity and Ethnic Relations
• International Migration in a Postmodern World
• Citizenship, National Identity and Human Rights

Recommended reading
Theophanous, A., Understanding Multiculturalism and Australian Identity, Melbourne, Elkaia Books, 1995

LSS300 Organisations and Society

12.5 Credit Points  • 3 hours per week  • 12 weeks or equivalent  • Lilydale  • Prerequisites: LSS 100 or equivalent from another institution and two second year sociology units  • Assessment: Class presentations; Debate; Essays; Tutorials

A stage 3 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The subject provides explanations for the emergence, growth and persistence of vast and extensive, multi-divisional, corporately owned and bureaucratically managed global enterprises. It employs sociological theoretical frameworks to explain various aspects of organisations such as structural arrangements, organisational culture, formal and informal power, gender patterns, managerialism and the impact of international migration. This sociologically informed analysis will be applied to public and private sector organisations as well as to not-for-profit enterprises, i.e. third sector organisations. The subject also considers forms of organisational restructuring, addresses the emergence of small businesses and provides comparative analysis of Australian organisational approaches and patterns with those of other societies.

Content
• Historical Development of Large-Scale Organisations
• Bureaucracy, Rationalism and Democracy
• Comparison of Public, Private and Third Sector Organisations
• Sociological Perspectives on Institutions
• Sociological Theories and Managerialism
• Modern and Post-Modern Organisations
• Gender and Organisational Power

Recommended reading

LSS302 Methodology of Social Research

12.5 Credit Points  • 3 hours per week plus independent study  • 12 weeks or equivalent  • Lilydale  • Prerequisites: LSS 100 or equivalent from another institution and two second year sociology units  • Assessment: Assignments; Project; Tests; Tutorials

A stage 3 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
The subject provides an understanding of underlying ideological assumptions and the relationship between sociological theories and a range of social research practices. It offers practical experience and skill acquisition in social research through the use of different methods and designs. Each student will undertake a small but substantial piece of independent research under staff supervision.

Content
• Theoretical Assumptions of Quantitative and Qualitative Research Methodologies
• Research Design
• Measurement
• Principles of Sampling
• Data Gathering Approaches
• Data Analysis, Interpretation and Presentation
• Research Ethics
• Report Writing

Recommended reading
Neuman, W.L., Social Research Methods: Qualitative and Quantitative Approaches, Boston, Allen and Bacon, 1994

LSY100 Psychology 100

12.5 Credit Points  • 3 hours per week  • 12 weeks or equivalent  • Lilydale  • Prerequisites: Nil  • Corequisites: LCR100  • Assessment: Examinations; Labs; Participation; Pracs

A stage 1 subject in the Bachelor of Social Science and the Bachelor of Applied Science which may also be taken in any other degree at the Lilydale campus.

Aims and objectives
LSY100 and LSY101 are designed to introduce students to the content and method of psychology. Topics introduced in LSY100 include psychology as a science, ethics
in research, biological foundations of behaviour, sensation, perception and consciousness, emotion, learning and experimental design and analysis.

Recommended reading
Students wishing to familiarise themselves with concepts in psychology could read any recent introductory psychology text available from most regional libraries. Details will be provided in the first lecture in LSY100

**LSY101 Psychology 101**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LSY100, LCR100 • Assessment: Essays; Examinations; Labs; Participation

A stage 1 subject in the Bachelor of Social Science and the Bachelor of Applied Science which may also be taken in any other degree at the Lilydale campus.

**Aims and objectives**

This subject concentrates on various aspects of cognition such as memory, information processing, intelligence and problem solving. Other topics covered include: motivation, genetics, personality, sexualitv, stress and coping and psychopathology. The design and analysis of experimental studies forms a major part of the teaching program.

**LSY200 Cognition and Human Performance**

12.5 Credit Points • 4 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LSY100, LCR100, LSY101, LSY200 • Assessment: Examinations; Labs

A stage 2 subject in the Bachelor of Social Science and the Bachelor of Applied Science which may also be taken in any other degree at the Lilydale campus.

**Aims and objectives**

This subject examines theories of cognitive functioning and processes, including perception, attention, memory, action, categorisation, language, problem-solving and decision making. The aim is to provide up-to-date coverage of recent theoretical and methodological advancements in cognitive psychology.

**Content**

Students will be introduced to the three major perspectives that define current cognitive psychology: experimental cognitive psychology, cognitive science, and cognitive neuropsychology. In addition, some contemporary issues and applications of the theories will be considered. The teaching program involves two lectures, a tutorial/practical session and an average of one hour of project work per week.

**Recommended reading**


**LSY201 Developmental Psychology**

12.5 Credit Points • 4 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LSY100, LSY101 and LCR100 • Corequisites: LSY200 • Assessment: Examinations; Labs

A stage 2 subject in the Bachelor of Social Science and the Bachelor of Applied Science which may also be taken in any other degree at the Lilydale campus.

**Aims and objectives**

- To understand the processes of human growth and change;
- To examine the biological, psychological and environmental factors involved in growth and change.

**Content**

Topics may include: Theory and method in developmental psychology, prenatal and peri-natal factors in development, perceptual development, physical development, children’s play, attachment, cognitive development, language development, moral development, emotional development, gender differences, social development, identity and self awareness, socialisation within the family, socialisation outside the family.

**Textbook**

Berk, L. E. Child Development. 4th Edn, Allyn and Bacon, Boston, 1997

**Recommended reading**

DeLoache J.(ed) Current Readings In Child Development. 2nd edn, Boston, Allyn and Bacon, 1994


**LSY202 Social Psychology**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LSY101, LSY200, LSY201, LSY202 • Corequisites: LSQ300 • Assessment: Examinations; Labs

A stage 2 subject in the Bachelor of Social Science and the Bachelor of Applied Science which may also be taken in any other degree at the Lilydale campus.

**Aims and objectives**

This subject involves the scientific study of behaviour in a social context.

The aim is to introduce students to the key theories and research methods used by social psychologists to explain and predict people’s thoughts, feelings and actions in social situations. Some areas to which social psychological knowledge is often applied, such as culture, health and law, are also covered.

The teaching program involves two lectures, a tutorial/practical session and an average of one hour of project work per week.

**Recommended reading**


**LSY300 The Psychology of Personality**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LSY200, LSY201, LSY202 • Corequisites: LSQ300 • Assessment: Examinations; Project

A stage 3 subject in the Bachelor of Social Science which may also be undertaken in any other degree program at Swinburne at Lilydale.

**Aims and objectives**

To develop students’ understanding of major perspectives on personality and contemporary issues in personality theory.

**Content**

- The concept of personality;
- Four major perspectives of the psychology of personality;
- The contributions of S. Freud - psychoanalysis;
- Recent developments in psychodynamic theory;
- Dispositional accounts of personality;
- The contributions of Cattell and Eysenck;
- Assessing personality dispositions - constructing self report inventories;
- The ‘Big Five’ model of personality;
- Behavioural accounts - the contribution of Skinner;
- Cognitive accounts of personality - the contributions of Bandura and Mischel;
- Applications of cognitive concepts - Beck;
- Phenomenological accounts - the contributions of Rogers and Kelly;
- Existential ideas in personality theory;
- Assessment of personality

**Recommended reading**


**LSY301 Psychological Measurement**

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LSY200, LSY201, LSY202, LSQ300 • Assessment: Examinations; Report, Journal.

A stage 3 subject in the Bachelor of Social Science which may also be undertaken in any other course at Swinburne at Lilydale.

**Aims and objectives**

To instruct students in the foundation principles of psychological assessment, including the bases of psychological tests.

**Content**

Topics covered may include: concepts of psychological assessment and psychological tests; the legal and professional framework of psychological assessment and testing; test theory; the construction of assessment and testing procedures and instruments; the concept of reliability-methods of demonstrating
Aims and objectives

To provide students with an understanding of the nature and importance of HR as an organisational asset.

Have an appreciation of the importance of the HR Manager being involved with the development of strategies of the organisation.

To have a knowledge of the theories, techniques and approaches to dealing with people related problems and issues.

Content

• The nature and importance of human resources in achieving organisational effectiveness.
• HR planning and staffing the organisation.
• Basic interviewing and negotiating skills.
• Training and developing employees.
• Analysing, evaluating and compensating work.
• Establishing and maintaining effective employee relation.

Textbook


Recommended reading


Moss, D. The Trainers Handbook; Australia: Chronicle Australia Limited.


LTE202 Organisational Behaviour

A stage 2 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives

To provide students with an sound knowledge and personal understanding of the impact of human behaviour on work in groups and organisations.

Content

There is an increasing emphasis in organisations on creating self-managing work teams, and students will be asked to systematically develop competencies in working in group situations. Student experiences both in and out of the class will be used as a starting point for this development. By reflecting on their experience and applying their personal learning, students will gain insight into the behaviour of people as individuals and group members within organisational settings. They will be challenged to learn about their own behaviour and their impact on others.

Textbook


Recommended reading


LTE300 Organisational Change and Development

A stage 3 subject in the Bachelor of Business which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives

To develop pre-active attitudes and behaviours towards the rapid change and development occurring within national and international businesses and industries;
To learn how to handle the impact of planned and unplanned technological, economic and social changes within the sub-systems of organisations.

Content
- Corporate and societal culture
- Globalisation: Its impact and cause and effect
- The economics of organisational change
- The meaning and nature of work
- Rightsizing and its effect on internal environment
- Health and well-being of employees
- Authority and power - the effect of stereotyping and prejudice
- Managing Diversity - recruitment, selection, training and promotion (National and International)
- Organisational development.

Recommended reading

LTT200 Introduction to Tourism
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LTE200, LTE201 and LTE202 • Assessment: Examinations; Project
This is a Stage 2 subject in the Bachelor of Bachelor of Business(Tourism and Enterprise Management) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
- To develop understanding of the links between theory and practice in tourism.
- To provide an introduction to the historical, social and business factors which drive the tourism industry internationally, nationally and locally.

Content
- History of Tourism - pilgrimage to national pastime
- The Psychology of Tourism - personal motivations and needs
- The Sociology of Tourism - understanding tourists
- Macroeconomics and Tourism - organisational, management and marketing factors in the industry.
- Case Studies - enterprises involved with tourism.

Textbooks

Recommended reading

LTT201 Tourist Destination Management
12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale • Prerequisites: LTE200 (Introduction to Tourism) • Assessment: Assignments; Examinations; Tests
This is a Stage 2 subject in Bachelor of Business (Tourism and Enterprise Management) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
- To identify the degree of interdependence in a region’s tourism industry.
- To study the roles and functions of destination tourism organisations.
- To examine the contribution of technological advancement to tourist destination management.
- To develop strategies for sustainability of a destination’s tourism industry.

Content
- Tourist Destination Areas - the regionalisation process, growth and development
- The Destination Environment - physical, sociocultural, economic
- Sustainability and management processes
- Destination marketing
- Tourism and the Community

Textbooks

Recommended reading
LTT202 Tourism Enterprise Development

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: LTT200 (Introduction to Tourism) • Assessment: Assignments; Examinations

This is a subject in the Bachelor of Business (Tourism and Enterprise Management) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
- To locate individual enterprises in the tourism system.
- To explain the processes involved in feasibility studies and attraction development.
- To critically analyse the management and marketing of existing attractions.
- To develop the ability to implement effective management plans.
- To facilitate informed predictions about the future of the attractions sector.

Content
- The Attractions Sector - an overview
- Attraction Project Development - preparing, designing, financing and managing.
- Managing Attractions - day-to-day operations and marketing.
- Managing for Sustainability - best-practice, proactive planning.

Textbooks

Recommended reading

LTT203 Tourism Services

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: LBM100, LBM200, LTT200 • Assessment: Assignments; Examinations

This is a Stage 2 subject in the Bachelor of Business (Tourism and Enterprise Management) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
- To examine the nature of service products, especially in the tourism industry.
- To analyse the problems encountered and develop procedures for avoiding or solving these.
- To develop understanding of services provision and best-practice management in the hospitality sector.
- To encourage innovative approaches to the marketing of tourism services.

Content
- The nature of service products - intangibility, inseparability.
- The Hospitality Sector - the concept of quality, best-practice management.
- Marketing of services - planning and implementation.
- The organisation of conferences etc.
- Case studies.

Recommended reading
To be advised.

LTT300 Tourism Channels and Travel Management

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: LBM100, LBM 200, LTT200 • Assessment: Assignments; Examinations

This is a Stage 3 subject in the Bachelor of Business (Tourism and Enterprise Management) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
- To introduce the components of the value chain involved in the organisation of travel.
- To develop skills, knowledge and attitudes required for successful tour operations.
- To examine the management processes required for organisation of special events.

Content
- The Travel Sector - from departure to homecoming.

- Tour Organisation - management and marketing, 'responsible' travel.
- Special Events - planning, promoting, running and evaluating.

Textbooks
To be advised.

Recommended reading

LTT302 Planning and Management in Ecotourism

12.5 Credit Points • 3 hours per week • 12 weeks or equivalent • Lilydale
Prerequisites: LTT200 (Introduction to Tourism) • Assessment: Assignments; Project

This is a Stage 3 subject in the Bachelor of Business (Tourism and Enterprise Management) which may also be undertaken in any other degree program at Swinburne at Lilydale.

Aims and objectives
- To demonstrate the need for environmentally sensitive management of tourism resources.
- To encourage the development of attitudes, skills and knowledge required for sustainable tourism operations.
- To examine the regulatory and legal framework within which ecotourism operators must work.
- To consider the factors which will influence ecotourism operations in the future.

Content
- The concept of sustainability
- Evolution of ecotourism - problems and solutions.
- Environmental impact - identification and assessment, legal constraints.
- Planning and decision-making.
- Case studies.

Recommended reading

LZZ301 Work Integrated Learning Project

12.5 Credit Points • Duration: 130-160 hours • Lilydale • Prerequisites: Completed all Stage Two subjects for a selected major/minor study. No prior attempt for Work Integrated Learning Project • Assessment: Oral Presentation; Project; Report

This subject can be undertaken by students from any Swinburne at Lilydale course.

Aims and objectives
To provide students with the opportunity to strengthen their major/minor studies, knowledge and skills through their involvement in a workplace based project for a business, industry, government or community-based client.
- Development of a project specification and plan;
- Project management and development;
- Project documentation and communication.

Content
Students will undertake the project as an individual or in a group consisting of no more than 4 students under the limited direction of a staff project leader and a representative from a sponsoring organisation where appropriate.
The student/s, in consultation with the staff leader and sponsoring organisation will be responsible for organising the work to be carried out by the student/s. This includes the selection of a student project leader, where applicable. The student/s will complete the project with assistance and direction being provided by the staff leader as appropriate.

Recommended reading
Other as prescribed from time-to-time.
LZZ306 Industry Based Learning (6 month placement)

0 Credit Points • Duration: Minimum 20 weeks • Lilydale • Prerequisites: This is a Final Year subject and it is expected that students have completed all Stage Two subjects for a selected major/minor study. A credit grade average is required. No prior attempt at Industry Based Learning (LZZ306) or Industry Based Learning (LZZ312) • Assessment: Diary; Report
This subject can be undertaken by students from any Swinburne at Lilydale course.

Aims and objectives
To provide student/s with personal development, learning first hand the environment and culture of industry and/or community and the further practical development of skills relevant to the student/s major/minor studies.

- To provide an opportunity for personal development and social maturation of the student.
- To address issues which can better be learned from within the industrial environment, such as user liaison and systems security.
- To allow the student to obtain an understanding of the ways in which business organisations function and the context in which they operate.
- To provide a practical basis for further knowledge in the student/s relevant field of studies.

Student/s will work as members of their major/minor environment to which they are assigned. Student/s will work under the supervision of both Industry Supervisor and Academic Manager.

Projects and assignments and participation in the professional activities of their major/ minor environment are assessed by the student manager and industry supervisor.

LZZ312 Industry Based Learning (12 month placement)

0 Credit Points • Duration: Minimum 40 weeks full-time paid employment in industry and/or community • Lilydale • Prerequisites: This is a Final Year subject and it is expected that students have completed all Stage Two subjects for selected major/minor studies. A credit grade average is required. No prior attempt at Industry Based Learning (LZZ306) or Industry Based Learning (LZZ312) • Assessment: Diary; Report
This unit may be undertaken by students from any Swinburne at Lilydale course.

Aims and objectives
To provide student/s with personal development, learning first hand the environment and culture of industry and/or community and the further practical development of skills relevant to the student/s major/minor studies.

- To provide an opportunity for personal development and social maturation of the student.
- To address issues which can better be learned from within the industrial environment, such as user liaison and systems security.
- To allow the student to obtain an understanding of the ways in which business organisations function and the context in which they operate.
- To provide a practical basis for further knowledge in the student/s relevant field of studies.

Student/s will work as members of their major/minor environment to which they are assigned. Student/s will work under the supervision of both Industry Supervisor and Academic Manager.

Projects and assignments and participation in the professional activities of their major/ minor environment are assessed by the student manager and industry supervisor.

MA103 Statistics and Research Methods

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures and tutorials • Assessment: Assignments; Examinations

Introduction to the statistical package SPSS for Windows (SPSS stands for ‘Statistical Package for the Social Sciences’). To introduce you to the statistical package SPSS for Windows, exploring existing data sets, summarising the distribution of a categorical variable. Describing the relationship between two metric variables. Testing significance using Pearson’s r. Describing the relationship between two categorical variables. Describing the relationship between two categorical variables using the ch-squared test statistic. Describing the relationship between two categorical variables and a metric variable. Describing the relationship between two categorical variables and a metric variable for two or more sub-groups. Entering your own data into SPSS.

Module 1: Using SPSS for Windows for basic data analysis
Topics: Review of basic statistics - providing a framework for the subject. Introduction to SPSS for Windows - exploring existing data sets, summarising the distribution of a categorical variable. Describing the relationship between two metric variables. Testing significance using Pearson’s r. Describing the relationship between two categorical variables. Describing the relationship between two categorical variables using the ch-squared test statistic. Describing the relationship between two categorical variables and a metric variable. Describing the relationship between two categorical variables and a metric variable for two or more sub-groups. Entering your own data into SPSS.

Module 2: Analysis of variance

Recommended reading

MA378 Design and Measurement 3

12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: MA278 • Teaching methods: Lecture/Tutorial • Assessment: Assignments; Examinations

A third year subject in the Bachelor of Applied Science (Psychology and Psychophysiology) and the Bachelor of Arts (for students majoring in psychology).

Aims and objectives
The aims in Design and Measurement 3 are:

- Describing and displaying relationships; Pearson’s r: introduction to regression; time series; finding the pattern; index numbers; relationships in tabulated data; correlation and causality.
- Producing data; experiments; population and samples; sources of published data; density and normal distribution; the standard normal.
- Making decisions about proportions and means, the z and t tests; testing relationships; Pearson’s r and the chi-squared test of independence.
- Introduction to estimation, confidence intervals for the mean and proportions.

Recommended reading
To be advised
A first year subject in the Bachelor of Applied Science (Multimedia Technology)

Aims and objectives
To develop an understanding of basic design principles and visualisation techniques.

Content
Understanding and rehearsing the elementary use of the elements of design: line, shape, form, colour, tone, and texture, as well as primary extensions into pattern, repetition and combination in an electronic environment. Topography for electronic media. Use of appropriate design software ie. Adobe Photoshop.

MD102 Principles of Design for Electronic Media 2
10 credit points • Prahran • Prerequisites: MD101 • Assessment: Continuous
A first year subject in the Bachelor of Applied Science (Multimedia Technology)

Aims and objectives
To develop an understanding of basic design principles and visualisation techniques.

Content
Understanding and rehearsing the elementary use of the elements of design: line, shape, form, colour, tone, and texture, as well as primary extensions into pattern, repetition and combination in an electronic environment. Topography for electronic media. Use of appropriate design software ie. Adobe Photoshop.
Aims and objectives
To further develop an understanding of design principles and visualisation techniques, with the addition of movement and sound.

Content
- Elementary integration of design elements into extended 3D environment.
- Basic storyboarding, script concept and development.
- Animation and sequencing.
- Introduction of sound - basic audio principles.
- Use of appropriate design software ie. Macromedia Director.

MD201 Design for Multimedia 1
10 credit points • Prahran • Assessment: continuous
A first year subject in the Bachelor of Technology (Aviation) Technology

Aims and objectives
To develop an understanding of the principles of interactive media.

Content
Further development of the understanding (and application) of animation and sequencing within multimedia. The introduction of design within the 3D space utilising appropriate software. i.e. Stratavis 3D Pro. The introduction to interactivity, utilising flowcharts, pathways. The introduction to audio visual interaction. Software scripting with appropriate software to maximise the effectiveness of interactivity and audio visual presentation. i.e. Macromedia Director and SoundEdit 16.

MD202 Design for Multimedia 2
10 credit points • Prahran • Prerequisites: MD201 • Assessment: Continuous
A second year subject in the Bachelor of Applied Science (Multimedia Technology)

Aims and objectives
To develop and extend an understanding of the principles of interactive media.

Content
Applied multimedia scripting.
Digital videos editing with appropriate software ie Adobe Premiere, Quick Time. Basic principles of video-camera work - panning, focusing zoom time sequence lighting etc. Shooting of scenes, characters, use of tripod, hand held techniques. Conversion of linear video system to digital system for editing purposes.

MF110 Flight Rules and Procedures 1
12.5 Credit Points • One year • Prahran • Prerequisite: MD201 • Corequisites: Nil
A first year subject in the Bachelor of Technology (Aviation)

Aims and objectives
This subject is designed to inform students of their obligations and responsibilities as a pilot and to correctly take into account factors affecting aircraft performance during all flight modes for safe operation. This covers the theory and practice for flight operations and flight standards up to a level often in excess of that required for a Commercial Pilot Licence.

Content
Flight rules and air law to CPL, radio communication to CPL, introduction to air traffic control to CPL, operation performance flight planning to CPL.

Recommended reading
Thom, T., Flight rules and air law Vol 4, Williamstown Aviation Theory Centre CASA, regulations, orders, etc. with amendments/operation performance flight planning Thom, T., Aeroplane Operations; Performance and Planning: Vol 3, Williamstown Aviation Theory Centre

MF120 Navigation and Meteorology 1
15 Credit Points • One year • Moorabbin • Prerequisite: Nil • Corequisites: Nil
A first year subject in the Bachelor of Technology (Aviation)

Aims and objectives
This subject is designed to give students an extensive understanding of the dynamic atmosphere and its importance to flight operations. Students will gain knowledge and skills required to assess meteorological information and undertake practical navigation up to the level of Commercial Pilot Licence.

Content
- Navigation to CPL;
- Meteorology to CPL;
- Introduction to meteorology, climatology.

Recommended reading
CASA Aeronautical Information Publication: Civil Aviation Safety Authority CASA Civil Aviation Orders. Civil Aviation Safety Authority Dept. of Science and Technology (Bureau of Meteorology)
Thom, T., Meteorology Navigation, Vols 2 Williamstown, Aviation Theory Centre

MF131 Aircraft General Knowledge 1
15 Credit Points • One year • Moorabbin • Prerequisite: Nil • Corequisites: Nil
A first year subject in the Bachelor of Technology (Aviation)

Aims and objectives
This course is designed to provide students with a knowledge of aeronautics and aerodynamics sufficient to form a firm foundation for practical application in flight operations up to the level of Commercial Pilot Licence.

Content
- Aircraft general knowledge to CPL;
- Aerodynamics to CPL;
- Aerodynamic principles of flight, flight controls, steady flight manoeuvres.

Recommended reading
Thom, T., Aeroplane General Knowledge and Aerodynamics. Vol 1. Williamstown Aviation Theory Centre

MF150 Occupational Health and Safety
10 Credit Points • One year • Hawthorn • Prerequisite: Nil • Corequisites: Nil
A first year subject in the Bachelor of Technology (Aviation)

Aims and objectives
This subject is designed to acquaint students with the occupational health and safety requirements of modern aviation.

Content
Safety hazards, noise, vibration, combustion, handling of dangerous goods, accident prevention, aviation medicine, survival skills.

Textbooks
Lewis, D., Human Performance and Limitations Manual, Swinburne University Ewing, R., Aviation Medicine and Other Human Factors for Pilots, 2nd Edn D Ling

Recommended reading
Creighton, W.B., Understanding Occupational Health and Safety Law in Victoria. North Ryde, N.S.W., CCH Australia, 1988
Enroute Supplement Australia, Civil Aviation Authority Glass, H.H., The Liability of Employers in Damages for Personal Injury. 2nd edn, Sydney, Law Book Company, 1970
Jensen, R.S., Aviation Physiology (Bower), London, 1989
Merritt, A., A Guidebook to Australian Occupational Health and Safety Laws. 2nd edn, North Ryde, N.S.W., CCH Australia, 1986
Dangerous Goods Regulations IATA

MF160 Propulsion and Aircraft Systems
15 Credit Points • One year • Hawthorn • Prerequisite: Nil • Corequisites: Nil
A first year subject in the Bachelor of Technology (Aviation)

Aims and objectives
This subject is designed to provide students with a knowledge of the operation of the principles behind the propulsion and aircraft systems up to the level of Private Pilot Licence.
Content
Thermodynamics, internal combustion engines, structures, mechanisms and linkages, electro-mechanical systems, motors and generators.

Recommended reading
Floyd, T.L., Electronics Fundamentals. 3rd Edn Prentice Hall, 1995

MF170 Aviation Mathematics and Computing
20 Credit Points • One year • Hawthorn • Prerequisite: Nil • Corequisites: Nil
A first year subject in the Bachelor of Technology (Aviation).

Aims and objectives
This subject is designed to introduce students to mathematical principles as they relate to aircraft systems and aerodynamics.

Content
Applied mathematics, calculus, general computer skills, high level language programming, programming applications, simple data transfer, scientific packages.

Textbooks

Recommended reading
Mathsoft Inc, MathCAD 5.0 Users Guide, MathSoft Inc. (Included with MathCAD software)
Bent, R.J., Quickbasic: An Introduction to Computer Programming on an IBM PC, PWS-Kent, 1993
Noggle, J., QuickBASIC Programming for Scientists and Engineers, CRC, 1993
Orvis, W.J., Excel 4 for Scientists and Engineers, Sybex, 1993

MF180 Aviation Electronics
5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
A first year subject in the Bachelor of Technology (Aviation).

Aims and objectives
This subject is designed to develop and establish an understanding of aircraft electrical and electronic equipment and systems including wiring methods and fault diagnosis. Electrical safety is emphasised.

Content
Electrical quantities and circuit components, electrical circuit analysis, power supplies, wiring techniques and A.C. and D.C. electrical systems.

Recommended reading
Edminster, Electric Circuits, Schaum
Eismin, Aircraft Electricity and Electronics. 5th Edn McGraw Hill 1994
Hughes, Electrical Technology, 7th Edn Longman, 1995

MF190 Communication Skills
7.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
A first year subject in the Bachelor of Technology (Aviation).

Aims and objectives
The aim of this subject is to develop basic skills and techniques in written and oral communication which is an essential part of the aviation industry. The importance of this area is emphasised by the fact that over eighty percent of aircraft accidents are directly attributable to a human factors breakdown, with communication playing a central role.

Content
The objectives of this subject are to study the importance of effective communication from a number of perspectives. Written, oral, and non-verbal communication and assertion training will be investigated. Report writing, referencing, research techniques, time management, goal setting and mind-mapping techniques will be addressed. Finally resume writing and interview techniques will be introduced.

Recommended reading
Reference material on communications and aviation human factors is available in the library.
Covey, S., The Seven Habits of Highly Effective People, Melbourne, Business Library, 1989

MF211 Air Transport Pilot Licence
36 Credit Points • One year • Moorabbin • Prerequisite: MF110, MF120 and MF131 • Corequisites: Nil
A second year subject in the Bachelor of Technology (Aviation).

Aims and objectives
This subject is designed to provide students with a knowledge of flight planning, human factors, aircraft performance and loading, and to understand the uses of typical flight systems on a modern jet transport aircraft up to Air Transport Pilot Licence standard

Content
• Flight planning, enroute performance and methods of cruise control, choice of route and amount of reserve fuel, the use of aircraft performance data;
• Aviation human factors
• Aircraft general knowledge to ATPL;
• Engines and engine system, Gas Turbine, aircraft engine operation and control;
• Activating systems, airframe systems, electrical systems, flight instrumentation, warning and recording systems;
• Aerodynamics to ATPL;
• Design features, characteristics of airflow, the operation of controls, asymmetric flight;
• Ground school

MF241 Theoretical Aerodynamics
10 Credit Points • One year • Hawthorn • Prerequisite: MF131, MF170 • Corequisites: Nil
A second year subject in the Bachelor of Technology (Aviation).

Aims and objectives
This subject is designed to develop an understanding by the student of the basic aerodynamic factors influencing the flight of an aircraft and to relate these to observed effects.

Content
Fluid properties, the standard atmosphere, ideal fluid flow, boundary layers, aerfoils, wings, force and moment coefficients, steady flight, aircraft performance, static stability.

Recommended reading
Shevell, R. S., Fundamentals of flight. 2nd Edn Prentice Hall, 1989

MF250 Human Factors and Performance
15 Credit Points • One year • Hawthorn • Prerequisite: MF150, MF190 • Corequisites: Nil
A second year subject in the Bachelor of Technology (Aviation).

Aims and objectives
The major aim of this subject is to introduce the field of aviation human factors and its importance in the operation of modern commercial aircraft. The importance of this area is emphasised by the fact that over eighty percent of aircraft accidents are directly attributable to a human factors breakdown.

Content
This subject builds on the work covered - MF190 Communication Skills and MF150 Occupational Health and Safety and studies how stress, human error, workload, personality, decision-making, ergonomics and automation affect the pilot's performance. Systems theory, accident analysis, flight safety issues, and the importance of effective teamwork and communication will also be addressed.

Recommended reading


Robinson, T., Dept. of Transport and Communications, Gas Turbine Powerplants and Their Advance electrical and electronic circuit analysis and fault finding systems found in light and commercial aircraft, including discussion of the integration of electronics systems from transducer to display.

Recommended reading
Basic Functional Devices and Systems, Department of Transport and Communications, Canberra, AGPS, 1989
Robinson, T., Dept. of Transport and Communications, Gas Turbine Powerplants and Their Maintenance on Aircraft. Canberra, AGPS, 1987

MF270 Aircraft Materials and Structures
15 Credit Points • One year • Hawthorn • Prerequisite: MF160 (2nd semester) • MF170
• Corequisites: Nil
A second year subject in the Bachelor of Technology (Aviation).

Aims and objectives
This subject is designed to provide students with an understanding of the properties of materials and their behaviour as loaded members in aircraft structures.

Content
Structural loading, stress, mechanics of materials, material properties, metal corrosion, fatigue.

Recommended reading

MF280 Avionics and Electronics
10 Credit Points • One year • Hawthorn • Prerequisite: MF180 • Corequisites: Nil
A second year subject in the Bachelor of Technology (Aviation).

Aims and objectives
This subject is designed to establish an understanding of avionics and instrumentation systems found in light and commercial aircraft, including discussion of the integration of electronics systems from transducer to display.

Content
• Advance electrical and electronic circuit analysis and fault finding

Recommended reading
AC and DC aircraft electrical systems
Analogue and Digital techniques
Aircraft instrumentation and navigation equipment and system operation

Recommended reading
Helfrick, Modern Aviation Electronics, 2nd Edn Prentice Hall, 1995
Hughes, Electrical Technology, 7th Edn Longmans, 1995
Eismin, Aircraft Electricity and Electronics, 5th Edn McGraw-Hill, 1994

MF290 Aviation Management
5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
A second year subject in the Bachelor of Technology (Aviation).

Aims and objectives
This subject is designed to provide students with the knowledge of the functions of aviation business operations and the various roles within an organisation.

Content
Business management, flight administration, financial control.

Recommended reading
CAAs 80 and 82, 100-104 series. CASA

MF311 Air Transport Pilot Licence 2
15 Credit Points • One year • Moorabbin • Prerequisite: MF110, MF120, MF131 • Corequisites: Nil
A third year subject in the Bachelor of Technology (Aviation).

Aims and objectives
This course is designed to provide students with an extensive knowledge of instrument and procedural theory applicable to the Command Instrument Rating. The course will also provide students with a knowledge of flight rules and procedures, the purpose, operation and limitations of navigation methods and systems and the importance of the dynamic atmosphere to flight operations up to Air Transport Pilot Licence Standard.

Content
• flight rules and aviation law to ATPL;
• priviledges and limitations, flight rules and conditions of flight application ATPL;
• Instrument flight rules;
• airways procedures;
• instrument flight planning and operations;
• instrument departure and approach procedures;
• navigation to ATPL;
• air navigation, air navigation instruments;
• meteorology to ATPL;
• physical basis of meteorology, observations and measurement of meteorological elements, climatology, high altitude meteorology and forecasting.

Recommended reading
CASA, ATPL student information Handbook
CASA, regulations, ATP, Orders etc. with amendments
Jane’s, Jane’s Aircraft: 11th Edn London, Jane’s, 1992-93
Thom, T., PPL Navigation Vols. 1 & 2, Williamstown, Aviation Theory Centre, 1985

MF340 Advanced Aerodynamics
10 Credit Points • One year • Hawthorn • Prerequisite: MF170, MF241 • Corequisites: Nil
A third year subject in the Bachelor of Technology (Aviation).
Aims and objectives
This subject is designed to provide students with an advanced understanding of the aerodynamic and flight dynamic factors influencing aircraft behaviour and performance, and present a theoretical explanation for the observed effects of flight parameter changes.

Content
Stability and control of a rigid aircraft; Airscrew theory - momentum and blade element; theory of compressible flow, supersonic Prandtl-Meyer; Lanchester-Prandtl theory, tip-vortices and principle of panel methods.

Recommended reading
Dickinson, B., Aircraft Stability and Control for Pilots and Engineers, Pitman & Sons, 1968

MF380 Aircraft Navigation and Control Systems
10 Credit Points • One year • Hawthorn • Prerequisite: MF170, MF241, MF280 • Corequisites: Nil
A third year subject in the Bachelor of Technology (Aviation).

Aims and objectives
This subject is designed to provide students with a comprehensive understanding of control system theory and the operation of navigation systems and control systems on aircraft.

Content
Control system theory, block diagrams, transfer functions, feedback, stability. Application of electronic circuits and computers in the control of aircraft systems. Navigation systems, glass cockpits, information transfer, transducer, data acquisition.

Recommended reading
Stevens, B.L., Lewis F.L., Aircraft Control and Simulation, Wiley

Aircraft Navigation Systems
Avionics Fundamentals, United Airlines, IAP Inc.
CAA, Operational Notes on NDB and ADF, DME, VOR, ILS and Area Navigation Systems
Helfrick, A.D., Modern Aircraft Electronics, 2nd Edn, Prentice-Hall 1994
Pallet E.H.J., Aircraft Instruments, Longman

MF390 Aviation Facilities Management
15 Credit Points • One year • Hawthorn • Prerequisite: MF290 • Corequisites: Nil
A third year subject in the Bachelor of Technology (Aviation).

Aims and objectives
This subject is designed to provide students with an understanding of the requirements for managing aviation facilities.
Content

Recommended reading
Creighton, W.B., Understanding Occupational Health and Safety Law in Victoria. North Ryde, N.S.W., CDI Australia, 1986
Merritt, A., Guidebook to Australian Occupational Health and Safety Laws. 2nd Edn North Ryde, N.S.W., CDI Australia, 1989
Rachman and Mescan, Business Today. 3rd Edn New York, Random House Business Division, 1982
Rolfe and Staples, Flight Simulation, Cambridge, 1986
Bartsch, R., Aviation Law in Australia, LBS, 1998

MF600 Introductory Human Factors
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Completed Graduate Certificate and Graduate Diploma in Human Factors.

Aims and objectives
This subject is designed to be presented in a distance education format.

Content
The subjects studied in detail in this subject will be drawn from the following:

- Introduction to human factors
- Human factors in accident investigation
- Systems analysis
- Ergonomic principles in aviation
- Aviation displays
- Cockpit automation
- Software interfaces
- Cockpit crew-systems design integration
- Cabin safety
- Flight training and simulation
- Pilot attention
- Pilot workload

Recommended reading
To be advised.

MF601 Air Transportation Management and Facilitation
12.5 Credit Points  One semester  Hawthorn  Teaching methods: Distance education. 2 day in house seminar  Prerequisite: Completed Graduate Certificate and Graduate Diploma in Human Factors.

Aims and objectives
This subject is designed to be presented in a distance education format.

Content
The subjects studied in detail in this subject will be drawn from the following:

- Aviation security. Flight simulation.

Textbook

MF602 Crew Resource Management/Leadership
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Completed Course Admission Requirements  Corequisites: Nil  Teaching methods: Distance education. 2 day in house seminar  Prerequisite: Completed Graduate Certificate and Graduate Diploma in Human Factors.

Aims and objectives
- This subject is designed to be presented in a distance education format.
- To provide students with a theoretical knowledge base to design and evaluate Crew Resource Management programs. To provide students with an advanced understanding of leadership and teamwork by course work coupled with a program of practical team exercises.

Content
The subjects studied in detail in this subject will be drawn from the following:

- Crew resource management
- Managing risk; intervention strategies; the development of CRM programs; cross cultural perspectives; CRM research and evaluation; CRM course design; LOS and LOF design principles.

Leadership
- How different personality types contribute to team formation: leadership and management comparisons; the qualities, situational, and functional approaches to leadership; motivation and the needs hierarchy; personal satisfaction; brainstorming; the role of the leader.

Recommended reading
University of Surrey, Leadership Teamwork and Communication Course, 1994

MF603 Organisational Change in Aviation
12.5 Credit Points  One semester  Hawthorn  Prerequisite: Completed Course Admission Requirements  Corequisites: Nil  Teaching methods: Distance education. 2 day in house seminar  Prerequisite: Completed Graduate Certificate and Graduate Diploma in Human Factors.

Aims and objectives
This subject is designed to be presented in a distance education format.

Content
Changes occurring within the aviation industry reflect transitions occurring throughout societies worldwide. Globalisation, technological change and organisational change impact on all forms of work, but particularly so in industries involving high technology. What goes on in either the flight deck, the cabin, the aircraft maintenance area or the tower is dependent on the wide organisational context. This unit will examine:

- The changing aviation context
- Impacts of technological change on the organisation of work
- Computer-supported co-operative work
- Developing organisational systems that support learning
- Organisational culture and organisational change.

MF604 Advanced Human Factors
12 Credit Points  One semester  Hawthorn  Prerequisite: Completed Graduate Certificate in Aviation Human Factors  Corequisites: Nil  Teaching methods: Distance education. 2 day in house seminar  Prerequisite: Completed Graduate Certificate and Graduate Diploma in Human Factors.
Aims and objectives
The subject is designed to be presented in a distance education format. The subject is designed to develop amongst participants, an advanced understanding of the impact of human factors on pilot performance within the operational environment. In particular, participants will examine the political and organisational factors which influence pilot performance and develop the skills necessary to recognise these and respond appropriately.

Content
The subjects studied in detail in this subject will be drawn from the following:

- Human factors course development
- Organisational safety culture
- Politics and air safety
- Safety - maintenance
- Safety - ground handling
- Advanced accident investigation
- Behaviour analysis in aviation
- Cognitive task analysis
- Aeronautical decisions - the future
- Disaster management

Recommended reading
To be advised.

MF605 Research Design and Methodology
12.5 credit points • Hawthorn • Prerequisite: Completed Graduate Certificate in Aviation Human Factors • Corequisites: Nil • Teaching methods: Distance Education
2 day in house seminar • Assessment: Class presentations; Journal; Research Paper
This is a subject in Graduate Certificate and Graduate Diploma in Human Factors.

Aims and objectives
This subject is designed to be presented in a distance education format. At the end of this subject, students should be able to:

- Plan a research project
- Undertake a literature review
- Apply relevant research methodologies
- Carry out a statistical analysis of results
- Build a scientific model
- Write a research report
- Write a journal article
- Use computer software to assist these tasks

Recommended reading
To be supplied with study materials.

MF606 Human Factors in Specialist Operations
12 Credit Points • One semester • Hawthorn • Prerequisite: Completed Graduate Certificate in Aviation Human Factors • Corequisites: Nil • Teaching methods: Distance education. 2 day in house seminar. • Assessment: Assignments; Examinations
This is a subject in Graduate Certificate and Graduate Diploma in Human Factors.

Aims and objectives
- This subject is designed to be presented in a distance education format.
- The aim of this subject is to provide students with a detailed understanding of the impact of human factors in specialist aviation-oriented operations. More specifically, students will be encouraged to develop the skills necessary to recognise and respond to the human factors requirements associated with specific aviation operations.

Content
The subjects studied in detail in this subject will be drawn from the following:

- Single pilot IFR operations
- Military operations
- Agricultural operations

MF607 Research Project (Minor)
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Completed Stage 1 Graduate Certificate in Aviation Human Factors • Corequisites: Nil • Teaching methods: Distance education with an expectation of weekly contact with the student’s supervisor by electronic or direct means. 2 day in house seminar. • Assessment: Participation; Project
This is a subject in Graduate Certificate and Graduate Diploma in Human Factors.

Aims and objectives
This subject is designed to be presented in a distance education format. To apply the skills developed in the subject MF605 Research Design and Methodology to a practical project task.

Content
Students are expected to select a project from a list prepared by academic staff or students may suggest their own topic based on individual interest or arising out of their prior or current employment.

Students are expected to carry out the project utilizing the methods and procedures developed in the subject MF605 Research Design and Methodology, to conduct literature surveys, investigate probable solutions, prepare designs if applicable, analyse and where appropriate, implement and test hypothesis, design processes and products (where a product is the outcome of carrying out the project).

The project may be university based or industry based. It may take various forms in which technology, research and development, experimental work, computer analysis, industry liaison and business acumen vary in relative significance.

Recommended reading
As recommended by the supervisor to support the student’s project.

MF608 Major Project
25 Credit Points • Two semesters • Hawthorn • Prerequisite: Completed Graduate Diploma in Aviation Human Factors • Corequisites: Nil • Assessment: Project
A subject in the Master of Technology in Aviation Human Factors.

Aims and objectives
The Masters degree aims to provide graduates of proved academic ability the skills required for future roles in designing and managing specialised aspects of generic human factor programs, particularly in the aviation industry, and the skills necessary to conduct further research in the field.

Content
A research thesis produced under the guidance of a qualified Supervisor.

Recommended reading
As advised by Supervisor.

MF611 Air Transportation - General
12 Credit Points • One semester • Distance Education • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Distance Education, 1 day in house seminar • Assessment: Assignments
A subject in the Graduate Certificate/Graduate Diploma in Air Transportation Management.

Aims and objectives
This subject is designed to be presented in a distance education format. At the conclusion of this subject students should have a good understanding of the broader issues affecting Air Transportation at international and local level for both Government and Operators of services. Additionally, students should gain sufficient insights into wider business issues relating to this highly regulated and complex industry.

Content
The subjects studied in detail in this subject will be drawn from the following:

- National Importance of Air Transportation.
- Trade.
- Investment and Employment.
- ICAO, IATA, Chicago Convention, Annexe 6's to Chicago Convention.
• Freedoms of the Air
• Transit and Air Service Agreements.
• National Regulation.
• Air Operators Certificates.
• Certification of Aircraft.
• GPS Manuals.
• Legal Documents.
• Noise Requirements.
• Basic Costing - direct and indirect.
• Facilitation and Airport Development.

Textbook
Hutcheson, S., Introduction to Air Transport, Aviation Training International, Maroochydore, Queensland, 1996

References
To be advised

MF612  Airport Development and Management
12.5 Credit Points  One semester  Distance Education  Corequisites: Nil  Teaching methods: Distance Education, 1 day in-house seminar  Assessment: Assignments
A subject in the Graduate Certificate/Graduate Diploma in Air Transportation Management.

Aims and objectives
This subject is designed to be presented in a distance education format. The purpose of this subject is to introduce students to the airport industry, to explain how airports are planned and managed, trends that are occurring in the industry, how airports obtain revenue and where costs lie. Airport design is discussed in detail so that an appreciation can be reached on infrastructure required and standards applied.

Content
• Airport ownership
• Planning procedures
• Economic Impact
• Air Transport Forecasting
• Airport Navigational Aids
• Financial and Commercial Management

Textbook
Hutcheson, S., Introduction to Air Transport, Aviation Training International, Maroochydore, Queensland, 1996

References

MF613  Airlines Operations Management
12.5 Credit Points  One semester  Distance Education  Corequisites: Nil  Teaching methods: Distance Education, 1 day in-house seminar  Assessment: Assignments
A subject in the Graduate Certificate/Graduate Diploma in Air Transportation Management.

Aims and objectives
This subject is designed to be presented in a distance education format. This subject is aimed at studying various technical, legal and operational issues relating to certification of aircraft and organisations, flight simulation, extended twin operations and operational control. These topics have complex technical, legal and facilitation issues made difficult with the management standards imposed by different states.

Content
• Certification of aircraft and organisations/Airworthiness
• T.O.M. in aviation
• ETOPS
• Flight Simulation
• Operational control

Textbook
To be advised

References
Bartsch, R., Aviation Law in Australia, LBC Information Services, Sydney, 1996
ICAO Convention Annexes 6 and 8
Regulatory Operator Guidance Material

Applicable Certificate and Operational Codes

MF614  Aircraft Performance and Facilitation
12.5 Credit Points  One semester  Distance Education  Corequisites: Nil  Teaching methods: Distance Education, 1 day in-house seminar  Assessment: Assignments
A subject in the Graduate Certificate/Graduate Diploma in Air Transportation.

Aims and objectives
This subject is designed to be presented in a distance education format. It introduces a broad understanding of the performance and cost implications affecting modern aircraft operations whether it be in a short range or critical long range operation. Particular emphasis is placed on important Payload/Range and fuel burn aspects of aircraft operations, together with the importance of retention of aircraft and engine operating efficiencies. Computer generated flight planning and required accuracies obtainable in today's long range operations are studied.

Content
• Long range ops - payload/ range/ fuel.
• Flight planning.
• Future developments.
• ACARS/ FANS/ Sat comms/ Nav.
• Noise/Pollution.

Textbooks / References
To be advised

MF615  Aircraft Selection, Acquisition and Contracts
12.5 Credit Points  One semester  Distance Education  Corequisites: Nil  Teaching methods: Distance Education, 1 day in-house seminar  Assessment: Assignments
A subject in the Graduate Certificate/Graduate Diploma in Air Transportation Management.

Aims and objectives
This subject is designed to be presented in a distance education format. This subject examines the important issues and operations in this critical corporate task. The evaluation and selection task brings together every facet of the business from airframe/engine type matching, retention of performance, fuel burn, maintenance cost guarantees, crew training and endorsements, passenger marketing, through to banking and financing of the project are all critically examined.

Content
• Fuel burn retention and guarantees.
• Crew training and endorsements.
• Financial and Commercial Management

Recommended reading
To be advised

MF616  Flight Time Limitations, Fatigue and Air Crew Issues
12.5 Credit Points  One semester  Distance Education  Corequisites: Nil  Teaching methods: Distance Education, 1 day in-house seminar  Assessment: Assignments
A subject in the Graduate Certificate/Graduate Diploma in Air Transportation Management.

Aims and objectives
This subject is designed to be presented in a distance education format. The subject examines significant crewing issues that have to be considered in modern operations at domestic operational level or ultra long range operational level or a combination of both. The skills of management have to address the safety issues, crew lifestyle and productivity with an overlay of all the legal issues and industrial agreements.

Content
• Flight time limitations.
• Medical/Fatigue issues.
• Crew patterns.

References
To be advised
• Crew management.
• Crew rest facilities.

Textbook
To be advised

References

MF617 Emergency Planning and Management Part 1

12.5 Credit Points • One semester • Distance Education • Corequisites: Nil • Teaching methods: Distance Education, 1 day in-house seminar • Assessment: Assignments

A subject in the Graduate Certificate/Graduate Diploma in Air Transportation Management.

Aims and objectives
This subject is designed to be presented in a distance education format. Emergency planning and management procedures and practices are examined. This particularly relates to search and rescue and fire services and how they relate to national and international requirements particularly those of C.A.S.A. and I.C.A.O. It covers many different organisations and areas of expertise.

Content
• Emergency, incident, accident - planning and management on and off airport.
• Search and rescue, rescue and fire services, A/P categorisation.
• International rules and obligations.

Textbook / References
To be advised

MF618 Emergency Planning and Management Part 2

12.5 Credit Points • One semester • Distance Education • Corequisites: Nil • Teaching methods: Distance Education, 1 day in-house seminar • Assessment: Assignments

A subject in the Graduate Certificate/Graduate Diploma in Air Transportation Management.

Aims and objectives
This subject is designed to be presented in a distance education format. This subject is an extension of MF617 Emergency Planning and Management Part 1.

Content
• Accident investigation/accident prevention.
• Coronal inquiry.
• Operator obligations/planning/management.
• Contingency/crisis management.

Textbook / References
To be advised

MF619 Aviation Security, Risk Management, Insurance

12.5 Credit Points • One semester • Distance Education • Corequisites: Nil • Teaching methods: Distance Education, 1 day in-house seminar • Assessment: Assignments

A subject in the Graduate Certificate/Graduate Diploma in Air Transportation Management.

Aims and objectives
This subject is designed to be presented in a distance education format. Aviation security has become an integral part of Air Transportation Management worldwide. It examines “Threats” and systems in place to counter these threats. This will also be related to Australian Aviation Crimes Act 1991 as well as the international position. Risk Management will be covered in the broadest possible way. This involves safety, legislation and cost to minimise risk of Hull loss or damage. Liability risks will be examined in a wide range of situations particularly as it may relate to consequential loss of business.

Content
• Risk/Defence.
• Equipment and Counter Measures.
• Conventions, Jurisdiction, Punishment.
• International and Australian Law.
• Operational & Short-term Risk.
• Medium and short/long-term Risk Management.
• Insurance of assets and income.

Textbook / References
To be advised

MF620 Air Transportation Financial Management

12.5 Credit Points • One semester • Corequisites: Nil • Teaching methods: Distance Education, 1 day in-house seminar • Assessment: Assignments

A subject in the Graduate Certificate/Graduate Diploma in Air Graduate Certificate/Graduate Diploma in Air.

Aims and objectives
This subject is designed to be presented in a distance education format. An examination of the importance and complexities of financial management systems in an airline is made, particularly where earnings, contracts and debts are involved. Further, the importance of currencies used in financial transactions, particularly those used other than home country currency, are studied. Coupled with this are appreciating and deprecating trade currencies and changing exchange rates.

Content
• IATA guidelines and international accounting practices/standards.
• Revenue and frequent flyer programming.
• Aircraft asset valuation and depreciation policies/asset & expense disclosure.
• Finance and operating lease information.
• Foreign exchange/contracts earnings and variations.

Textbook / References
To be advised

MF621 Airline Alliances and Related Topics

12.5 Credit Points • One semester • Distance Education • Corequisites: Nil • Teaching methods: Distance Education, 1 day in-house seminar • Assessment: Assignments

A subject in the Graduate Certificate/Graduate Diploma in Air Transportation Management.

Aims and objectives
This subject is designed to be presented in a distance education format. This subject includes the Bilateral system and Air Service Agreements and how cross ownership of airlines has altered this forever with a large number of potential changes possible. Air Service Agreements have been in place since the formation of I.C.A.O. in 1947. These Air Service Agreements were prominently designed around securing the trade balance in air traffic between national operators on behalf of a particular nation and in the national interest, hence its importance must be examined. We are all coming to terms with airline deregulation, alliances, code sharing and computer reservation systems within the international business environment.

Content
• Alliances - partnerships/commercial agreements.
• National ownership, bilateral and Air Service Agreements.
• Code sharing.
• Computer Reservation Systems (C.R.S.).

Textbook / References
To be advised

MF622 Aviation Law and Air Transport Issues

12.5 Credit Points • One semester • Distance Education • Prerequisite: Corequisites: Nil • Teaching methods: Distance Education, 1 day in-house seminar • Assessment: Assignments

A subject in the Graduate Certificate/Graduate Diploma in Air Transportation Management.

Aims and objectives
This subject is designed to be presented in a distance education format. The International Civil Aviation Organisation (I.C.A.O.) and its history are examined together with Australian and International involvement in the organisation. The Chicago Convention (1944) and the concept of sovereignty in airspace as well as the Warsaw Convention (1929) and related Acts governing the liability of international carriers and
cargo are very important elements to be considered. The Australian airlines system, the approval of airfares, both nationally and internationally as well as national competition laws are also elements studied. The Australian Aviation Regulations and legal system together with pilot/crew responsibilities and liabilities are also included.

**Content**
- International air law and its origins.
- Current issues in air transport law.
- Australian Civil Aviation Act/Government policies.

**Textbook / References**
To be advised

**MF623 Financial Management**
12.5 Credit Points • One semester • Distance Education • Corequisites: Nil • Teaching methods: Distance Education, 1 day in-house seminar • Assessment: Assignments
A subject in the Graduate on Management.

Aims and objectives
This subject is designed to be presented in a distance education format. This subject relates to those matters outlined in the content and students will be expected to have a very good understanding of each topic.

**Content**
- Balance sheet understanding.
- Revenue/cash flow/costs.
- Profit and loss.
- Budgeting.
- Asset management and depreciation.
- Stock control.

**Textbook / References**
To be advised

**MIB611 Foundations of International Business (BI711)**
12.5 Credit Points • One semester, three hours per week average • Prerequisites: Nil • Assessment: Tests, Assignment, Examination • Teaching method: One two and a half/three hour class per week, Self study exercises, Syndicate group discussions, External guest lecturers.

Aims and objectives
This unit provides an introduction to the Masters program and a framework for the study of international business. It looks at the development of international business from an historical perspective up until the present; day, and outlines the key challenges study of international business. It looks at the development of international business.

**Textbook**

**References**

**MIB612 International Marketing (BI712)**
3 hours per week • Hawthorn • Prerequisite: nil though a basic understanding of the marketing discipline is assumed • Assessment: Assignments & Final Examination.
A subject in the Master of International Business and in the Master of Business Administration.

Aims and objectives
- To introduce the students to the international marketing environment and tasks.
- To expose students to a wide variety of cultural environments and business situations.
- To encourage them to reflect on the practical significance of differences in a number of regional business environments.
- To discuss the market, and the market entry mode, selection processes.
- To develop students’ intercultural business communication competence and skills.
- To discuss the specific product and price related problems in international marketing.
- To discuss the key success factors in international marketing today and tomorrow.

**Content**
International marketing environment and tastes; the culture variable in international marketing; political and economic global environment; interregional comparisons; modes of market entry; global product management; intercultural marketing communication; global pricing; key success factors in international marketing; the future of global marketing.

**Recommended reading**

**MIB613 Business Language and Cultural - Context A**

**MIB623 Business Language and Cultural - Context B**

**MIB633 Business Language and Cultural - Context C**
4 hours per week for 3 semesters • Hawthorn • Prerequisite: Nil • Assessment: To be advised but the opportunity will be provided to focus on either the development of language or cultural skills depending on the interest and proficiency of each student. Currently on campus (for international students) are Australian, Chinese, Italian, Japanese, Korean or Vietnamese.

A subject in the Masters of International Business.

Credit may be granted for comparable units completed at an appropriate academic level.

Aims and objectives
- To provide each graduate with a basic understanding and appreciation of at least one foreign language and culture of relevance to Australia’s international trading position.
- To develop an understanding of the basic linguistic concepts and an appreciation of business etiquette, courtesies and conventions.
- To provide the opportunity to study the culture, society, economy and business practices of the particular language being studied, and by so doing enable students to appreciate these issues more sensitively when approaching any foreign market.

**Content**
Introduction to the chosen language; training in language patterns and grammar, writing, conversation, listening and comprehension; introduction of historical and cultural topics of direct relevance to the development of the language and society, and the nature of contemporary business practices; contact with an appropriate business or professional
Aims and objectives

To develop in students: a sound understanding of comparative cultural perspectives on managing and their impact on conducting international business; an understanding of Human Resource Management issues in managing across national boundaries; a personal understanding of the cultural context from which the student has developed, and the impact of their own cultural identity on their business role; and a practical approach to the application of their personal and theoretical learning to the conduct of international business.

Content

The course will establish the critical importance of culture and the impact of differing cultural contexts in understanding the issues facing human resource management in the conduct of international business. Comparative models of managing will be examined and such issues as the impact on international management of differences in leadership approaches and differing ethical and values systems will be explored. Also examined will be the strategies and functions appropriate to international management, and the management of human resources across national boundaries. As relevant, current issues facing Australian managers will be used for comparative purposes including ethics and social responsibility, women in management, and managing change. Comparative models of managing will be examined and such issues as the impact on international management of differences in leadership approaches and differing ethical and values systems will be explored. Also examined will be the strategies and functions appropriate to international management, and the management of human resources across national boundaries. As relevant, current issues facing Australian managers will be used for comparative purposes including ethics and social responsibility, women in management, and managing change.

Textbook


In addition students will be referred to a variety of wider readings from both books and journals. Students will be expected to use extensively the library collection available in this field.

Aims and objectives

To develop in students: a sound understanding of comparative cultural perspectives on managing and their impact on conducting international business; an understanding of Human Resource Management issues in managing across national boundaries; a personal understanding of the cultural context from which the student has developed, and the impact of their own cultural identity on their business role; and a practical approach to the application of their personal and theoretical learning to the conduct of international business.

Content

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Textbook


In addition students will be referred to a variety of wider readings from both books and journals. Students will be expected to use extensively the library collection available in this field.
Recommended reading

MIB631 International Marketing Research (BI722)
3 hours per week • Hawthorn • Prerequisite: MIB612 International Marketing and an understanding of undergraduate level statistical methods • Assessment: (i) Computer tasks (ii) An assignment (iii) Final examination.
A subject in the Master of International Business and the Master of Business Administration
Credit may be granted for equivalent work at an appropriate academic level

Aims and objectives
- provide the environmental context in which international marketing research is conducted, including consideration of the marketing, government, legal, economic, structural, information technology and the socio-cultural environment.
- demonstrate how and where sources of information can be obtained in relation to international markets;
- expose course participants to a range of data sources, both print and electronic which are essential for marketing research;
- provide course participants with an understanding of, and some experience in using, statistical, demographic, geo-demographic and computer aided telephone interviewing and telemarketing software; and
- to provide the technical skills necessary for planning, executing and reporting marketing research conducted using quantitative and/or qualitative methods.

Content
Problem definition; data sources and the review of related literature; international demographic trends; research designs; data analysis and interpretation; preparing written and oral reports

Recommended reading

MIB632 Legal Aspects of International (BI812) Business
12.5 Credit Points one semester; three hours per week • Hawthorn • Prerequisite: completion of MBA core subjects • Assessment: approved research project, final examination
A subject in the Master of International Business and the Master of Business Administration

Aims and objectives
To consider the legal aspects of international trade emphasising the following area:
- the Law as a reflection of the culture and society within which international business may be conducted;
- international contracts of sale of goods, including a study of trade terms, performance of the contract, acceptance and rejection of goods, and the rights of the unpaid seller and buyer;
- the proper law of a contract and jurisdiction to determine disputes;
- methods of transportation and distribution of goods and the legal principles relating thereto;
- financing and insurance and involved in export sales; the role of tariffs and protection policies;
- international conventions for the protection of industrial property;
- international franchising;
- international intellectual property; and
- international joint ventures.

Content
- History of mercantile law
- Regulation of international trade
- Trade treaties
- Law of international intellectual property
- International carriage of goods, etc

- Conflicts of law
- Enforcement of foreign money judgements
- Law of agency in relation to international sale of goods
- Finance of international trade
- Foreign investment and exchange controls

Textbook

MIB634 International Logistics Management (BI822)
3 hours per week • Hawthorn • Prerequisite: MIB611, MIB622, MIB632 • Assessment: Assignments, Final Exam
A subject in the Masters of International Business
Credit may be given for a comparable unit at an appropriate academic level.

Aims and objectives
- The course is designed to examine and analyse the international aspects of logistics and channel management, and the role the logistics function plays in the formulation of international competitive advantage and best practice.
- Attention is first directed to channels between countries and then to distribution channels within overseas markets.

Content
Designing international distribution strategies; export options; export documentation; channels of distribution within overseas markets; wholesale linkages to overseas markets; international logistics and physical distribution; evaluation of international channel alternatives; patterns of retailing in international markets; international marketing channels for counter trade; international sourcing; problems in managing international channels; service standards.

Recommended reading

MIB641 International Business Project (Methodology)

MIB642 International Business Project (Dissertation)
3 hours per week for one semester plus 1 hour supervisor contact or equivalent per week(average) over three semesters • Hawthorn • Prerequisite: nil • Assessment in reports and presentations in MIB641, a final report of 12-13,000 words in MIB642.
Subjects in the Master of International Business

Aims and objectives
This component of the course is designed to enable candidates to develop high level skills in conducting substantial research projects and to work with their results in an ongoing way.

Content
- MIB641 Research Methodology
- MIB642 Research Design and Exploratory Research
- Data collection and Analysis
- Preparation of Written project
The final report, to be submitted at the completion of MIB642 which will contain between 12-13,000 words.

MM385 Engineering Management 1
112.5 Credit Points • Hawthorn • Assessment: Assignments and examination
A third year subject in the Bachelor of Engineering (Mechanical and Manufacturing)

Aims and objectives and objectives
To introduce and develop an understanding of productivity, work method study, engineering economics and accounting, team building skills and organisational behaviour. To introduce topics concerning written and oral expressions at a professional standard, total quality managements and organisational structure.

Content
Productivity and methods engineering.
Engineering economics.
Microeconomics, Macroeconomics.
Engineering accounting, financial statements.
Team Building skills.
Performance effectiveness.
Organisational behaviour, design and culture.
Development of management schools of thought Leadership.
Introduction to total quality management.
Introduction to topics students are expected to use during industry based learning experience.

**Recommended reading**


**MM583 Industrial Management**
4 credit points • Hawthorn • Assessment: assignments and examination

A subject in the Bachelor of Engineering (Manufacturing)

**Aims and objectives**

To provide knowledge of contemporary management principles and practices by presenting specific material which builds upon the subject matter presented earlier in the course; a further aim is to assist the effectiveness of graduates in supervisory roles in industry. Appropriate computer packages to be used to solve problems.

**Content**

Topics covered include business strategy, setting of Objectives, theories and practice; supervision and leadership, motivation, finance; payment systems, management development, quality management and personnel appraisals, legal.

**Recommended reading**


**MM634 Non-Contact Inspection and Measurement**
12.5 credit points • Hawthorn • Assessment: assignments and exam.

**Aims and objectives**

After completion of this subject you should be able to:

- Appreciate the techniques available for non-contact inspection and measurement in manufacturing
- Understand and describe the fundamentals of optical systems applicable non-contact inspection and measurement
- Understand and apply computer vision and digital image processing techniques to non-contact inspection and measurement

**Content**

**Introduction to Non-Contact Inspection and Measurement**
Fundamentals of measurement, uncertainty of measurement, ultrasonic, computer vision, laser-based, electromagnetic, interferometry, photogrammetric.

**Digital Image Processing**
Binary and grey scale, image acquisition, image file structures, algorithms for quantitative and qualitative analysis of images, edge detection, template matching.

**Computer Vision Systems**
CCD cameras, spot, circular, line sensors, area sensors, camera lenses, lighting, frameregrabbers, single, stereo and multiple camera techniques, calibration methods for intrinsic and extrinsic parameters.

**Fundamentals of Optical Systems**
Human vision, optical parameters, types and uses of lenses, lens aberrations and lens distortion models, perspective projections and images, camera mathematical models.

**Laser-based Measurement Systems**
Triangulation techniques, light stripe methods, light spot method.

**Applications to the Manufacturing Industry**
Inspection, measurement, ultrasonic, robot vision, light-based surface inspection.

**Recommended reading**


**MM635 Robot Systems**
12.5 credit points • Hawthorn • Assessment: Assignments and exam

**Aims and objectives**

To provide students with knowledge for the design and operation of robot systems for manufacturing applications.

**Content**

**Robot programming**
Teach and offline programming, programming languages, future directions

**Sensor systems**
Internal/external sensors, conditioning sensor output, analysis of sensor data, sensing hierarchy, robot vision

**Interfacing for Robot Systems**
Program control for interfacing, interfacing digital/analog sensor systems

**End Effectors and End of Arm Tooling**
Basic considerations, gripper design, mechanical/vacuum/magnetic grippers, tooling

**Robot Cell Design**
Robot cell layout, multiple robot operation, workcell control

**Robot Applications in Manufacturing**
Material handling, spot welding, spray painting, arc welding, etc.

**Robot Implementation Principles and Issues**
Safety Requirements in robotic installations, training, maintenance, human factors

**Financial Analysis of Robot Installations**
Discount cash flow method, sensitivity analysis

**Automated Guided Vehicles**
Design of automated guided vehicle based material handling systems, comparison with robot based systems

**Recommended reading**


**MM636 Technology Management Measurement**
12.5 credit points • Hawthorn • Prerequisites: None • Assessment: Exam, Project and Assignment

**Content**

**Management**
Evaluation of management and its principles, trends in operations management (business and industry), automation and computerisation, integration, market forces, competition, customer orientation, engineering administration.

**Technology**
- Definitions of technology, Hi-tech; effects on organisation financial aspects and impacts,
- Technical vs business vision in measuring success
- Understanding the process [pre installation, communication, post installation]
• Technological forecasting and costing
• Interfacing marketing and manufacturing, financial impacts
• Design and management of innovation systems
• Creativity and rewards
• Application of principles of management
• Topics in engineering administration
• Case studies
• Information technology, ideas, tools, personnel, support, cost, organisation, impacts.
• Australian standards

Recommended reading

MM637 Project
50 credit points  • Hawthorn  • Assessment: Progress reports, final report, oral presentation

Aims and objectives
To provide students with the opportunity to apply knowledge gained from subjects taught on the course in solving robotic and automation related problems relevant to industry.

Content
Students will work, under Swinburne staff supervision, on projects approved by the course convenor. Industrial supervision will be appointed when required. Each project will involve an extensive literature survey and theoretical and or experimental investigation.

Wherever possible projects will be industry based and/or sponsored, and directly relevant to the student’s area of interest or employment.

The investigative work carried out on the project, results and conclusions will be presented as a written report in accordance with approved guidelines. An oral presentation of the project work (to a selected audience) will also be required.

Recommended reading
As appropriate to be prescribed by project supervisor.

MM638 Advanced Energy Systems
12.5 Credit Points  • 4 Hours per week  • Hawthorn  • Prerequisite: Nil  • Corequisites: Nil  • Assessment: Examinations; Project

This is a subject in Graduate Certificate, Graduate Diploma and Masters in Modelling and Process Analysis.

Aims and objectives
• To provide the students with the opportunity to learn the fundamental of governing equations and their applications in industrial environments.
• To provide an opportunity to apply these techniques to several real life case such as turbomachinery, power stations and air conditioning and ventilation.
• To develop the interaction between technology and management in energy related fields.

Content
After completing this subject, students should have a good understanding of:
• The continuity, energy momentum equations
• Laminar and turbulent flows
• Boundary layers
• Compressible flow around a body
• Unsteady flow
• Turbomachinery
• Machine-network interaction
• Ventilation
• Energy in buildings, energy management, coverage, recovery
• Heat and mass transfer

Recommended reading
Douglas JF, Gasiorek, JM and Swaffield, JA, Fluid Mechanics; Longman 1995
Imrie, BW, Compressible Fluid Flow; Butterworths, 1973
Eastop, TD and Croft, DR, Energy Efficiency; Longman, 1990

MM639 Introduction to Programming for Engineers and Virtual Reality
12.5 Credit Points  • One semester  • Hawthorn  • Prerequisite: Nil  • Corequisites: Nil  • Assessment: Examinations; Project

This is a subject in Graduate Certificate, Graduate Diploma and Masters in Modelling and Process Analysis.

Aims and objectives
• To provide the students with the opportunity to learn the fundamental of scientific and engineering programming and an introduction to virtual reality.
• To provide the students with a minimum level of competency using these techniques.
• To provide an opportunity to apply these techniques to several real life case studies.

Content
After completing this subject, students should have a good understanding of:
• BasicC: the basics of C programming
• Pointers: Explanation of address manipulation in C,
• Structures: the basic construct of data groups and how to construct them for engineering applications
• Functions: designing functions for engineering applications
• Structured programming: layout of scientific programs,
• Numerical techniques: a discussion of numerical algorithms and their implementation in C.
• Arrays: concrete arrays, concrete array references, concrete array projections, interfaced arrays, projections of terfaced arrays, iterators.
• Dynamic arrays: The creation, management and use of dynamic array types
• Virtual reality: An introduction into the world of virtual reality.

Recommended reading
An Introductory Course in Engineering C Programming, Pochtelstroom University, 1993
Budd, T.A., Classis Data Structures in C, Addison-Wesley, 1994
Sedgewick, R., Algorithms in C, Addison-Wesley, 1994
Faires, J.D., Burden, R.L., Numerical Methods, PWS, 1993
Barton J.J. and Nackman, L.R., Scientific and Engineering C Addison 51:Wesley, 1994
Barton, J.J., and Nackman, L.R., Scientific and Engineering C Multidimensional arrays; Report 1993
Buzzi-Feraris, G., Scientific C, Addison-Wesley 1993

MM640 Introduction to Numerical Modelling
12.5 Credit Points  • One semester  • Hawthorn  • Prerequisite: Nil  • Corequisites: Nil  • Assessment: Examinations; Project

This is a subject in Graduate Certificate, Graduate Diploma and Masters in Modelling and Process Analysis.

Aims and objectives
• To provide students with the opportunity to learn the fundamental of Numerical Analysis.
• To enable students to gain an understanding of the basis of computational fluid dynamics and introduce advanced CFD methods.
• Introduction to Technology modelling and techniques.

Content
Computational Fluid Dynamics
• Introduction to CFD and Numerical Analysis
Finite Volume Method
• Grid systems, rectangular, axi-symmetric, body fitted, colocated staggered. Solution of governing equations. Pressure correction, SIMPLE, Rhie-Chow.
Advanced CFD Techniques
Turbulence, i.e. Algebraic stress, Reynolds, stress, Large eddy simulation, Multiphase flows, Eulerian-Eulerian and Eulerian-Lagrangian, Combustion, reacting flows, Radiation, Compressible flows.

**Technology Modelling**

- Fundamentals of physical modelling and diagnostics
- Modelling techniques in thermofluids engineering
- Engineering modelling and decision

**Recommended reading**

CFDS (1994) CFDS-FLOW3D Release 3.3 User Manual, Computational Fluid Dynamics Services, AEA Industrial Technology, Harwell Laboratory, Didcot, Oxon UK

### MM645 Object Oriented Numerical Computing for Engineers

12.5 Credit Points  • One semester  • Hawthorn  • Prerequisite: Nil  • Corequisites: Nil  • Assessment: Examinations; Project

This is a subject in Graduate Diploma and Masters in Modelling and Process Analysis.

**Aims and objectives**

- To provide students with the opportunity to learn the fundamentals of Scientific and Engineering Object-Oriented Programming.
- To provide the students with a minimum level of competency using these techniques.
- To provide an opportunity to apply these techniques to several real-life case studies by developing basic codes to solve specific problems from the engineering industry.

**Recommended reading**


### MM646 Advanced Experimental Modelling Techniques

12.5 Credit Points  • One semester  • Hawthorn  • Prerequisite: Nil  • Corequisites: Nil  • Assessment: Examinations

This is a subject in Graduate Diploma and Masters in Modelling and Process Analysis.

**Aims and objectives**

- To provide students with the opportunity to learn the fundamentals of diagnostics techniques in Science and Engineering.
- To provide the students with a minimum level of competency using these techniques.
- To provide an opportunity to apply these techniques to several real-life case studies.
- To provide the students with the opportunity to learn the fundamentals of scale modelling and dimensional analysis in Science and Engineering.

**Recommended reading**

Jones, B.K., *Electronics for experimentation and research*, Prentice Hall, 1986
Short Course on experimental diagnostic techniques in Thermo-Fluids Engineering, Swinburne University of Technology, 1991

### MM647 Numerical Analysis with Engineering Applications

12.5 Credit Points  • One semester  • Hawthorn  • Prerequisite: Nil  • Corequisites: Nil  • Assessment: Project

This is a subject in Graduate Diploma and Masters in Modelling and Process Analysis.

**Aims and objectives**

- To provide students with a good understanding of the numerical analysis of practical engineering problems.
- To provide the students with a good understanding of the numerical analysis of practical engineering problems.
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- To provide the students with a good understanding of the numerical analysis of practical engineering problems.
- To provide the students with a good understanding of the numerical analysis of practical engineering problems.
Aims and objectives

To provide a thorough understanding of the meaning, measurement and management of productivity and quality issues and ways of improving, establishing implementation and standardisation.

Content

Productivity
- Concepts, definition; history; impact on management; employees; structure; customer supplies models; teams; culture; productivity indices.
- Basic approaches, 5S; 20 keys model; small group activities.
- Performance measurement, systematic approaches, models, types of measures, key performance measures (KPM), tools and implementations.
- Visual Control, visual systems designs, development and implementation.
- Benchmarking concepts, approaches, sources of data, government assistance; best practice.

Quality
- Understanding quality; cost of quality; internal/external customers; impact on culture, organisational views; training.
- The path; gurus and their views; total employee involvement; chain of customers; customer focus; work place culture.
- TQM planning and implementation issues in detail; management role; costs; plans; recognition; awards.
- Statistical Quality Control, concept of variation; measuring variation; control charts.
- Quality systems, history of standards; needs; ISO 9000, AS 3900 series concepts, structure, meaning; full implementation plan; review and auditing.

Recommended reading

MM655 Decision Analysis

Aims and objectives

To introduce the decision making process and techniques used to model variety of decision scenarios of quantitative and qualitative nature and to apply them to real industry based engineering problems using appropriate software packages.

Content

Concepts
- Nature, complexity, trends and developments in the decision making process.

Cash flow modelling
- NPV, IRR and other evaluation methods.

Investment problems
- Share market; Portfolio analysis.

Group decisions
- Managerial and corporate level group decisions, tools and techniques.

MM665 Expert Systems, Simulation and Modelling

Aims and objectives

To provide students with an understanding of the characteristics and uses of modelling,
MM656 Systems Optimisation and Reliability

Aims and objectives
To provide knowledge and skill in modelling and optimisation of physical/conceptual systems and ways of assessing and improving the reliability of systems.

Content
Modelling
System view, methodology, types (data modelling, DFD, structural models, temporal models); Mathematical models, types, complexities; formulation; validation; solution; implementation; Solution spaces, overview of algorithms, types and complexities.

Statistical and Mathematical Models
Review of statistics; estimation and test of hypothesis; regression; design of experiments; variance analysis; Fuzzy logic and applications; Neural Networks and applications.

Deterministic Model
Nature, type, linear models, cases in several areas; solution by computer; integer models; non-linear models; optimality conditions; solution approaches (analytical, numerical approaches, modern approaches, search methods).

Probabilistic Models
Review of probability theory; queuing models; Markov chain models; general stochastic models; renewal theory.

Reliability
Data modelling; component reliability; system reliability; reliability analysis and application in design and maintenance; reliability centred maintenance; models and approaches to reliability, failure mode effect analysis (FMEA); replacement analysis.

Recommended reading

MM657 Computing for Industrial Engineering

Aims and objectives
To provide knowledge in simple to integrated computing tools, useful for conduct of IE functions, and to provide systematic approaches to analysis, design and development of computer based information systems, networking.

Content
Needs for computing in IE
Survey of computer software and applications, including spreadsheets, engineering, managerial, mathematical and statistical packages; computer programming languages and paradigms; graphical and developmental environments, costs and productivity.

System analysis and design
Steps, tools and technologies; strategic modelling, design and analysis approaches and tools; costing and management of projects.

Database technology
Overview, modelling approaches, relational databases, object oriented databases, software packages.

Computer systems
Hardware technology, choice of systems, maintenance.

Interfacing and networking
Concepts, methods, PLC and CNC programming and interfacing, sensors, types of networks and their suitability, cost, implementation.

Recommended reading

MM658 Design of Physical Facilities

Aims and objectives
To provide knowledge in design and implementation of logistic issues including material handling, warehouses, distribution systems, layout design, services and utilities, procurement.

Content
Facilities Design
Understanding concepts; location problem and models; cells, structure, benefits, group technology and cell formation for operations-(manufacturing and business focus); data and algorithms, software. Nature of layout problems; effects on operations and productivity; review and comparison of different approaches; mathematical models and computer routines; complexity of integration.

Material Handling Systems
Overview of material handling systems; manual, mechanical, and automated systems; automated guided vehicles (AGVs); conveyors; robots; buffers; feasibility, suitability and economic considerations.

Warehousing
Nature of inventory; costs; inventory models; warehouse operations; warehouse systems; automated storage and retrieval systems (AS/RS); warehouse information systems, integration with the rest of the company.

Distribution Systems
Internal systems; external systems; procurement; supplier management; information systems; fleet management; customer service and support.

Packaging
Types, specifications, physical considerations, regulations, marketing and financial aspects, methods, equipment, palletising, computerisation.

Recommended reading
Sherif, INITIAL Facility Planning and Material Handling, PUBLISHER 1995.

MM659 Minor Thesis

Aims and objectives
To provide students with the opportunity to apply the subject matter studied in other courses to the solution of Industrial Engineering related problems in his/her specific field of interest.

Content
- Formulation of a project in collaboration with a Swinburne University supervisor. Industry based projects will also be supervised.
- Extensive literature search
- Theoretical or experimental (or both) developments
MM661 Project
50 credit points • Hawthorn • Assessment: progress reports and presentation

Aims and objectives
To provide students with the opportunity to apply the subject matter studied in other courses to the solution of CIM related problems in his/her specific field of interest.

Content
Work on approved projects under Swinburne supervision. External supervisors, where possible, may also be appointed. Each project will require a literature survey, and theoretical and/or experimental investigation.

If possible, the projects should be industry sponsored and have direct relevance to the student’s area of employment. The investigated work, results and conclusions will be presented in a written report in accordance with the approved guidelines. Oral presentations to selected audience will also be required.

Recommended reading
As appropriate to be prescribed by project supervisor.

MM662 Computer Aided Design
12.5 credit points • Hawthorn • Assessment: assignments, projects and examination

Aims and objectives
To provide students with the opportunity to learn the fundamental of CAD. To provide a degree of competency in using a CAD system. To enable to work on a realistic CAD Project.

Content

CAD Hardware and Software

Graphic Elements and Transformation Systems

Geometric Modelling

Hands on Advanced 3D Modelling System
Hands on wireframe, surface and solid modelling techniques. Concept of CAD/CAM. Projects on geometric modelling.

Recommended reading

MM663 Manufacturing Management Systems
12.5 credit points • Hawthorn • Assessment: assignments, projects and examination

Aims and objectives
To provide a thorough coverage of the essential activities and their interrelationships in manufacturing systems, and the management approaches developed to best utilise these systems in the competitive global market.

Content
Fundamentals

Manufacturing Management Systems
An overview of the major approaches including: Traditional, MRPIL, JIT, FMS, CIM, TQM, Fractal systems and Agile competition, theory of constraints.

Management of Technology
Understanding technology, Hi-Tech, Issues in adoption of technology, Managing technology (in particular CAD/CAM) in pre-installation, installation, and post-installation.

Productivity and Quality Issues
Productivity (Measurement, management and improvement (including SMED...), Quality concepts (Gurus), Quality control techniques, ISO 9000, TQM.

Decision Making in Manufacturing
Decision support systems, various approaches and techniques in handling: single criterion decisions (cash flow), effect of uncertainty, subjectivity (AHP) and mathematical models.

Maintenance Management
Maintenance concepts, trends (breakdown, preventative, productive (TPM), Computerised maintenance.

Recommended reading

MM664 Advanced Robotics
12.5 credit points • Hawthorn • Assessment: assignments & examination

Aims and objectives
To provide students with an understanding of the design, operation and control of robots.

Content

Low Cost Automation
Logic circuit design, pneumatic and electrophematic circuit design, programmable logic controller (PLC) based circuit design.

Introduction to Robotics
Definitions, Classifications, Characteristics

Mechanical Design of Manipulators
Gears, linkages, belt drives, v-belts, harmonic drives, hydraulic drives

Robot Arm Kinematics
Direct Kinematic problem, inverse kinematic problem, trajectory planning

Robot Dynamics
Static/dynamic forces, Lagrangian-euler formulation, generalised equations of motion.

Mobile Robots
Kinematic modelling of wheeled robots, models of walking, navigation

Service and Medical Robots
Introduction, sensing and control requirements, future directions

Tele-operation and Robotics
Classification of tele-operator systems, tele-operation with open loop control.

Recommended reading

MM665 Numerical Control Systems
12.5 credit points • Hawthorn • Assessment: assignment, project work and examination

Aims and objectives
To provide a sound appreciation of the nature, operation, programming and application of Numerical Control - both as a particular mode of control in manufacturing, and in terms of its relationship with other approaches to automation including FMS and rapid product development.
Content

N.C. Systems
Rationale, the nature of Numerical Control, its relationships to other forms of automation, distinction between generic NC, DNC, DNC, DDNC. Components and characteristics of devices operated under NC which set them apart from other systems - structure of NC controllers, motors and feedback devices. NC machine tools, modern features and development trends.

N.C. Programming Methods
Characteristics, relative advantages and limitations of the various approaches to NC part programming (manual, computer-assisted, interactive- graphic, CAD/NC). Programming for families of parts and parametric programming.

N.C. Applications
Appropriate application areas, flexibility and the context in which the advantages of NC can be exploited in relation to manual or conventional automation systems.

Flexible Manufacturing Systems

Rapid Product Development

Recommended reading

MM666 Intelligent Manufacturing Systems
12.5 credit points • Hawthorn • Assessment: projects and examinations

Aims and objectives
To contribute to better understanding of developments and applications of intelligent manufacturing systems.

Content

Computer Aspects and Artificial Intelligence
Data base technology; networking; benefits and problems, knowledge based systems; overview of the concepts, approaches.

Flexible Manufacturing Systems and CIM
Concept of flexibility, benefits, structures; Flexible Assembly Systems; process planning for FASs; tool management tool storage policies, the CIM philosophy, benefits, structure, trends and problems.

Concurrent Engineering
Product development life cycle; requirements for effective concurrent engineering; plans, key linkages and information flow for CE.

Holonic Manufacturing Systems and Agile Competition

Fractal Factory
Definition. The characteristics of self-similarity, self-organisation, dynamics and vitality.

Enterprise Integration
Concepts, models, protocols, trends and problems

Dynamic Scheduling
Benefits; data requirement; methods

Virtual Reality
Concepts, developments and benefits

Recommended reading


MM667 Computer Control and Sensing
12.5 credit points • Hawthorn • Assessment: project and examination

Aims and objectives
To provide an understanding of modern computer control and monitoring techniques, as applied to advanced manufacturing systems and examine the architecture of modern computers and the interaction between computers and sensors for industrial control and monitoring.

Content

Computer Architecture - Hardware and Software Elements
Boolean logic, basic digital circuits for control, flip-flops, counters, registers, state-machines, memory devices, programmable array logic (PAL), microprocessors, digital signal processors (DSPs), address and data bus structures, memory mapping. Micro-code, machine code, assembly languages, memory management (Paging), operating systems, compilers.

Interfacing - Basic Concepts in the Closed Loop
Transformation, Isolation, Protection, Conversion to and from analog voltage forms (D/A and A/D conversion), Signal Conditioning, etc.

Interfacing Elements - Analog Circuit Components
Diodes and Zener Diodes, BJTs and FETS, operational amplifiers, thyristors and rectifiers, external circuit characteristics (Input and output impedance).

Interface Elements - Basic Transducers and Sensors
Strain Gauges, thermo-couples, encoders, resolvers, limit-switches, opto-couplers, etc., selection and performance criteria.

Computer Control Using Networks
Basic computer to computer interaction, point to point links, local area networks and real-time networking for control.

Computer Control through Hardware Interfacing
The complete control loop, following signals through from feedback devices to computer hardware and software stages and on to computer generated control outputs.

Recommended reading

MM668 Expert Systems, Simulation and Modelling
12.5 credit points • Hawthorn • Assessment: assignments and examinations

Aims and objectives
To provide an understanding of the characteristics and uses of modelling, simulation and expert systems technology particularly in relation to improving the performance of manufacturing operations.

Content

Modelling
Modelling process, benefits, problems of solution and implementation, analytical and simulation solutions, application areas, data, expertise and equipment required, modelling waiting lines, analytic solutions, limitations and need for simulation; perturbation analysis.

Petri-nets
Background, modelling approach, properties, synthesis techniques, Time Petri nets, code generation, control.

Fuzzy Logic
Concepts, fuzzy numbers, operators, models, applications

Neural Networks
Concepts, model building, tools, applications

Simulation Methodology and Packages
High level languages, event, process and activity driven systems, scope, aims and objectives, statistical data analysis, modelling building procedure, model validation/
A general understanding of principles and practical techniques of risk identification, assessment, analysis and control

Recommended reading
Selected papers and course notes.
Rowe, W.D., An Anatomy of Risk, Krieger, 1985
Viner, D., Accident Analysis and Risk Control, VJR Delphi, Melbourne, 1994

MM721 Risk Management Principles
12.5 Credit Points • One semester full time or two semesters part-time • Hawthorn
Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures, tutorials and workshops • Assessment: Assignments; Examinations
A subject in the Graduate Diploma in Risk Management, Graduate Diploma in Maintenance Engineering.

Aims and objectives
Students who have passed this subject will possess:
• An awareness of fundamental principles related to loss prevention and a fundamental understanding of functional management concepts and processes.
• Practical applications concerning the effectively management of risk.
• An awareness of the legal structures and processes within Australia;
• An introductory understanding of health and safety law and related legal obligations of people.

Recommended reading
Merritt, A., Guidebook to Australian Occupational Health and Safety Laws, OCH, Sydney, 1985
Readings in Risk Management, Swinburne University of Technology, (Current Edition)
Tyson, T., Working with Groups, Macmillan, South Melbourne, 1987

MM722 Quantitative Risk and Modeling
12.5 Credit Points • One semester full-time or two semesters part-time • Hawthorn
Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures, tutorials and workshops • Assessment: Assignments; Examinations
A subject in the Graduate Certificate in Risk Management, Graduate Diploma in Risk Management, Graduate Diploma in Maintenance Engineering.

Aims and objectives
Students who have passed this subject will possess:
• An introductory understanding about the nature of statistical methods and skill in application of the various methods
• An ability to represent risk using standard measurement techniques
• Competence in use of electronic spreadsheets to analyse risk

Reading requirements
Risk Engineering Statistics Class Notes, Swinburne Press, Current year edition
Samson, D., Management for Engineers, Longman Cheshire, Melbourne, 1995

MM723 Financial Risk Management
12.5 Credit Points • One semester full-time or two semesters part-time • Hawthorn
Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures, tutorials and workshops • Assessment: Assignments; Examinations
A subject in the Graduate Certificate in Risk Management, Graduate Diploma in Risk Management, Graduate Diploma in Maintenance Engineering.

Aims and objectives
Students who have passed this subject will possess:
• Practical understanding of how risk may be effectively managed in terms of financial constraints, and how this relates to various financial structures within the country.
• A general overview of the insurance industry as it exists at present
- Understanding of risk transfer techniques, including re-insurance

**Recommended reading**

**MM724 Risk Management Systems**

12.5 Credit Points • One semester full-time or two semesters part-time • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures and tutorials • Assessment: Assignments; Examinations

A subject in the Graduate Diploma in Risk Management.

**Aims and objectives**
Students who have passed this subject will possess:
- An understanding of the terminology and principles influencing the practice of risk management in practical areas of risk management
- Skills in the practical applications of management functions arising from and the prevention of loss to organisations

**Recommended reading**
Allan’s Handbook of Loss Prevention, Allison Versicherungs AG, Berlin, 1987

**MM725 Risk Technology Strategies**

12.5 Credit Points • One semester full-time or two semesters part-time • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures, Video presentations and tutorials • Assessment: Assignments; Examinations

A subject in the Graduate Diploma in Risk Management.

**Aims and objectives**
Students who have passed this subject will possess:
- Understanding of the use of standards and codes concerning natural and industrial hazards
- Knowledge of practical control strategies applied to loss prevention in physical environments

**Recommended reading**
Australian Standards and Codes of Practice; Factory Mutual System, Various Data Sheets.

**MM726 Industrial Environment and Human Factors in Risk**

12.5 Credit Points • One semester full-time or two semesters part-time • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures and tutorials • Assessment: Assignments; Examinations

A subject in the Graduate Diploma in Risk Management.

**Aims and objectives**
Students who have passed this subject will possess:
- An understanding of scientific principles concerning the field of ergonomics
- Be able to apply these principles in the analysis of a typical workplace environment
- An understanding of the risks associated with occupational hygiene factors
- Awareness of the control methods, including use of material safety data sheets

**Recommended reading**

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**MM727 Risk Research and Project**

12.5 Credit Points • One semester full-time or two semesters part-time • Hawthorn • Prerequisite: Completion of subjects for GradCertRiskMgt or equivalent • Corequisites: Nil • Teaching methods: Lectures and practical work • Assessment: Project Report; Seminar

This is a subject in the Graduate Diploma in Risk Management, Graduate Diploma in Maintenance Engineering and the Master of Technology Risk Management.

**Aims and objectives**
Students who have passed this subject will possess:
- Skills and techniques for conducting research projects in the field of risk management
- Project management skills
- Experience in carrying out a research project in the field of risk management and reporting on the findings

**Content**
Research methodology and orientation; Resource gathering techniques; data acquisition and analysis;
- Use of library as resource centre;
- Research communication techniques;
- Project management processes and techniques;
- Execution of project to achieve a practical result

**Recommended reading**

**MM730 Maintenance Management Systems**

12.5 Credit Points • One semester full-time or two semesters part-time • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Lectures and tutorials • Assessment: Assignments; Examinations

A subject in the Graduate Certificate in maintenance Engineering and the Graduate Diploma in Maintenance Engineering.

**Aims and objectives**
Students who have passed this subject will possess:
- An understanding of the terminology and principles influencing the practice of maintenance management
- Skills in the practical applications of maintenance management functions to organisational asset dependencies

**Recommended reading**

**MM731 Maintenance Strategies**

12.5 Credit Points • One semester full-time or two semesters part-time • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures, video presentations and tutorials • Assessment: Assignments; Examinations

This is a subject in the Graduate Certificate in maintenance Engineering and the Graduate Diploma in Maintenance Engineering.

**Aims and objectives**
Students who have passed this subject will possess:
- Understanding of the determinants of effective maintenance strategies and the policies on which they are based
- Knowledge of modern approaches to maintenance and its management
Content
2. Maintenance Strategies and their development through tailored application of maintenance policies to specific asset dependencies.
3. Profit Centred Maintenance
4. Reliability Centred Maintenance (RCM) concept requirements and implementation, RCM as a maintenance strategy, functions and failures, consequence, preventive tasks and actions, RCM decisions.
5. Total Productive Maintenance (TPM) concept requirements and implementation, addressing, TPM as a maintenance strategy, designing and managing the six big losses, eliminating breakdowns, organizing for implementation, implementation phases and outcome objectives, and team activities

References
Irons, B.E., Maintenance for Professional Course Notes, Swinburne University of Technology, Current Edn, 1996
Irons, B.E., Maintenance for Professional Course Notes, Swinburne University of Technology, Current Edn, 1996
Nakajima, S., TPM Development Program: Implementing Total Productive Maintenance, Productivity Press, 1988
Nakajima, S., TPM Development Program: Implementing Total Productive Maintenance, Productivity Press, 1989

MM732 Maintenance Tools and Techniques

12.5 Credit Points • One semester full-time or two semesters part-time • Hawthorn • Prerequisite: Nil • Teaching methods: Lectures and tutorials • Assessment: Assignments, Examinations

This is a subject in the courses Graduate Certificate in Maintenance Engineering and the Graduate Diploma in Maintenance Engineering.

Aims and objectives
Students who have passed this subject will possess:
• Understanding of the tools and techniques available to the maintenance practitioners to appraise and manage asset health, performance and deterioration
• Knowledge of the application of such tools and techniques, their potential and limitations

References
Irons, B.E., Maintenance for Professional Course Notes, Swinburne University of Technology, current edition, 1996
Bayley, M., Industrial Noise Control, Swinburne Press, 1991

MM911 Risk Dissertation

12.5 Credit Points • One semester full-time or two semesters part-time • Hawthorn • Prerequisite: Nil • Teaching methods: Self-directed work under staff supervision • Assessment: Continuous

This is a subject in the Master of Technology in Risk Management.

Aims and objectives
Students who have passed this subject will possess:
• Development of independent research and reporting skills
• Skills in applying the subject matter concerning risk in seeking out solutions to a defined practical loss prevention problem
• Mastery in a specific risk management related area

Content
Students will work on an approved project under Swinburne staff supervision. External supervisors may, where appropriate, also be appointed. The project will involve the application of research techniques, including literature search and experimental investigation. Where possible the selection of topic should be industry based and of relevance to the student in their area of employment. The investigated work, results and conclusions must be presented as a written dissertation in accordance with approved guidelines. Oral presentations and written material suitable for publication and presentation will also be required.

Recommended reading
Lane, N., Techniques for Student Research, Longman, Melbourne, 1989
Leedy, P.D., Practical Research, Macmillan, New York, 1993

MS100 Mathematics for Builders

12.5 Credit Points • One semester • Hawthorn • Prerequisite: None • Corequisites: None • Teaching methods: Integrated Lectures and tutorials • Assessment: Assignments; Examinations

Foundation mathematics for students of Bachelor of Technology (Building Surveying).

Aims and objectives
To provide an appropriate foundation in mathematics for students in Building Surveying.

Content
Number
Calculation; notations; rounding and accuracy; fractions ratios.

Algebra
General manipulation, transposition of formulae; indices and logarithms; polynomials; quadratic; completing the square; formula;

General: factors, factor theorem, division; algebraic fractions; rational functions; simple systems of 2 or 3 equations; arithmetic and geometric progressions.

Trigonometry and mensuration
Angles, radian and degree measure, classification of triangles; trigonometric functions, elementary identities; solution of triangles, sine and cosine rules, simple mensuration formulas for areas and volumes.

Functions and graphs
Graphs of linear and quadratic functions, power functions, trigonometric functions.

Exponential growth, application to financial mathematics.

Differentiation
Ideas and simple rules; product, quotient and chain rule; linear approximation, optimization.

Integration
Ideas, anti-differentiation, substitutions, applications to areas and volumes.

Vectors
Brief introduction; applications to surveying.

Recommended reading
TBA

MS101 Foundation Mathematics

12.5 Credit Points • One semester • Hawthorn • Prerequisite: None • Corequisites: None • Teaching methods: Lecture/tutorials • Assessment: Assignments, Examinations, Tests

A subject in the Bachelor of Applied Science (Environmental Health), (Chemistry and Biochemistry).

Aims and objectives
This subject aims to provide a start but a thorough review of elementary tertiary and “background” mathematics. It is intended for those studying degrees in Applied Science that require only a small amount of mathematics. The main theme is modelling change through shapes, functions and patterns, with algebra and calculus as useful tools in the process. A graphics calculator is required; other technology will be incorporated as appropriate.

Content
Number
Calculation; notations; rounding and accuracy; fractions ratios.

Algebra
General manipulation, transposition of formulae; indices and logarithms; polynomials; quadratic; completing the square; formula;

General: factors, factor theorem, division; algebraic fractions; rational functions; simple systems of 2 or 3 equations; arithmetic and geometric progressions.

Trigonometry and mensuration
Units of measurement, angles, radian and degree measures; classification of triangles; definitions of trigonometric ratios; right-angled triangles, the six trigonometric functions of circular angles; elementary identities; solution of triangles, sine and cosine rules; inverse trigonometric functions; simple mensuration formulas for areas and volumes.
Functions and graphs
Linear functions: \( y = ax + b \); power functions: \( y = ax^n \); polynomials; simple rational functions; the six trigonometric functions; exponential and logarithmic functions; standard forms of conic sections; interpretation of graphs of functions and relations’ modelling.

Differentiation
Ideas and simple rules; product, quotient and chain rules; rates; linear approximations; simple optimization.

Integration
Ideas and simple rules, including antidifferentiation and numerical integration; easy substitutions (e.g. linear); use of short tables of integrals; simple areas and volumes.

Matrices and determinants
Brief introduction: ideas and simple manipulation; solution and linear equations.

Vectors
Brief introduction; concepts: simple manipulation (2D and 3D); dot product.

Partial differentiation, simple optimization.

Recommended reading
Textbook/Reference: Swinburne prepared combined text and workbook.

Graphics Calculator: A Texas Instruments TI-83 or equivalent

MS102 Introduction to Statistics
12.5 Credit Points • 1 Semester • Hawthorn • Prerequisite: None • Corequisites: None

Teaching methods: Lecture/Tutorials/Laboratories • Assessment: Assignments; Examinations

A first year subject in the Bachelor of Applied Science (Environmental Health).

Aims and objectives
• To provide knowledge and skills sufficient to allow students to understand the role of statistics in research.
• To develop skill in the basic methods of data gathering and analysis.
• To provide sufficient background to be able to interpret statistical results in research papers.
• To develop sufficient knowledge of probability and probability distributions to support further studies in statistics and operations research.

Content
Note: A graphics calculator will be used extensively in this subject as well as a computer package such as Minitab.
1. Displaying and summarising univariate and bivariate data.
2. Introduction to probability.
3. The normal, binomial and Poisson distributions; simulation of random variables.
4. Obtaining data from experiments and surveys.
5. Estimating means and proportions.
6. Statistical tests using the normal, t, and Chi-square distributions.
7. Simple linear regression.

Recommended reading
Required text: TBA. Course notes will be available.

Graphics Calculator: TI-83 or equivalent

MS111 Engineering Mathematics 1
12.5 Credit Points • One semester • Hawthorn • Prerequisite: ME111 Engineering Mathematics 1 • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials/Practice classes: 24 hours. • Assessment: Assignments; Examinations

A subject in the Bachelor of Engineering (Electrical and Electronic, Civil, Chemical and Bioprocess, Manufacturing, Mechanical, Product Design, Robotics and Mechatronics, Telecommunications and Internet Technologies).

Aims and objectives
• To provide students with the mathematical knowledge and skills that are needed to support their concurrent and subsequent engineering studies.
• To develop students ability to use mathematics with understanding in engineering.

Content
Note: A graphics calculator will be used extensively in this subject.

Functions and graphs (24%)
Review of functions and graphs, including polynomials, rational functions and a review of trigonometry, problems of domain, limits, asymptotes, partial fractions, log-log graphs, inverse trigonometric functions, hyperbolic and inverse hyperbolic functions.

Algebra (16%)
Equations in one-variable: algebra, graphical solution, numerical solution; inequalities in one variable: algebra, graphical solution; transformation of equations and formulae.

Number (12%)
Error analysis, binary and octal systems, complex numbers.

Differentiation (20%)
Rates, approximations, Taylor polynomials, implicit and logarithmic differentiation, optimization, detailed graphing including inflection, curvature, indeterminate forms, limits.

Integration (20%)
Substitution, parts, general techniques, use of extensive tables, areas, centroids, volumes, arc lengths, surface areas, numerical integration, improper integrals.

Basic data analysis (8%)
Graphical and numerical summaries of single variable data, bivariate plots, correlation, least squares regression lines.

Recommended reading
Required text: TBA. Course notes will be available.

Graphics calculator: TI-83 or equivalent

MS112 Engineering Mathematics 2
12.5 Credit Points • One semester • Hawthorn • Prerequisite: ME111 Engineering Mathematics 1 • Corequisites: Nil • Teaching methods: Lectures: 36 hours. Tutorials/Practice classes: 24 hours. • Assessment: Assignments; Examinations

A subject in the Bachelor of Engineering (Electrical and Electronic, Civil, Chemical and Bioprocess, Manufacturing, Mechanical, Product Design, Robotics and Mechatronics, Telecommunications and Internet Technologies).

Aims and objectives
• To provide students with a thorough grounding in mathematics.
• To develop students ability to use mathematics with understanding in engineering.
• To develop students ability to use mathematics with understanding in engineering situations.

Content
Note: A graphics calculator will be used extensively in this subject.

Discrete mathematics (8%)
Boolean algebra, switching and logic circuits, simple network analysis.

Linear algebra (16%)
Matrices, determinants, solution of systems of linear equations, matrix inverse, Gaussian and complete elimination.

Vectors (16%)
Basic operations in 2D, introduction to 3D space, basic vectors in 3D, products, projections, lines and planes in 3D.

Curves (16%)
2D polar co-ordinates, 2D parametric curves, parametric differentiation and antidifferentiation, 3D curves, parametric differentiation and antidifferentiation.

Surfaces (8%)
Standard surfaces as \( z = f(x,y) \); relations, parametric forms, 3D polar co-ordinates, drawing 2D pictures of surfaces and 3D curves.

Functions of several variables (20%)
Ideas, partial derivatives, approximations, optimization, geometry of surfaces and curves using calculus.
Differential equations (16%)
First order separable, exact, linear, orthogonal trajectories, second order linear with constant coefficients and simple right hand sides.

Recommended reading
Required text: TBA. Course notes will be available.

Graphics calculator.
TI-83 or equivalent.

MS121 Mathematics 1
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil •
Teaching methods: Lectures: 36 hours. Tutorials/practice classes: 24 hours. •
Assessment: Assignments; Examinations; Tests
First year Mathematics for Applied Science, part 1.

Aims and objectives
To provide students with the mathematical knowledge and skills that are needed to support their concurrent and subsequent studies.
To lay a foundation for further studies in mathematics.

Content
Note: A graphics calculator will be used extensively in this subject.

Functions and graphs (24%)
Review of functions and graphs, including polynomials, rational functions and a review of trigonometry, problems of domain, limits, asymptotes, partial fractions, log-log graphs, inverse trigonometric functions, hyperbolic and inverse hyperbolic functions.

Algebra (16%)
Equations in one variable: algebra, graphical solution, numerical solution, iterative solution; inequalities in one variable: algebra, graphical solution; transformation of equations and formulæ.

Number (12%)
Error analysis, binary and octal systems, complex numbers.

Differentiation (20%)
Rates, approximations, Taylor polynomials, implicit and logarithmic differentiation, optimization, detailed graphing including inflexion, curvature, indeterminate forms, limits.

Integration (20%)
Substitution, parts, general techniques, use of extensive tables, areas, centroids, volumes, arc lengths, surface areas, numerical integration, improper integrals.

Basic data analysis (8%)
Graphical and numerical summaries of single variable data, bivariate plots, correlation, least squares regression lines.

Recommended reading
Required text: TBA. Course notes will be available.

Arnold Osteebe & Paul Zorn, Calculus from Graphical, Numerical and Symbolic Points of View and Multivariable Calculus from Graphical, Numerical and Symbolic Points of View. (Saunders College Publishing, Fort Worth, 1997/8)

Graphics calculator.
TI-83 or equivalent.

MS131 Mathematics for Computing A
12.5 Credit Points • 1 semester • Hawthorn • Teaching methods: Lecture/tutorials •
Assessment: Assignments; Examinations; Tests

Aims and objectives
To give students a grounding in those aspects of Discrete Mathematics and Probability that have application to computing and to explore appropriate computing applications.

Content
Discrete mathematics

Set theory
Definitions & operations. Functions, relations, including ordering and equivalences.

Logic
Formal notation; propositional calculus; predicate calculus. Types of statement & proof. Formal methods of program specification.

Number
Binary & other number systems; Combinatorial analysis: counting & listing sets.

Graph theory
Definitions and representations, shortest paths, critical paths, spanning trees.

Boolean algebra
Definitions & applications. Simplification & proof; normal forms.

Linear algebra
Matrices, vectors, linear operations, determinants, equations.

Probability
Probability distributions, eg. binomial, Poisson, Gaussian; elementary theory of queues; simulation, random number generation.

Recommended reading
MS132 Mathematics for Computing B

12.5 Credit Points • One semester • Hawthorn • Teaching methods: Lecture/ tutorials • Assessment: Assignments; Examinations; Tests

Aims and objectives
To give students a grounding in those aspects of elementary calculus and statistics that have application to computing and to explore appropriate computing applications.

Content
Elementary calculus

Functions and graphs:
Limits; simple differential equations and families of solution curves; curve fitting and modelling, especially for linear and quadratic functions and cubic splines.

Numerical computation

Iteration:
Sequences, Mathematical induction, Recurrence formulae & difference equations.

Computer arithmetic:
Integer and Real arithmetic; IEEE floating point standard.

Error analysis:
Error propagation following roundoff and truncation.

Finite differences:
Application to solution of differential equations.

Statistics:
Summarising data; the basics of estimation and hypothesis testing; analysing simple experiments such as for two or more independent groups, interpretation of statistical experimental results; simple linear regression, control charts and quality control.

Recommended reading

MS151 Statistical Reasoning and Communication

12.5 Credit Points • One semester • Hawthorn • Teaching methods: Lecture/ discussion groups/ case studies/ laboratory work/ small group activities • Assessment: Assignments; Class exercises; Class presentations

A first year subject that introduces methods of communication of quantitative and verbal information with a particular emphasis on statistical data in areas such as sport and health.

Aims and objectives
• To introduce students to the statistical reasoning process and problem solving processes.
• To develop a range of communication skills that relate to the presentation of statistical information.
• To develop self-managed learning skills appropriate to quantitative disciplines.

Content
The development of statistics, its role in society, problem formulation, statistical model building, types of models, testing and validating, design and data problems, the role of the interdisciplinary team in statistical problem solving, communicating statistical information, use of the World Wide Web.

These will be considered in various contexts including gambling, sport and public health. A graphics calculator and statistical computer packages will be used as appropriate. Goal setting and planning, team learning behaviour, time management, evaluation and stress management skills.

Recommended reading


Texas Instruments TI-83 or equivalent.

MS211 Engineering Mathematics 3A

12.5 Credit Points • One semester • Hawthorn • Prerequisite: ME111 Engineering Mathematics 1 and MS112 Engineering Mathematics 2 • Corequisites: MS111 Engineering Mathematics 1 and MS112 Engineering Mathematics 2 • Teaching methods: Lectures: 36 hours. Tutorials/Laboratories: 24 hours. • Assessment: Examinations

A subject in the Bachelor of Engineering (Chemical and Bioprocess, Manufacturing, Mechanical, Robotics and Mechatronics).

Aims and objectives
• To introduce students to the computer package Mathematica.
• To provide students with mathematical and statistical knowledge and skills to support their concurrent and subsequent engineering studies.

Content
Introduction to Mathematica (8%)

Fourier series (16%)
Fourier series expansion, functions defined over a finite interval, differentiation and integration of Fourier series, engineering application.

Functions of a complex variable (24%)
Complex functions and mappings, complex differentiation, complex series, singularities, zeros and residues, contour integration, engineering application.

Laplace transforms (20%)
The Laplace transform, properties of the Laplace transform, solution of differential equations, step and impulse functions, transfer functions, engineering application.

Applied probability and statistics (32%)
Probabilities of random events, random variables, the Central Limit Theorem, important practical distributions, estimating parameters, control charts, Poisson processes and simple queues, engineering application.

Recommended reading

MS213 Engineering Mathematics 3B

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Engineering Mathematics 1 and 2 • Teaching methods: Lectures: 36 hours. Tutorials/Practise classes: 24 hours. • Assessment: Tests; Examinations; Assignments

Intermediate level Engineering Mathematics for Electrical and Electronic Engineering. Exercises and examples will have an engineering context wherever possible.

Aims and objectives
• To introduce students to the computer package Mathematica.
• To provide students with the mathematical knowledge and skills to support their concurrent and subsequent engineering studies.

Content
Introduction to Mathematica (8%)

Fourier series (24%)
Fourier series expansion, functions defined over a finite interval, differentiation and integration of Fourier series, complex form of Fourier series, engineering application.

Fourier transforms (16%)
The Fourier transform, properties of the Fourier transform, the frequency response, transforms of the step and impulse functions, engineering application.

Laplace transforms (20%)
The Laplace transform, properties of the Laplace transform, solution of differential equations, step and impulse functions, transfer-functions, engineering application.
Vector calculus (32%)
Derivatives of a scalar point function, derivatives of a vector point function, line integrals, double integrals, surface integrals, volume integrals, Green's theorem in a plane, Gauss's divergence theorem, Stokes' theorem, engineering application.

Recommended reading

MS214 Engineering Mathematics 4B
12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: MS213 Engineering Mathematics 4A  •  Teaching methods: Lectures: 36 hours. Tutorials/Practise classes: 24 hours.  •  Assessment: Tests; Examinations; Assignments
Exercises and examples will have an engineering context wherever possible.

Aims and objectives
To provide students with mathematical knowledge and skills to support their concurrent and subsequent engineering studies.

Content
Note: The Mathematica package will be used in this subject.

Matrix analysis (24%)
The eigenvalue problem, numerical methods, reduction to canonical form, functions of a matrix, engineering application.

Functions of a complex variable (24%)
Complex functions and mappings, complex differentiation, complex series, singularities, zeros and residues, contour integration, engineering application.

The z transform (16%)
The z transform, properties of the z transform, the inverse z transform, discrete-time systems and, difference equations, engineering application.

Applied probability and statistics (40%)
A selection from: probabilities of random events, important practical distributions, estimating parameters, joint distributions, correlation and regression, goodness-of-fit tests, moment generating functions, statistical quality control, Poisson processes and the theory of queues, Bayes' theorem, engineering application.

Recommended reading

MS215 Engineering Mathematics 3C
12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: Engineering Mathematics 1 and 2  •  Teaching methods: Lectures: 36 hours. Tutorials: 24 hours.  •  Assessment: Tests; Examinations; Assignments
Second stage Engineering Mathematics for Civil Engineers.
Exercises and examples will have an engineering context wherever possible.

Aims and objectives
To provide students with mathematical and statistical knowledge and skills to support their concurrent and subsequent engineering studies.

Content
Numerical solution of differential equations (24%)
Ordinary differential equations: Initial value and boundary value problems, finite difference methods, engineering application.

Matrix analysis (24%)
The eigenvalue problem, numerical methods, reduction to canonical form, functions of a matrix, engineering application.

Applied probability and statistics (52%)
Probabilities of random events, important practical distributions, estimating parameters, joint distributions, correlation and regression, sampling, contingency tables, goodness of fit tests, control charts, extreme value distributions with application to hydrology.

Recommended reading

MS217 Engineering Mathematics 3D
12.5 Credit Points  •  One semester  •  Hawthorn  •  Prerequisite: Engineering Mathematics 1 and 2  •  Teaching methods: Lectures: 36 hours. Tutorials: 24 hours.  •  Assessment: Individual assignments and participation
Second stage Engineering Mathematics for Chemical and Bioprocess Engineering.
Exercises and examples will have an engineering context wherever possible.

Aims and objectives
• To introduce students to the computer package Mathematica.
• To provide students with mathematical and statistical knowledge and skills to support their concurrent and subsequent engineering studies.

Content
Introduction to Mathematica (8%)
Fourier series (16%)
Fourier series expansion, functions defined over a finite interval, differentiation and integration of Fourier series, engineering application.

Functions of a complex variable (24%)
Complex functions and mappings, complex differentiation, complex series, singularities, zeros and residues, contour integration, engineering application.

Laplace transforms (20%)
The Laplace transform, properties of the Laplace transform, solution of differential equations, step and impulse functions, transfer functions, engineering application.

Applied probability and statistics (32%)
Probabilities of random events, random variables, the Central Limit Theorem, important practical distributions, estimating parameters, control charts, Poisson processes and simple queues, engineering application.

Recommended reading

MS252 Introduction to Statistics in Sport
12.5 Credit Points  •  1 semester  •  Hawthorn  •  Prerequisite: MS151 Statistical Reasoning and Communication, MS102 Introduction to Statistics  •  Teaching methods: Lecture/laboratories  •  Assessment: Assignments; Practical Examination
A second or third year subject that applies statistical methods to sporting data.

Aims and objectives
To give students a broad hands-on introduction to the issues concerning the collection, storage, analysis, publication and uses of statistics in sport.

Content
Role of statistics in sport

Data sources
Media, official records, sporting bodies, WWW, individuals and companies.

Collection methods
Historical methods, hand, computer assisted, automated.

Storage and retrieval
Paper records, spreadsheets and data bases, transaction and summary files, Web storage, issues relating to retrieval, integrity and consistency of data.

Analysis
Basic statistical summary and display methods, role of randomness, calculation of odds, statistical inference, experimental design, introduction to modelling. The use of statistical packages.

Presentation
Tables and graphs. Web delivery of Static or Dynamic tables and graphs.

Uses of sports statistics
Historical comparisons, layer rankings, game description, player evaluation, coaching, strategy, prediction.

Recommended reading
MS253 Methods for Statistical Investigation

12.5 Credit Points • Prerequisite: MS151 Statistical Reasoning and Communication, MS102 Introduction to Statistics • Teaching methods: Lecture/tutorial/laboratories • Assessment: Assignments; Examinations; Tests

A second year subject that develop the basic methods of statistical investigation, namely statistically designed experiments and sample surveys.

Aims and objectives
To develop an understanding of basic methods in statistical investigation.

This will be based on a study of simple experimental designs and the corresponding analysis of variance, plus an introduction to sample surveys and sample design.

Content
Introduction to design and analysis of experiments
Single-factor completely randomised and randomised block designs. Two-factor completely randomised designs. Analysis using the Analysis of Variance and non-parametric methods. Zn and fractional Zn designs; confounding.

Sample surveys
An overview of survey research methods; data storage and data quality control.

The basic sampling designs: simple random sampling, systematic sampling, stratified sampling and cluster sampling; the design effect. Estimation of means, totals, proportions and ratios. Methods for dealing with missing data.

Computer packages
Use of computer packages such as Minitab, SPSS and SAS.

Recommended reading


Printed notes.

MS254 Introduction to Statistics in Health

12.5 Credit Points • 1 semester • Hawthorn • Prerequisite: MS151 Statistical Reasoning and Communication, MS102 Introduction to Statistics • Teaching methods: Lecture/laboratories • Assessment: Assignments; Tests

A second or third year subject that applies statistical methods to the analysis of health related data.

Aims and objectives
To introduce students to statistical measures and techniques which are specifically relevant to the health sciences and to enable them to make reasoned conclusions from the measures.

Content
This subject will include a descriptive study of the following:

- Demographic disease measures
- Birth and death rates, fertility rates, infant mortality rates.
- Rates and risks
- Prevalence vs incidence, point and period prevalence, cumulative incidence, person-time rates, age-standardised rates and standardised mortality ratios.
- Measures of association
- Risk differences, risk ratios, rate differences and rate ratios, odds ratios, attributable risks, population attributable risks.
- Epidemiological methods

An introduction to epidemiological methods.

Modelling health events

Use of probability models to model events such as accidents, duration and costs of care.

Recommended reading

MS261 Forecasting

12.5 Credit Points • 1 semester • Hawthorn • Prerequisite: MS151 Statistical Reasoning and Communication, MS102 Introduction to Statistics • Teaching methods: Lecture/tutorial/laboratories • Assessment: Assignments; Examinations

A second year subject that introduces methods of forecasting in business and industry and also the modelling technique of linear regression.

Aims and objectives
- To introduce students to the areas of application of forecasting in business and industry.
- To introduce students to available tools and computer packages through business applications in the area of forecasting.

Content
Introduction
Purpose of forecasting, factors to be considered, types of forecasts (qualitative, quantitative), brief introduction to qualitative methods.

Time series forecasting

Definition of time series, types of patterns, smoothing methods, purpose of smoothing methods, error terms, confidence intervals. Methods applied to stationary time series: moving averages, single exponential smoothing. Methods applied to time series with trend: linear moving averages, Holt’s and Brown’s methods. Models for time series with seasonality: averaging and Winter’s method, decomposition methods, ad hoc forecasting models. Use of computer packages such as Excel.

Linear regression

Continuous bivariate data, scatterplots, Pearson and Spearman correlation, regression analysis for a single predictor, estimation of parameters, tests and confidence intervals for parameters, confidence intervals for the conditional mean, prediction intervals, residual plots and their applications. Nonlinear elaborations and linearising transformation, multiple linear regression, residual plots and adequacy check of the model. Minitab will be used throughout.

Recommended reading

Other references and references to software manuals will be given in the lectures.

MS266 Queueing Theory and Simulation

12.5 Credit Points • One semester • Hawthorn • Prerequisite: MS102 Introduction to Statistics • Teaching methods: Lecture/tutorial/hands-on simulation in students’ own time • Assessment: Assignments; Examinations

Aims and objectives
- To develop analytical models of queues forming under different conditions.
- To apply queueing theory to practical situations and understand the limitations of the theory as well as the benefits to be obtained by using it appropriately.
- To become proficient in the use of a commercial visual interactive simulation package.
- To become proficient in the use of Excel and VBA.
- To perform simulations to understand the underlying theory used in simulations and to be able to apply simulation to a practical problem.

Content
Elementary queueing theory, application to a range of problems characterististics of queueing systems analysis of inter-arrival and service times transient and steady-state queues general Markov model (single server, multiple server, self-service, limited
Aims and objectives
- To teach students how to apply these methods to real industry based problems.
- To introduce students to the decision making processes and the techniques used to model various decision scenarios of quantitative and qualitative nature.

Multiple Regression
The multiple regression model, assumptions and how to test them, stepwise methods, the linear model.

Multivariate methods
Multivariate random variables, mean, variance and variance-covariance matrix, the multivariate normal distribution, Hotelling's T2 statistic for matched pairs and two independent groups.

Introduction to Multivariate Analysis of Variance (MANOVA)
Single factor independent and within subjects designs.

Factor analysis
Principal components, the factor model, rotation methods, interpretation of computer output.

Discriminant analysis
The aim of discriminant analysis, discrimination between two or more groups, using computer packages for discriminant analysis.

Recommended reading
Relevant SPSS Guides, SPSS Inc., Chicago.

Decision Analysis
12.5 Credit Points • One semester • Hawthorn • Prerequisite: MS102 Introduction to Statistics, MS122 Mathematics 2 • Teaching methods: Class/tutorial/computer lab • Assessment: Assignments; Examinations

Aims and objectives
- To introduce students to the decision making processes and the techniques used to model various decision scenarios of quantitative and qualitative nature.
- To teach students how to apply these methods to real industry based problems using appropriate software packages.

Content
Introduction to decision making process; elements of decision problems, structuring decisions.

Creative decision making; theories of creativity, phases of the creative process, blocks to the creative process.
Single criterion decisions; financial comparisons of projects; cash flow analysis; NPV, IRR, and other evaluation methods, share markets, portfolio analysis.
Modelling uncertainty; decision trees, measuring probability, expected value of perfect information, expected value of imperfect information, sensitivity analysis.
Risk attitudes, utility functions, risk tolerance and sensitivity analysis.
Sequential decisions.
Multi criterion decisions; importance of subjective factors in the decision making process.
Multi attribute value functions (MAVF); Analytic Hierarchy Process.
Group decisions; managerial and corporate level group decisions, tools and techniques.

Recommended reading
Other references and references to software manuals will be given in lectures.

Project Management and Networks
12.5 Credit Points • One semester • Hawthorn • Prerequisite: MS151 Statistical Reasoning and Communication • Teaching methods: Lecture/tutorial and presentation • Assessment: Examinations; Project(s)

Aims and objectives
- To introduce students to the decision making processes and the techniques used to model various decision scenarios of quantitative and qualitative nature.
- To teach students how to apply these methods to real industry based problems using appropriate software packages.

Content
Introduction to decision making process; elements of decision problems, structuring decisions.
Creative decision making; theories of creativity, phases of the creative process, blocks to the creative process.
Single criterion decisions; financial comparisons of projects; cash flow analysis; NPV, IRR, and other evaluation methods, share markets, portfolio analysis.
Modelling uncertainty; decision trees, measuring probability, expected value of perfect information, expected value of imperfect information, sensitivity analysis.
Risk attitudes, utility functions, risk tolerance and sensitivity analysis.
Sequential decisions.
Multi criterion decisions; importance of subjective factors in the decision making process.
Multi attribute value functions (MAVF); Analytic Hierarchy Process.
Group decisions; managerial and corporate level group decisions, tools and techniques.

Recommended reading
Other references and references to software manuals will be given in lectures.

Engineering Mathematics 5A
12.5 Credit Points • One semester • Hawthorn • Prerequisite: MS212 Engineering Mathematics 4A • Teaching methods: Lectures: 36 hours. Tutorials: 24 hours. • Assessment: Assignments; Examinations
A subject in the Bachelor of Engineering (Manufacturing, Mechanical). Exercices and examples will have an engineering context as much as possible.
Aims and objectives

- To provide students with advanced mathematical knowledge and skills to support their concurrent and subsequent engineering studies.
- To discuss the concept of approximation in geometric and engineering applications.
- To examine common numerical methods such as finite element and finite difference techniques including strengths and weaknesses of particular applications.

Content


Recommended reading


MS454 Modelling in Sport

12.5 Credit Points • 1 semester • Hawthorn • Prerequisite: MS252 Introduction to Statistics in Sport • Teaching methods: Lecture/laboratories • Assessment: Assignments; Examinations; Project

A third year subject that investigates a range of methods for modelling sporting behaviour and performance.

Aims and objectives

- To give students an introduction to statistical modelling in sport.
- To enable students to implement simple models via computer packages, and appreciate the underlying assumptions and limitations.

Content

Introduction to modelling

Why model?

A selection from the following topics:

Statistical distributions
Applications of the binomial, Poisson, geometric, exponential and normal distributions to goal scoring, cricket, tennis, hot streaks, player statistics.

Markov chains
Markov chain and probability models. Implementation via spreadsheets. Applications to chance of winning and length of matches in tennis, squash and other scoring systems. Investigation of model suitability. Introduction to Dynamic programming. Applications in cricket and other sports.

Time series
Exponential smoothing, regression methods. Applications to player rankings, result prediction, world records.

Linear modelling
Fitting linear models to season results. Applications to team rating, prediction, home advantage. Introduction to log linear modelling. Applications to cricket, tennis, soccer and other sports.

Simulation

Stochastic simulation modelling. Applications from tennis, football, golf, soccer and other sports.

Recommended reading


MS462 Optimisation Methods and Applications

12.5 Credit Points • One semester • Hawthorn • Prerequisite: MS121 Mathematics 1, MS122 Mathematics 2 • Teaching methods: Lecture/tutorial/Lab • Assessment: Assignments; Examinations

Aims and objectives

To demonstrate the application of optimisation in industrial and financial contexts.

Content

Quadratic programming and portfolio optimisation.
Introduction to a specific context of nonlinear programming with application in the finance industry. Use of EXCEL in model solving. Other uses of nonlinear programming in business contexts.

Dynamic programming
Sequential Decision Making. Applications to areas like production and inventory control.

Inventory control
Optimisation of stock levels and re-order decisions in business. Scheduling
Use of general and specific algorithms in scheduling problems: mathematical programming and heuristic applications for scheduling of manufacturing processes, hospital cases etc. Solving models by computer packages including spreadsheets.

MS492 Industrial Project

12.5 Credit Points • 1 semester • Hawthorn • Prerequisite: MS151 Statistical Reasoning and Communication • Corequisites: None • Teaching methods: Practical work/presentation • Assessment: Folio Presentations; Oral Presentation

A third year subject in which small groups of students work on a practical problem provided by a company, government agency or other outside body.

Aims and objectives

- To give students experience of tackling an unsolved problem in a group.
- To bring together some of the techniques covered in the academic parts of the course and apply them as appropriate to a practical problem.

Content

Students will work in groups on an industrial or research project. The project will be selected from a company, government agency, voluntary association etc.
Each group will have a student leader plus a staff member as overall project leader. Final reports, presentations at client companies. These may involve presentations at client companies. A project procedure document will set out the documentation and oral reporting requirements.

Recommended reading

Although most projects will require the use of knowledge acquired in other subjects, it is expected that projects will require some reading outside of the areas previously studied.

MS732 Survey Research Practice

12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: none • Corequisites: none • Teaching methods: Class teaching with individual and group assignment work • Assessment: Assignments; Tests

A first year subject in the Graduate Certificate and Graduate Diploma of Applied Science (Social Statistics).

Aims and objectives

To identify and understand some of the methodologies used in survey research.
Content
An overview of the procedures used in survey research, questionnaire design and interview techniques (personal and telephone), mail surveys and census methods and an introduction to methods used qualitative research. Also an introduction to the basic techniques used to analyse survey data, such as construction of scales. A descriptive approach to methods of sampling. Other topics include including editing, coding, and quality control of survey data in preparation for processing and analysis. Examples will be drawn from areas such as sociology, psychology, economics, medical sciences and marketing.

MS733  Demographic Techniques
12.5 Credit Points  3 hours per week  Hawthorn  Prerequisite: None  Corequisites: None  Teaching methods: Class teaching and computer laboratory sessions  Assessment: Case Studies; Tests
A second year subject in the Graduate Diploma of Applied Science (Health Statistics and Social Statistics).

Aims and objectives
To help develop a demographic perspective, to introduce the methods of measuring the demographic process and to develop an awareness of the implications of demographics in the business and social environment.

Content
Demography relates to the study of the size, composition, distribution and change in a population. In this subject students will learn about sources of demographic data, some of their uses and what they have to offer other disciplines. It will introduce indicators of population characteristics such elementary rates and ratios with examples from mortality, fertility, mobility and migration. It will cover topics of spatial patterns, demographic segmentation, population projections, look at models for regional demographic analysis and consider some social implications of demographic data. Use will be made of Census data and CD ROM technology. Much of the analysis will be done using a suitable spreadsheet package such as Excel.

Recommended reading
Australian Bureau of Statistics catalogues such as Social Trends, Directory of Census Statistics, Household Sample Files, Census Dictionary.

MS750  Basic Statistical Computing
12.5 Credit Points  3 hours per week  Hawthorn  Prerequisite: Nil  Corequisites: Nil  Teaching methods: Many hands-on computer laboratory sessions supplemented by classroom instruction as needed  Assessment: Assignments; Computer Based Tests
A first year subject in the Graduate Certificate and Graduate Diploma of Applied Science (Social Statistics) and (Health Statistics).

Aims and objectives
To develop competence in the use of personal computers and to acquire a level of statistical computing literacy necessary for basic social research.

Content
This subject will include a familiarisation with personal computers, an extensive introduction to a mainstream statistical package such as SPSS for Windows and the use of descriptive statistics procedures. There will also be an introduction to a mainstream spreadsheet such as Excel. Ideas of data presentation and visualisation will be introduced.

Recommended reading
Statistical Packages: SPSS for Windows and Microsoft Excel.

MS754  Introduction to Health Statistics
12.5 Credit Points  3 hours per week  Hawthorn  Prerequisite: MS760 and MS750  Corequisites: None  Teaching methods: Class teaching supplemented by computer laboratory work  Assessment: Tests; Tutorial tasks/tests
A first year subject in the Graduate Certificate and Graduate Diploma of Applied Science (Health Statistics).

Aims and objectives
To introduce students to statistical measures and techniques which are specifically relevant to the health sciences and to enable them make reasoned conclusions from the measures.

Content
This subject will include a study of the following: an introduction to epidemiology, mortality data, morbidity data, screening, randomised clinical trials, community interventions, cohort studies, case control studies, ratios in health statistics, risks: odds ratios and relative risks.

MS757  Epidemiological Methods
12.5 Credit Points  3 hours per week  Hawthorn  Prerequisite: MS780 and MS750  Corequisites: none  Assessment: Assignments; Class exercises
A second year subject in the Graduate Diploma of Applied Science (Health Statistics).

Aims and objectives
To describe and understand some of the methodologies used in epidemiological research, and to appreciate the issues and problems involved in common health research programs.

This will involve the development of critical skills in the evaluation of the health and medical literature involving epidemiology with an emphasis on statistical and methodological analysis.

Content
The main areas of study will be chosen from:

Epidemiological study designs
Descriptive and analytical studies, observational versus experimental designs, cross-sectional surveys, cohort and case-control studies, clinical trials and intervention studies. Determination of sample size.

Confounding
Identifying potential confounding: stratification and adjusted estimates, regression and multivariate adjustment, matching.

Diagnostic tests
Repeatability and validity of tests for disease, sensitivity and specificity of tests, predictive value and prevalence. Bayes’ theorem.

Screening for disease
Reasons for screening, requirements for screening, prevalent and incident cases, quality of screening test.

Recommended reading
Australian Bureau of Statistics catalogues such as Social Trends, Directory of Census Statistics, Household Sample Files, Census Dictionary.

MS758  Analysis of Risks and Rates
12.5 Credit Points  3 hours per week  Hawthorn  Prerequisite: MS754  Corequisites: none  Teaching methods: Class teaching supplemented by computer laboratory work  Assessment: Assignments; Class exercises; Examinations
A second year subject in the Graduate Diploma of Applied Science (Health Statistics).

Aims and objectives
To develop critical skills in the evaluation of health and medical literature on risks and rates with an emphasis on statistical and methodological analysis.

Content
In particular students they will develop skills in critically evaluating and using the following:

- classical analytic methods for risks and odds ratios.
- logistic regression methods for the analysis of odds ratios.
- descriptive and analytical survival data methods.
- classical analytic and Poisson regression methods for standardised mortality ratios and rates.

Specialist software for analysing generalised linear models, such as EGRET, will be used as well as general packages such as SPSS and EXCEL.

MS760  The Practice of Statistics 1
12.5 Credit Points  3 hours per week  Hawthorn  Prerequisite: None  Corequisites: None  Teaching methods: Class teaching supplemented by audio visual presentations and laboratory sessions in which the computer will be used both as an instructional tool and as a statistical computational aid  Assessment: Tests
Aims and objectives
To provide a computer based introduction to the concepts and practice of data analysis, statistical estimation and hypothesis testing.

Content
Describing and summarising univariate and bivariate data including correlation and simple regression analysis. Gathering data - surveys and experiments. Introduction to time series analysis. Statistical testing - testing means, medians, proportions and relationships in tabulated data using normal, t and chi-square distributions as appropriate. Introduction to statistical estimation of means and proportions including confidence intervals.

Recommended reading

MS761 The Practice of Statistics 2
12.5 Credit Points • 3 hours per week • Hawthorn • Prerequisite: MS760, MS750 • Corequisites: none • Teaching methods: Class teaching supplemented by audio visual presentations and laboratory sessions in which the computer will be used both as an instructional tool and as a statistical computational aid • Assessment: Assignments; Tests

Aims and objectives
To extend the ideas developed in The Practice of Statistics 1 to include more sophisticated levels of analysis and a broadening of the range of applications so that students will be able to carry out independent statistical investigations, together with an awareness of the assumptions and limitations involved in the generalisation of results of such investigations.

Content
Extension of statistical inference to testing means for more than two groups using analysis of variance for single and factor design with interaction and an introduction to power analysis. Inference for simple regression, testing assumptions of normality and equality of variances using correlation and regression analysis. Basic concepts in nutrition/dietary history; History of Food. Use of medical journals and other sources; Review of the course in nutritional and environmental medicine. Aims and objectives

Recommended reading

NE102 Biology of Nutrients
10 credit points • 5 contact hours per week • 4 weeks • Hawthorn • Prerequisites: Nil

Aims and objectives
To review the basic principles of nutrition and environmental medicine.

Recommended reading
ACNEM Excerpts, From the ACNEM Course Manual, Beaumaris: ACNEM 1998

NE203 Nutrient Therapy in Toxicology and Skin Problems
10 credit points • 5 contact hours per week • 4 weeks • Hawthorn • Prerequisites: Nil

Aims and objectives
To highlight the importance of nutrient interactions as well as their safety and toxicity. The nutritional aspects involved in the cause, prevention and treatment of skin disease will be reviewed.

Content
• Drug - nutrient interactions;
• Safe application of nutritional therapies;
• Toxicity of nutritional therapies;
• Nutritional factors involved in skin disease;
• Nutritional factors in the treatment of common skin diseases including eczema, psoriasis, skin infections.

Recommended reading
ACNEM Excerpts, From the ACNEM Course Manual, Beaumaris: ACNEM 1998
**NE204 Environmental Medicine**

10 credit points • 5 contact hours per week • 4 weeks • Hawthorn • Prerequisites: Nil
- Teaching Method: Lectures/Tutorials, clinical demonstrations, journal review, distance education (including clinical intensives) • Assessment: Continuous assessment and final examination

A subject in the Graduate Certificate/Diploma of Nutritional and Environmental Medicine

**Aims and objectives**

To study the role of environmental pollutants and other toxic substances in the cause of disease, the mechanisms involved, and the available treatments will also be discussed.

**Content**

- Introduction to environmental medicine;
- Mechanisms of toxicity;
- Protection against toxic substances;
- The immune system, food additives and sensitivities;
- Nutritional therapy;
- Environmental Disease;
- Electromagnetic radiation;
- Air pollution;
- Prescription drugs;
- Chronic fatigue syndrome

**Recommended reading**

ACNEM Excerpts, from the ACNEM Course Manual, Beaumaris: ACNEM 1998

**NE205 Nutritional Approaches to Neurological and Degenerative Disorders and Ageing Problems**

10 credit points • 5 contact hours per week • 4 weeks • Hawthorn • Prerequisites: Nil
- Teaching Method: Lectures/Tutorials, clinical demonstrations, journal review, distance education (including clinical intensives) • Assessment: Continuous assessment and final examination

A subject in the Graduate Certificate/Diploma of Nutritional and Environmental Medicine

**Aims and objectives**

Neurological disorders associated with nutrition will be presented. The role of nutritional factors in the treatment of these disorders will be reviewed. To prevent the progression of degenerative disease through the analysis of cause and mechanisms. Available and potential future therapies will also be discussed. The common nutritional problems associated with ageing, and their care and treatment will be reviewed.

**Content**

- Common neurological related neurological disorders including migraine, epilepsy and degenerative disorders;
- Nutritional management of neurological disorders;
- Strategies for prevention and degenerative disease;
- The role of free radicals and antioxidants in the mechanisms of degenerative disease;
- Therapeutic potential of antioxidants in the mechanisms of degenerative disease;
- Role of other nutritional substances in the prevention and treatment of degenerative disease;
- Common nutrition related disease;
- Factors that lead to poor nutrition in the aged;
- Dietary guidelines in the aged;
- The nutritional management of diseases in the aged.

**Recommended reading**

ACNEM Excerpts, from the ACNEM Course Manual, Beaumaris: ACNEM 1998

**NE206 Nutritional Approaches to Cardiovascular and Respiratory Problems**

10 credit points • 5 contact hours per week • 4 weeks • Hawthorn • Prerequisites: Nil
- Teaching Method: Lectures/Tutorials, clinical demonstrations, journal review, distance education (including clinical intensives) • Assessment: Continuous assessment and final examination

A subject in the Graduate Certificate/Diploma of Nutritional and Environmental Medicine

**Aims and objectives**

The role of nutrients in the cause of cardiovascular disease as well as the mechanisms involved will be reviewed. Other aspects of cardiovascular disease will also be reviewed. The role of diet as well as nutritional therapy and other factors in the treatment of cardiovascular disease will be also presented. Review the relevant information relating to respiratory disease and nutrition.

**Content**

- The physiology of the cardiovascular system;
- Prevention of cardiovascular disease;
- The role of lipids in cardiovascular disease;
- The role of other factors in cardiovascular disease;
- Nutrients and other factors in the treatment of cardiovascular disease;
- Nutritional factors in the cause and prevention of respiratory disease;
- Asthma and its non drug management;
- Environmental pollutants and respiratory disease

**Recommended reading**

ACNEM Excerpts, From the ACNEM Course Manual, Beaumaris: ACNEM 1998

**NE207 Nutritional Approaches to Gastrointestinal Problems and Behavioural Problems**

10 credit points • 5 contact hours per week • 4 weeks • Hawthorn • Prerequisites: Nil
- Teaching Method: Lectures/Tutorials, clinical demonstrations, journal review, distance education (including clinical intensives) • Assessment: Continuous assessment and final examination

A subject in the Graduate Certificate/Diploma of Nutritional and Environmental Medicine

**Aims and objectives**

A review of gastrointestinal disorders and the role of nutrients in the cause and prevention will be emphasised. The importance of behavioural problems that influence diet will be presented. The nutritional aspects of various behavioural disorders will also be emphasised.

**Content**

- Common non-malignant gastrointestinal disorders and nutritional factors;
- Nutritional management of common gastrointestinal disorders;
- Disturbances of gastrointestinal flora and their management;
- Behaviour and diet;
- Weight problems;
- Nutritional factors and behavioural disorders

**Recommended reading**

ACNEM Excerpts, From the ACNEM course Manual, Beaumaris: ACNEM 1998
Foo E., Griffin H., Mollby R., Heden C. The Lactic Acid Bacteria, Horizon Norfold 1996
NE208  Nutritional Approaches to Women’s Health and Paediatric Problems

10 credit points  • 5 contact hours per week  • 4 weeks  • Hawthorn  • Prerequisites: Nil

- Teaching Method: Lectures/Tutorials, clinical demonstrations, journal review, distance education (including clinical intensives)  • Assessment: Continuous assessment and final examination

A subject in the Graduate Certificate/Diploma of Nutritional and Environmental Medicine

Aims and objectives

To introduce the important principles involved in prevention of specific problems in women as well as their cause. The role of nutrients and nutritional therapy will be discussed. The importance of nutrition in the various stages of development will be presented. Common paediatric disorders that are related to nutrition and their treatment will be included.

Content

- Common medical problems in women;
- The premenstrual syndrome;
- Nutritional factors in the premenstrual syndrome;
- Breast disease, dysmenorrhoea, menorrhagia and cervical dysplasia;
- Nutrients in pregnancy;
- Nutritional management of menopause;
- Osteoporosis;
- Feeding from infants to adolescent;
- Common nutritional deficiencies in the young;
- Common paediatric disorders and nutritional factors.

Recommended reading


NE209  Nutritional Approaches to Men’s Health and Endocrine Problems

10 credit points  • 5 contact hours per week  • 4 weeks  • Hawthorn  • Prerequisites: Nil

- Teaching Method: Lectures/Tutorials, clinical demonstrations, journal review, distance education (including clinical intensives)  • Assessment: Continuous assessment and final examination

A subject in the Graduate Certificate/Diploma of Nutritional and Environmental Medicine

Aims and objectives

To review important aspects of men’s health and highlight common problems with a special emphasis on prevention and nutritional factors. Cause, mechanisms and prevention of diabetes, as well as its nutritional management, will be presented. The role of nutrients in other endocrine diseases will also be reviewed.

Content

- Males and their behaviour;
- Common diseases in males;
- Nutritional aspects of diseases in men;
- The cause and prevention of diabetes;
- The nutritional management of diabetes;
- Nutritional factors and other endocrine disorders.

Recommended reading

Biddulph S., Raising Boys, Finch, Lane Cove 1997
Edgar D., Men, Mateship, Marriage, Harper Collins, Sydney 1997

NE210  Nutritional Approaches to Musculoskeletal Problems and Sports Nutrition

10 credit points  • 5 contact hours per week  • 4 weeks  • Hawthorn  • Prerequisites: Nil

- Teaching Method: Lectures/Tutorials, clinical demonstrations, journal review, distance education (including clinical intensives)  • Assessment: Continuous assessment and final examination

A subject in the Graduate Certificate/Diploma of Nutritional and Environmental Medicine

Aims and objectives

Factors involved in the cause of musculoskeletal problems will be reviewed and the possibilities of nutritional therapy will be explored. The nutritional status of sports people will be discussed and special requirements for various sports people will be presented.

Content

- Nutritional strategies for pain management;
- Energy requirement of sports people;
- Nutritional deficiency in sports people;
- Recommended diets and nutrient supplementation.

The nutritional aspects of the following disorders will be discussed:

- Osteoarthritis;
- Rheumatoid arthritis;
- Gout;
- Ankylosing spondylitis

Recommended reading

Kenna C., Murtagh J., Back Pain and Spinal Manipulation. A practical guide, Butterworth 1989
Wolinska I., Hickson J., Nutrition in Exercise and Sport, CRC, Ann Arbor, 1995

OMG90  Logistics Management

12.5 Credit Points  • one semester, three hours per week  • Hawthorn  • Prerequisites: completion of core MBA subjects or equivalent  • Assessment: examination, seminar, assignments

This is a subject in the Master of Business Administration

Aims and objectives

To address contemporary issues of logistics management in both service and manufacturing industries and the challenge of integrating logistics functions.

Content

- Logistics and management, drives for integration, logistics mission, elements of logistics, integrated logistics concepts.
- Logistics and quality customer service
- Elements of customer service, the order cycle, distribution channels and their design, service logistics, establishment and evolution of integrated service logistics, strategic implications, obligation for goods and services, consumer rights, technical service and support obligations, product recall.
- Supply and Distribution
- Nature of transportation problems, stocking policies, balanced and unbalanced transportation problems and their solution.
- Logistics Activities
- Transportation, inventory management, scheduling, purchasing, warehousing, packaging, materials handling, maintenance and technical services.
- Logistics for Strategic Advantage
- Opportunities, purchase/manufacture decisions, inventory issues, logistics planning and resource considerations, supply chain, inputs and outputs, building relationships, infrastructure requirements and constraint international distribution.
- Control of Integrated Logistics
- Organising and development of organisational structures, information systems, logistics communications, information system definition, flow and use of logistics information, electronic commerce, strategic, quality and global issues.
OM691 Manufacturing Operations Management

12.5 Credit Points • one semester, three hours per week • Hawthorn • Prerequisites: completion of MBA core subjects or equivalent • Assessment: assignments, examination

This is a subject in the Master of Business Administration.

Aims and objectives
To provide understanding of enterprise operations management, and to evaluate the relationship between manufacturing operations and other enterprise functions and the application of technologies to aid market forecasting, research and development and production.

Content
Manufacturing Strategy

Manufacturing Organisation
The manufacturing process, manufacturing inputs and outputs, functions within a manufacturing organisation and relationships, production and maintenance functions and organisations, planning, organisation and control of the manufacturing process.

Manufacturing Systems Effectiveness

Recommended reading

OM692 Total Quality Management

12.5 Credit Points • one semester, three hours per week • Hawthorn • Prerequisites: completion of MBA core subjects or equivalent • Assessment: assignments, seminar presentation, final examination

This is a subject in the Master of Business Administration.

Aims and objectives
To introduce the concept of quality as a prime dimension of competitiveness through Total Quality Management and Continuous Improvement; and to address contemporary issues of quality management as reflected in quality assurance standards and accreditation processes, quality progression and implementation initiatives.

Content
Foundations for Quality Management
Origins of quality management in United States of America, Japan, Europe and Australia, elements of quality management and application to specific enterprises.

Essence of Quality
Definition and dimensions of quality, competing on quality, quality nichemanship, strategic errors with quality, quality for competitive advantage, foundations of competitiveness, matrix to ensure operational advantage, time based competitiveness, quality and customers and competitors.

Quality Progression
The quality progression, converting negative to positive, corrective progression, preventive progression, cost based progression, customer satisfaction progression.

OM693 Project Management

12.5 Credit Points • one semester, three hours per week • Hawthorn • Prerequisites: completion of MBA core subjects or equivalent • Assessment: assignments, seminar presentation, final examination

This is a subject in the Master of Business Administration.

Aims and objectives
To address the requirements of project management from a management perspective specifically through the management requirements in project selection, initiation, operation and control and through the challenges presented to the project manager and the manager’s interaction with the parent organisation.

Content
Project Initiation
Projects in contemporary organisations, project selection criteria and models, the project manager and requirements, project organisation and team requirements, project planning, orientation, work breakdown structure, responsibilities and interface management creativity, creative thinking and idea generation, history importance and methods for technological forecasting.

Negotiation and Conflict Resolution
Nature of conflict over the project life cycle, management strategies for conflict resolution, confrontation process for conflict resolution, compromise for conflict resolution, the nature principles, strategies and tactics of negotiation.

Project Implementation
Budgeting and cost estimation, scheduling and network analysis, PERT and CPM, scheduling charts, resource allocation, resource levelling, monitoring and information systems, project control systems, control processes and requirements.

Project Termination
Project auditing, the project audit and audit report construction, the audit life cycle, evaluation and measurement, termination alternatives and processes.

Recommended reading

OM694 Risk Management

12.5 Credit Points • one semester, three hours per week • Hawthorn • Prerequisites: completion of MBA core subjects or equivalent • Assessment: assignments, seminar presentation, final examination

This is a subject in the Master of Business Administration.

Aims and objectives
To address skills required to identify and manage perceived risks to an organisation; and to address contemporary issues of risk in society and emerging issues in risk management, understand processes and techniques in risk management and appraise risk management practices.

Content
Risk Management within an Organisation
Domains of risk, nature and requirements of risk management and transfer.

Concepts and Types of Risks
Risk and work risk assessment needs, concepts, models and measurement of risk.

Risk Management Tools and Techniques
Risk decision making, risk identification and analysis tools and techniques, spreadsheet based risk analysis, risk modelling software packages.
Hazard Identification and Risk Assessment
Workplace risk assessment process (major risk areas, assessment objectives, assessment methods, outcome requirements, assessment team, risk types, process definition, risk assessment and presentation of findings, review and implementation).

Managing the Pre-Conditions of a Potential Risk Event
Supervisory system development, risk management administration, organisation, staffing, directing, controlling and application of egstrm to time zone.

Risk Inventories
Preparation, inventories for large installations, liability exposures, asset and liability registers, development of risk inventories, risk measurement, risk evaluation.

Managing the Risk Event Occurrence and Consequences
Managing Time Zone 2 and Time Zone 3.

Selling the Cost Benefit of Risk Management Initiatives
Cost benefit analysis and report, direct and time element losses.

Recommended reading

OM695 Supply Management
This subject addresses:
- the fundamental challenges confronting logistics managers: supply domain, supply management concepts;
- inventory management requirements, considerations and priorities;
- categories of supply items and their management requirements; stocks and stock control systems and requirements; the visibility and placement of stocks, movement priority system and stocking policy;
- purchasing and procurement, economic order quantity, materials requirements; planning and the contribution of MRP; the benefits and problems resulting from JIT, receipts and issues, warehousing;
- integrating supply with other logistic functions.

OM696 Distribution Management
This subject addresses fundamental challenges confronting logistics managers from the distribution domain. Issues include:
- channel strategy;
- network strategy;
- modal selection and transport systems;
- inventory management handling and storage;
- transportation and fleet management;
- information technology in logistics;
- human resource management, logistics economics;
- finance of logistics and distribution; internationalisation of logistics and export logistics.

OM697 Integrated Logistics Support
This subject addresses the fundamental challenges confronting logistics managers from the ILS domain. Issues include:
- measures of logistics;
- system operational requirements;
- system maintenance concept;
- functional analysis and requirements allocation;
- logistics support analysis;
- logistics in system design, test and evaluation, production and construction, operation and support;
- logistics support management;
- LCC analysis, maintenance analysis, LSA and logistic support modelling.

OM698 Maintenance Management
This subject addresses the fundamental challenges confronting logistics managers from the maintenance domain. Issues include:
- maintenance management concepts;
- sustaining capability, effectiveness and business success;
- developing maintenance and technical service strategies;
- assessing alternative maintenance policies;
- achieving total operational systems effectiveness;
- leading and motivating maintenance teams; planning and controlling maintenance work;
- right sizing the maintenance organisation;
- measuring maintenance performance and effectiveness;
- integrating maintenance with other logistic functions.

SC504 Human Biochemistry
4 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Co-requisites: Nil
This is a subject in the Bachelor of Applied Science (Biochemistry/Chemistry).
Content
Control mechanisms operating in living organisms. Steroid and trophic hormone effects. Their target tissues and activities at the enzyme and nucleic acid levels. Also includes amplification of signals through receptors, types of receptors and synthetic analogues modifying the signals. Abnormal hormone patterns and their relationship to disease processes. The role of hemical analysis in the treatment and diagnosis of disease. The chemistry of muscle and exercise. Exercise, energy and respiration. Abnormal patterns of carbohydrate utilisation. Diabetes.

SC507 Industry Based Learning (Honours)
35 Credit Points • 80 days • Prerequisite: Completion of semester 1 to 4, selection into the Honours stream • Co-requisites: Nil • Assessment: Report
This is a subject in the Bachelor of Applied Science (Chemistry and Chemistry/ Biochemistry Honours) courses.
Content
A six-month period of employment experience occurring in semester 5 of the Bachelor of Applied Science (Honours) in Biochemistry/Chemistry and Bachelor of Applied Science (Honours in Chemistry courses. Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor.

SC508 Industry Based Learning 1
50 Credit Points • Prerequisite: All first and second year subjects
This is a third year subject in the Bachelor of Applied Science (Chemistry and Biochemistry/Chemistry).
Aims and objectives
- To complete 24 weeks of full time paid employment in an appropriate industrial setting.
- To work as a trainee under the direction of a professional and be an effective part of a multi-disciplinary team.
- To develop and document professional practice for all assignments and to communicate professionally in written and oral forms.
- To establish and refine personal development skills in order to develop competence towards the professional level.
- To implement and gain further understanding of management skills and practices operating within organisational structures.
- To observe and appreciate significant trends in employment work groups and industrial relations.
- To understand and apply quality control and assurance techniques.

SC553 Applied Chemistry
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
This is a fourth year subject in the Bachelor of Applied Science (Chemistry).
Content
Applied Organic Chemistry
Photochemistry free radicals and their reactions; photochemical reactions; industrial photochemistry.
Polymer Chemistry
Polymer coatings: applications of protective organic surface coatings; on-convenional and convertible surface coatings, their chemistry and properties.

Colloid and Electrochemistry
Colloid chemistry: origin of the electrical double layer; potentials at interfaces; potential determining ions and ionic adsorption; description of the electrical double layer; electrokinetic phenomena; colloid stability.

Electrochemistry: electrochemical aspects of corrosion: Pourbaix diagrams, passivation of metals, anodic and cathodic protection, corrosion rate determination via electrochemical techniques (polarisation resistance, Tafel extrapolation); Evans diagrams, inhibitors, galvanic corrosion.

Catalysis
An introduction to catalysis with emphasis on acid/base catalysis and examples drawn from the petrochemical industry.

SC562 Analytical Biochemistry
8 Credit Points • One semester • Hawthorn • Prerequisite: SC372 Biochemistry • Corequisites: Nil • Assessment: Assignments; Examinations
This is a fourth year subject in the Bachelor of Applied Science (Biochemistry/Chemistry).

Aims and objectives
Provide students with knowledge of the range of the most common techniques and their uses in the areas of biochemistry and molecular biology.

Content
- Separation techniques and purification strategies in biochemistry.
- Structure and analysis of proteins.
- Nucleic acid technology.

SC570 Chemistry
15 Credit Points • One semester • Hawthorn • Prerequisite: SC370, SC470 • Corequisites: Nil
This is a fourth year subject in the Bachelor of Applied Science (Chemistry) and (Biochemistry/Chemistry).

Content
- Surface Chemistry: Introduction of the general principles of surface and colloid chemistry by particular reference to the properties and applications of liquid surfaces and interfaces.
- Stereochemistry: The importance of molecular geometry on chemical properties with an emphasis on applications in organic chemistry.

SC580 Practical Chemistry
7.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
This is a fourth year subject in the Bachelor of Applied Science (Biochemistry/Chemistry).

Content
- Selected experiments in electrochemistry and surface chemistry.
- Qualitative analysis of an unknown liquid mixture using distillation, physical measurements, infra-red spectra, PMR spectra, CMR spectra and mass spectra.
- Stereochemistry experiment and infra-red data station experiment.

SC590 Computers in Chemistry
5.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
This is a fourth year subject in the Bachelor of Applied Science (Chemistry) and (Biochemistry/Chemistry).

Content
- Databases.
- Internet Communications.
- Instrumental data handling.

SC602 Scientific Communication
10 Credit Points • Covered over four semesters • Hawthorn • Prerequisite: Nil • Corequisites: Nil
This is a fourth year subject in the Bachelor of Applied Science (Chemistry) and (Biochemistry/Chemistry).

Aims and objectives
- Improvement of student ability in communication
- Development of generic skills that employers require in graduates.

Content
Each year has specific requirements which will be explained at the beginning of each semester of the course.

SC607 Industry Oriented Honours Project
36 Credit Points • 80 days • Prerequisite: Selection into the Honours stream • Corequisites: Nil
This is a subject in the Bachelor of Applied Science (Honours) in Biochemistry/Chemistry and the Bachelor of Applied Science (Honours) in Chemistry.

Content
During semester 6 of the industry placement for students in the Bachelor of Applied Science (Honours) in Biochemistry/Chemistry and Bachelor of Applied Science (Honours) in Chemistry courses, there is the opportunity to develop an industry-relevant Honours research project in conjunction with both their employer and the university. The student is expected to read and analyse research papers relevant to their project and carry out preliminary experimentation towards their research at their place of employment.

SC608 Industry Based Learning 2
50 Credit Points • Prerequisite: All first and second year subjects
This is a third year subject in the Bachelor of Applied Science (Chemistry and Biochemistry/Chemistry).

Aims and objectives
- To complete 24 weeks of full time paid employment in an appropriate industrial setting.
- To work as a trainee under the direction of a professional and be an effective part of a multi-disciplinary team.
- To develop and document professional practice for all assignments and to communicate professionally in written and oral forms.
- To establish and refine personal development skills in order to develop competence towards the professional level.
- To implement and gain further understanding of management skills and practices operating within organisational structures.
- To observe and appreciate significant trends in employment work groups and industrial relations.
- To understand and apply quality control and assurance techniques.

SC653 Process Chemistry
10 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Examinations
This is a fourth year subject in the Bachelor of Applied Science (Chemistry).

SC660 Practical Chemistry
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
This is a fourth year subject in the Bachelor of Applied Science (Chemistry).

Content
- HPLC and GC/MS experiments.
- Analysis of a food product using an atomic absorption spectrometer.
- Project.

SC662 Analytical Biochemistry
4 Credit Points • One semester • Hawthorn • Prerequisite: SC372 • Corequisites: Nil • Assessment: Examinations; Tests
This is a fourth year subject in the Bachelor of Applied Science (Biochemistry/Chemistry).
Aims and objectives
To provide students with a knowledge of analytical techniques of Biochemistry.

Content
Radioisotope methods. Immunochrometry and its applications in chemical and biochemical analysis. Computer analysis in biochemistry. Use of spectroscopy for biochemical analysis (e.g. NMR, mass spec.).

SC665 Analytical Biochemistry
7.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Assessment: Assignments; Report; Seminar Presentation
This is a fourth year subject in the Bachelor of Applied Science (Chemistry)

Aims and objectives
Give students experience at managing and executing a research project, working independently and designing experiments. Report writing and seminar skills are also emphasised.

Content
A major research project in biochemistry is carried out by the student. An experimental exercise in support of SC662 lectures on radioisotopes and immunology is scheduled late in the semester.

SC670 Chemistry
10 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
This is a fourth year subject in the Bachelor of Applied Science (Chemistry)

Content
• Ion exchange and solvent extraction principles and applications in industrial, laboratory and biochemical situations.
• Organic chemistry: carbocations, heterocyclics.
• Laboratory analyzers, with specific discussion of detectors, amplification, frequency response, digital systems and clinical analyzers.

SC680 Practical Chemistry
5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
This is a fourth year subject in the Bachelor of Applied Science (Chemistry)

Content
• HPLC and GC/MS experiments.
• Analysis of a food product using an atomic absorption spectrometer.
• Molecular modelling using the IRIS computer.

SC701 Honours Lectures
20 Credit Points • Over 2 semesters • Hawthorn • Prerequisite: Selection into the Honours stream • Corequisites: Nil • Assessment: Assignments; Examinations
This is a subject in the Bachelor of Applied Science (Honours) in Biochemistry/Chemistry and in the Bachelor of Applied Science (Honours) Chemistry.

Content
During semesters 7 and 8 of the Bachelor of Applied Science (Honours) in Biochemistry/Chemistry and Bachelor of Applied Science (Honours) Chemistry, students are presented a program of lectures/seminars at an advanced level in areas representative of the research currently underway in the School of Engineering and Science.

SC707 Honours Project
40 Credit Points • Over 2 semesters • Hawthorn • Prerequisite: Selection into the Honours stream • Corequisites: Nil • Assessment: Oral Presentation; Report
This is a subject in the Bachelor of Applied Science (Honours) in Biochemistry/Chemistry and Bachelor of Applied Science (Honours) Chemistry.

Content
An Honours research project resulting from the proposal developed in the 6th semester (SC667 Industry Oriented Honours Project) will be carried out and completed during semesters 7 and 8. The experimental work may be carried out in the laboratories of the university or the industrial partner. In cases where the Honours is studied as a fifth year after completion of the Bachelor of Applied Science pass degree, the Honours project should be developed and performed fully within the university.

SC709 Employment Experience
30 Credit Points • Six month period • Prerequisite: Nil • Corequisites: Nil
Industry Based Learning.

Content
A six-month period of industry based learning in the Graduate Diploma in Industrial Chemistry. Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor.

SC720 Applied Chemical Techniques
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
Assessment: Assignments
This is a subject of the Graduate Diploma of Applied Science (Industrial Chemistry/Chemistry).

Content
• Computers in chemistry.
• Spectroscopy IR, UV/visible and atomic.
• Chromatography GC and HPLC.

SC721 Properties of Colloids and Interfaces
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
Assessment: Tutorials
This is a subject of the Graduate Diploma of Applied Science (Industrial Chemistry/Chemistry).

Content
Classification and scope of colloidal systems and interfaces. The properties of curved surfaces. Concepts of surface tension and surface activity. Absorption and orientation at interfaces. Wetting and spreading of liquids on solids; concept of contact angle. Origin of charge and electrical double layer on surfaces in aqueous dispersions - potential determining ions, ionic adsorption. Electrokinetic phenomena - zeta potential. Stability of colloidal dispersions. Throughout the lecture course, strong emphasis is given to applying the basic concepts and principles to practical examples of the uses of colloids.

SC722 Industrial Chemistry
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
Assessment: Assignments; Tutorials
This is a subject of the Graduate Diploma of Applied Science (Industrial Chemistry/Chemistry).

Content
• NMR spectroscopy, mass spectrometry and Fourier transform techniques.
• Liquid surfaces.
• Electrochemistry.

SC725 Practical Chemistry
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
This is a subject of the Graduate Diploma of Applied Science (Industrial Chemistry).

Content
Analytical experiments using GC, HPLC, AA, UV/visible and IR techniques.

SC729 Industrial Microbiology
12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil
This is a subject of the Graduate Diploma of Applied Science (Industrial Chemistry/Chemistry).

Content
Students study subject areas from six options. The subject areas are:
• microbial genetics
• fermentation technology
• fermentation reactions
• enzyme technology
• waste treatment and disposal
SC731 Practical Biochemistry

12.5 Credit Points • One semester • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Assessment: Pracs
This is a subject of the Graduate Diploma of Applied Science (Industrial Chemistry/Biochemistry).

Content
The practical work covers a range of laboratory exercises and common techniques used in biochemical and chemical laboratories. These techniques include estimation of disulphide and thiol groups in proteins, fluorescence spectroscopy, affinity chromatography, fractionation using ultracentrifugation, antibody labelling techniques, gel electrophoresis and enzyme kinetics.

SC732 Practical Work

12.5 Credit Points • One semester • Hawthorn • Prerequisite: SC731 • Corequisites: Nil
This is a subject of the Graduate Diploma of Applied Science (Industrial Chemistry).

Content
- Liquid phases and interface chemistry experiment.
- Qualitative analysis of an unknown liquid mixture using distillation, physical measurements, infra-red spectra, PMR spectra, CMR spectra and mass spectra.

SC722 Biochemistry 5

10 Credit Points • One semester • Hawthorn • Prerequisite: SC372 • Assessment: Assignments; Examinations
This is a subject in the Bachelor of Applied Science (Honours) in Biochemistry/Chemistry and Bachelor of Applied Science (Honours) in Chemistry.

SC872 Biochemistry 6

10 Credit Points • One semester • Hawthorn • Prerequisite: SC722 • Corequisites: Nil • Assessment: Assignments; Tests
This is a subject in the Bachelor of Applied Science (Honours) in Biochemistry/Chemistry.

SC900 The Scope of Computational Chemistry

12.5 Credit Points • 150 hours of study spread over 8 months full time or up to 20 months part time • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Study of materials available over the internet, essay writing, and software installation and use.
- Major sources: WWW documents and code, both written by the course team and by others.
- Assessment: Computer Managed Learning; Essays; Report
This is a subject in the Masters of Applied Science in Computational Chemistry/Biomolecular Design.

Aims and objectives
On completion of this unit, students will have broadened their perspective of computational chemistry, will have successfully installed and used a major computer package on their own computer, and will understand the relevance of computational chemistry to real problems.

The unit will give students a broad understanding of the position of computational chemistry today, improve their skills in finding information on the internet, and start them off in having significant code for computational chemistry on their own site.

Content
- This unit is intended to give students a broad view of computational chemistry and will do this by allowing them to access a range of materials over the internet. It is the overview unit of MSc in Computational Chemistry. The unit involves various in-depth studies of the role of computational chemistry and the installation and use of a significant computer package in the field.
- References
- WWW documents and code, both written by the course team and by others.

SC901 Molecular Modelling

12.5 Credit Points • 150 hours of study spread over 8 months full time or up to 20 months part time • Hawthorn • Prerequisite: Nil • Corequisites: Nil • Teaching methods: Study of materials available over the internet, essay writing, and reports on software use.
- Assessment: Computer Managed Learning; Essays; Report
This is a subject in the Masters of Applied Science in Computational Chemistry/Biomolecular Design.

Aims and objectives
On completion of this unit, students will have a broad understanding of the methods and application of molecular modelling.

Content
This unit provides an introduction to molecular modelling and provides the basis on which all the more advanced units build. The unit includes extensive use of molecular visualisers.

References
- WWW documents and code, both written by the course team and by others.

SC902 Approximate Quantum Chemistry

12.5 Credit Points • 150 hours of study spread over 8 months full time or up to 20 months part time • Hawthorn • Prerequisite: SC901 • Teaching methods: Study of materials available over the internet, essay writing, and software installation and use.
- Assessment: Computer Managed Learning; Essays; Report
This is a subject in the Masters of Applied Science in Computational Chemistry/Biomolecular Design.

Aims and objectives
On completion of this unit, students will understand the basic theory of empirical and semi-empirical molecular orbital methods and be able to use software such as Huckel, extended Huckel and MOFAC (MINDO, AM1 and PM3) to calculate properties of simple organic molecules.

Content
This unit will provide a practical introduction to empirical and semi-empirical molecular orbital theory. It includes Huckel theory, extended Huckel theory, and zero-differential overlap methods such as MINDO, MNDO, AM1 and PM3. While practical applications are emphasised, students will be expected to acquire an adequate knowledge of the basic theory and a keen appreciation of the range of problems that particular methods are appropriate for.

References
- WWW documents and code, both written by the course team and by others.

SC903 Basic Quantitative Structure Activity Relationships (QSAR)

12.5 Credit Points • 150 hours of study spread over 8 months full time or up to 20 months part time • Hawthorn • Prerequisite: SC902 • Teaching methods: Study of materials available over the internet, essay writing, and report writing.
- Assessment: Computer Managed Learning; Essays; Report
This is a subject in the Masters of Applied Science in Computational Chemistry/Biomolecular Design.

Aims and objectives
On completion of this unit, students will understand the basic theory and methods of quantitative structure-activity relationships (QSAR).

References
- WWW documents and code, both written by the course team and by others.

SC904 Abinitio Quantum Chemistry

12.5 Credit Points • 150 hours of study spread over 8 months full time or up to 20 months part time • Hawthorn • Prerequisite: SC903 • Teaching methods: Study of material available over the internet, essay writing, and software installation and use.
- Assessment: Computer Managed Learning; Essays; Report
This is a subject in the Masters of Applied Science in Computational Chemistry/Biomolecular Design.

Aims and objectives
On completion of this unit, students will be able to run ab initio calculations using the Gaussian and/or GAMESS-US packages to calculate optimised geometries, frequencies and spectral intensities for small molecules and will understand the basic theory and criterion for choice of basis sets.

Content
This unit will provide a broad background to the use of ab initio molecular orbital methods. The emphasis is on how and when to apply the methods and a critical appreciation of the reliability of results obtained in different situations. The unit will also cover the basic theory of all methods and the choice of basis sets.
including Hartree-Fock theory, Moller-Plesset perturbation theory to order four, coupled
cluster theory, configuration interaction, G2 theory and Density Functional theory. The
theory, choice of method and choice of basis sets will be investigated in detail.

References
Materials used will be the WWW pages produced by the CAUT Project, some openly
available pages from other sites containing advanced materials and a textbook such as
Modern Quantum Chemistry by Szabo and Ostlund (this is currently out of print but a
new edition is expected). Students will also be expected to consult the original
literature.

SC908 Advanced QSAR
25 Credit Points  300 hours of study spread over 8 months full time or up to 20 months
part time.  Hawthorn  Prerequisite: SC907  Teaching methods: Study of materials
available over the internet, essay writing, and report writing.  Assessment: Computer
Managed Learning; Essays; Report
This is a subject in the Masters of Applied Science in Computational Chemistry/
Biomolecular Design.

References
Livingstone, D., Data Analysis for Chemists—Applications to QSAR and Chemical Product
Design, Oxford University Press, 1995
WWW documents and code, both written by the course team and by others.

SC909 Research Project and Report
25 Credit Points  600 hours of study spread over 3 months of full-time internal study.  Hawthorn
Prerequisite: All six subjects from the common core (total of 75 credit
points) plus one of the elective subjects (25 credit points)  Teaching methods:
Supervised research work on a project selected by the supervisor.  Assessment: Thesis
This is a subject in the Masters of Applied Science in Computational Chemistry/
Biomolecular Design.

Aims and objectives
On completion of this unit, students will have completed a small original research
project and will have acquired a thorough appreciation of research methodology in one
area of computational chemistry.

Content
A supervised research project in one of the areas of computational chemistry.

References
Direct access to articles in the literature and reviews.

SM255A Engineering Mathematics
10 Credit Points  Hawthorn  Assessment: Examinations
A third year subject in the Bachelor of Engineering.

Aims and objectives
To provide students with a thorough grounding in mathematics and to develop their
ability to use mathematics with understanding to solve engineering problems.

Content
Vector calculus: derivatives of a scalar point function; derivatives of a vector point
function, topics in integration. Partial differential equations; general discussion; solution of the wave equation; solution
of heat-conduction/diffusion equation; solution of Laplace equation. Applied probability and statistics: estimating parameters; joint distributions and correlations; regression; goodness-of-fit tests; moment generating functions; analysis
of engine performance data; statistical quality control; Poisson processes and the theory
of queues; Bayes theorem and its application.

Recommended reading
James, G., Burley, D., Dyke, P., Searl J., Steele, N., Wright, J. Advanced Modern
Engineering Mathematics. Addison-Wesley, 1994