Please note

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## 1997 Calendar

### January
1. New Year's Day
2. Swinburne reopens
24. H.Ed. and TAFE enrolment period begins for Round 1 offers through VTAC
26. Australia Day

### February
7. H.Ed. and TAFE enrolment period begins for Round 2 offers through VTAC
10. TAFE non-VTAC and Apprenticeship classes commence
17. TAFE VTAC entry courses commence

### March
3. H.Ed. classes commence
10. Labour Day
26. H.Ed. classes end for Easter break
27. TAFE classes end for Easter break
28. Good Friday
31. Easter Monday
   - H.Ed. Census date for HECS (semester 1)
   - H.Ed. last day for applications for refund of General Service Fee
   - H.Ed. last day for withdrawal of a second semester subject, unit or course without penalty of failure*
   - TAFE last day for enrolments for semester 2 without penalty*

### April
3. H.Ed. classes resume after Easter break
7. TAFE classes resume after Easter break
25. Anzoc Day

### May
31. H.Ed. last day for application for awards for students completing courses in semester 1, 1997

### June
9. Queen's Birthday
10. TAFE semester 1 exam period begins
13. H.Ed. semester 1 exam period begins
27. TAFE semester 1 exam period ends
30. TAFE last day for applications for awards for students completing courses in semester 1, 1997

### July
1. H.Ed. semester 1 exam period ends
4. H.Ed. semester 1 ends
14. TAFE semester 2 classes commence
21. H.Ed. semester 2 classes commence

### August
31. H.Ed. Census date for HECS (semester 2)
   - H.Ed. last day for withdrawal of a second semester subject, unit or course without penalty of failure*
   - TAFE last day for subject variations to enrolments for semester 2 without penalty*
   - H.Ed. and TAFE last day for applications for refund of General Service Fee

### September
19. TAFE classes end for mid-semester break
26. H.Ed. classes end for mid-semester break

### October
6. H.Ed. and TAFE classes resume after mid-semester break
31. H.Ed. last day for applications for awards for students completing courses in semester 2, 1997
H.Ed. semester 2 exam period begins

### November
4. Melbourne Cup Day
17. TAFE semester 2 exam period begins
18. H.Ed. semester 2 exam period ends
28. TAFE semester 2 exam period ends
30. TAFE last day for application for awards for students completing courses in semester 2, 1997

### December
24. Swinburne closes for Christmas break

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*Students should be aware that some schools have an earlier deadline for addition of new subjects. Students should consult their Divisional office.
Swinburne
University of Technology

Higher Education

Handbook

1997
You enter a building, one you've never seen before. Cold, foreign and unknown. Uncertainty and trepidation consume the air.

You press the button. The glowing light, reassuring and warm lets you know your direction. You know you're on your way.

There's only one way to go and that's up.

These thoughts are realised in Swinburne's high graduate employment rates. Swinburne graduates have enjoyed one of the highest graduate employment rates in Australia over the past three years.

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 September 1996.

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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**Coat of Arms**

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 Swinburn(e) and soon the county reverted to the crown of England.

The Swinburne family coat of arms in medieval times was silver with three boars' 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 the Mullets (Stars) are what are known heraldically as 'differences', which may often serve to indicate an association with another armigerous body or family. The four Mullets 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**

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**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 multidisciplined, multicampus 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 1909, 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 1969, 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 Victoria 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 is now one of a few Australian universities whose responsibilities span the range of programs 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 convenient educational opportunities to the residents in the ‘outer east’ of Melbourne. Due to expansion of the city during the intervening years between establishment and transition to university status, Swinburne’s operations are now conducted at four campuses: Hawthorn, Lilydale, Mooroolbark and Prahran. 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.

**Mission statement**

To provide a continuum of education opportunities from initial vocational education and training to postgraduate masters and doctoral degrees and to support the community it services, through research, consultancy and continuing education.

**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 *The Swine*, the newspaper published by the Swinburne Student Union.

**Teaching Sectors**

Swinburne has two teaching sectors under the control of one Council: the Higher Education Sector and the Technical and Further Education Division (TAFE).

**Higher Education Sector**

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 Division of Business, Humanities and Social Science (which incorporates the previous faculties of Business and Arts) and the Division of Science, Engineering and Design (incorporating the previous faculties of Applied Science and Engineering and the School of Design).

A total of 9,872 students were enrolled in the Higher Education Sector in 1996, made up of 5,972 full-time students and 3,900 part-time students.

**Technical and Further Education Division (TAFE)**

The TAFE Division 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 Division is made up of three schools: the School of Business and Information Systems, the School of Engineering and Industrial Science and the School of Social Sciences and Arts.

A total of 12,125 students were enrolled into TAFE courses in 1996, made up of 2,606 full-time and 5,519 part-time students, and over 4,000 full-fee and short course students.
LOCATION MAP OF SWINBURNE CAMPAUSES
General enquiries: 9215 7000
The Lilydale campus is located on 24 hectares on a hillside overlooking Lillydale Lake and within three quarters of a kilometre from Lilydale railway station. The campus has been established to provide for the higher education needs of Melbourne's outer east into the 21st century. A modern campus with approaches to teaching and learning well ahead of its time, the campus has been specially designed as a hub of the learning community. The campus is close to train and bus routes and for those who choose to drive, ample parking is available.

The campus offers undergraduate degree programs in the areas of business, social science and applied science. The Bachelor of Business offers majors in Accounting and Marketing, the Bachelor of Applied Science offers a major in Computing and the Bachelor of Social Science offers majors in Psychology, Sociology or Media Studies.

Students are able, within the constraints of timetabling, to take both a major and a co-major, across degree programs if so desired.

The campus is an integral part of the University as a whole and as such students have access to the full range of resources of the multi-campus university, while enjoying a high degree of amenity and facility on the Lilydale site. The campus is fully equipped with library facilities, student cafe, microcomputer laboratories, student services, student lounge and bookshop. Emphasis is placed on the use of appropriate technologies as tools and means for teaching and learning.
HAWTHORN CAMPUS

General enquiries: 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 Sector and TAFE Division.
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 three impressive new TAFE buildings with excellent student computer laboratories, practical science laboratories and major engineering technological facilities.
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 are due to be completed by 1997.
The complex 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.
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<td>Meeting room</td>
<td>PK221, PK518, PG101</td>
</tr>
<tr>
<td>Migrant Education</td>
<td>PK301</td>
</tr>
<tr>
<td>Noticeboards</td>
<td>PK levels 2, 3, 4, 5, 6</td>
</tr>
<tr>
<td>Nursing Studies</td>
<td>PK401</td>
</tr>
<tr>
<td>Off-Campus Studies</td>
<td>PH427</td>
</tr>
<tr>
<td>Parking</td>
<td>See Car Parking</td>
</tr>
<tr>
<td>PC Support Services</td>
<td>PH439</td>
</tr>
<tr>
<td>Reception</td>
<td>PG103</td>
</tr>
<tr>
<td>Residential &amp; Community Studies</td>
<td>PK401</td>
</tr>
<tr>
<td>School of Business &amp; Info Systems</td>
<td>PH423</td>
</tr>
<tr>
<td>School of Social Sciences and Arts</td>
<td>PK level 5</td>
</tr>
<tr>
<td>Security</td>
<td>55 St John St</td>
</tr>
<tr>
<td>Social Sciences and Arts, School of</td>
<td>PH644</td>
</tr>
<tr>
<td>(see School of Soc. Sc. &amp; Arts)</td>
<td>PH644</td>
</tr>
<tr>
<td>Sports Association</td>
<td>PK215</td>
</tr>
<tr>
<td>Student Admin. and Records</td>
<td>PK107</td>
</tr>
<tr>
<td>Student Services</td>
<td>PK228</td>
</tr>
<tr>
<td>Student Union</td>
<td>PK214</td>
</tr>
<tr>
<td>Swinburne School of Design</td>
<td>Building PA</td>
</tr>
<tr>
<td>Swinburne Student Bookshop</td>
<td>PU101a</td>
</tr>
<tr>
<td>Switchboard</td>
<td>PG103</td>
</tr>
<tr>
<td>Theatre</td>
<td>PH, level 1</td>
</tr>
<tr>
<td>Toilets</td>
<td>PA levels 2, 3, 4, 5, 6, PB level 2, PC level 1, PD level 1, PH levels 2, 4, 5, 6, PK levels 1, 2, 3, 4, 5, PJ level 1, PU level 2</td>
</tr>
<tr>
<td>U3A, University of the Third Age, 140 High St</td>
<td></td>
</tr>
</tbody>
</table>
General enquiries: **9214 6700**

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 higher education degrees in graphic and industrial 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 Swinburne School of Design offers a range of graphic and industrial 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 School of Design building, a new Performing Arts complex and a new building housing social sciences, library, student facilities and cafeteria. Only five kilometres south of Melbourne, Prahran campus is easily accessible by train, tram and bus.
UNIVERSITY COUNCIL

Membership as at July 1996

Chancellor
R. Pratt, AO

Appointed by the Governor-in-Council
M.L. Cattermole, BSc(Melb), FACS
R.J. Coughlin, DipAppSc(SIT), TSTC(MSTC)
W.G. Elms, FCIA, AFAIM
N.J. Maughan, MLA
S.M. Nguyen, MLC
Professor B. van Ernst, BA, MEd(LaT), PhD(LaT), TPTC, MACE
R. Varty, MLC
K.N. Watson, AM, BA, BEd(Melb)
S. Lipski, AM, BA(Melb)

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Appointed by the University Council
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K.D. Brown, CertProfMedLabTech(NZ), GradDipOrgBeh(SIT), TTIC(Haw)
T.W. Brown, FCA (Deputy Chancellor)
P. Eng, MB, BS(S’pore)
J. King, BA(Murd)
J.D. White, BEng(Hons)(Adel), PhD(Camb), FIE Aust, MAIM

Member ex officio
Professor J.G. Wallace, MA, MEd(Glas), PhD(Brist), FASSA (Vice-Chancellor)

Appointed by the Academic Board
Associate Professor T.H. Randle, BEd(Melb), MSc(LaT), PhD(Salford), ARACI, MRSC, MACA

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Elected by TAFE Academic Staff
C. Forbes, BA, BSc(Hons)(Mon), TPTC

Elected by General Staff
V.C. Deeker, CChemEng(SIT)

N.H. Nilsen

Elected by Higher Education Undergraduate Students
K. Brady

Elected by Higher Education Postgraduate Students
L. Bongiorno, BA(Melb)

Elected by TAFE students
D.C. Lilja

Council Secretariat
Secretary
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Executive Officer
A.J. Miles, BSc(Melb), BEd(Mon)

Academic Registrar
A.R. Grigg, BA(Hons), PhD(Otago)

Professor Emeritus
J.H. Perry, BSc(Tech)(NSW), PhD(St’ton)
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Chancellery
Chancellor
R. Pratt, AO
Vice-Chancellor
Professor J.G. Wallace, MA, MEd(Glas), PhD(Brist), FASSA
Deputy Vice-Chancellor
F.G. Bannon, BCom(Melb), FCPA, ACIS, ACIM, LCA
Pro Vice-Chancellor (Academic), Business, Humanities and Social Science Division
Professor M.C. Frazer, BA(Deakin), BSc(Hons)(Mon), GradDipEdTert (DDIAE), MAdmin(Mon), PhD(Camb), AIMM, MAIP, MACE
Pro Vice-Chancellor (Academic), Science, Engineering and Design Division
Professor J.G. McLean, BVSc(Syd), HDA(Hons), PhD(Melb), CompIEAust.
Director, TAFE Division
P. Veenker. DipBus(Acc)(PCAE), BBus(SIT), MEdStud(Mgt)(Mon), TTC(HIE), CPA, MACE
Pro Vice-Chancellor (Academic), Industry and Business Liaison
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Pro Vice-Chancellor, Information Services
H. Gunn, MSc, PhD(Otago), GradDip(CIT), MBA (Deakin)
Pro Vice-Chancellor, Research
Professor K.C. Pratt, BE(Chem), PhD(Melb), FICE, FIEAust, FTS
Manager, Planning & Information Systems
R.D. Sharma, BSc(Tas), DipEd(Tas), GradDipOpsRes(RMIT), MEdAdmin(NewEng), PhD
Executive Officer to the Vice-Chancellor
M.A. Tomlinson, 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
V. Anderson

Information Services
Pro Vice-Chancellor
H. Gunn, GradDipEDP(CIT), MBA(Deakin), MSc, PhD(Otago)

Information Technology Services
Director
A. Young, BEng, MEng, MIREE

Computer and Network Services
Manager
J. McDonell, BSc, MBA(Mon), PhD(LaT)

Applications Management Services
Manager
H.J. Uffindell, GradDipEdAdmin(Haw)

Learning Services
Director (Acting)
R. Philp, ABCTechCert

Library
Swinburne Librarian
F. Hegarty, BA(UNewEng), DipLib(QIT), BEd(LaT), AALIA

Office for Quality and Educational Development
Head
R. Carmichael, BA(Mon), BEd(LaT), TSTC(MonTC)

International Office
Dean
I.A. McCormick, BComm(Melb), MAdmin(Mon), FASA, CPA

Research and Graduate Studies
Pro Vice-Chancellor
Professor K.C. Pratt, BE(Chem), PhD(Melb), FICE, FIEAust, FTS

Research and Graduate Studies, General Manager
J. Baird, BA(Hons), BLitt(Melb), MBA(RMIT)
Corporate Services

Facilities and Services Group
Director
N. Zorbas, BE(Hons)(WAust), MEd, MEngSc(Melb), FIEAust, CPEng
Manager Maintenance (Hawthorn)
N. Drago
Manager Maintenance (Prahran)
D. Baker
Manager, Property and Services
D. Sharp
Staff Architect
S. Bartlett, BArch, RIBA, ARAIA
Finance Department
Director
P.F. Read, DipComm(FIT), AASA, CPA
Systems Accountant
J.F. Rayner, BSc(Melb), DipEd(Melb)
Divisional Accountant, Higher Education Sector
P. Hotchin, BA(Deakin), GradDipBusAdmin(STT), AASA, CPA

Human Resources Department
Manager
Vacant
Deputy Manager
A. McFarland, BA(LaT), GradDipBus(HRM)(VicColl)
Safety Coordinator
A. Skotnicki, BAppSc(FIT), GradDipIndHygne(Deakin)

External Affairs
Executive Director
J. Oliver, DipMkt(Chartered Inst of Marketing)
Manager, Alumni and Fundraising
Associate Professor B.C. McDonald, BCom, DipEd(Melb), FCPA
Manager, Careers and Employment
R. Ware, BA(LaT), Dip Ed(MSC), GradDipCareers(VicColl)
Manager, Marketing Department
J. Cooper, BA(Hons)(Melb)
Manager, Swinburne Press
L. Scheuch-Evans, BS in Foreign Service(G'town)

Academic Registrar’s Department
Academic Registrar
A.R. Grigg, BA(Hons), PhD(Otago)

Security Department
Chief Security Officer
N. Burge

Equity Unit
Manager (Acting)
E. Shave, BEd(Rusden), GradDipEOAdmin(SIT)

Student and Educational Services
Manager
Z. Burgess, BA(Mon), GradDipEdPsych(Mon), MEd(LaT), MAPs, VAFT, AIM

Higher Education Sector

Division of Business, Humanities and Social Science

Pro Vice-Chancellor
Professor M.C. Frazer, BA(Deakin), BSc(Hons)(Mon), GradDipEdTerr(DDIAE), MAdmin(Mon), PhD(Camb), FAIM, MAIP, MACE

Deputy Head of Division
D.G. Adams, BCom(Melb), MAdmin(Mon), TSTC

Head, School of Commerce
N.J. Allport, BEd(Mon), BCom, MBA(Melb), FCPA

Head, School of Information Systems
J.A. James, DipMedRadiotherapy, GradDipDP(RMIT)MBIT(RMIT)MACS

Head, School of International and Political Studies
D.Y. Mayer, BA(Melb), LLB(Melb), GradDipEd(Haw), MA(Mon)

Head, School of Management
B. Cargill, BA(Melb), MEd(Melb), MAPs, MAHRI

Head, School of Social and Behavioural Sciences
Associate Professor K.J. Heskin, BA(Hons)(Queens), MA(Dub), PhD(Dunelm). CPsychol, AFBPsS, MAPsS

Division of Science, Engineering and Design

Pro Vice-Chancellor
Professor J.G. McLean, BVSc(Syd), HDA(Hons), PhD(Melb), CompIEAust

Deputy Head of Division
R.B. Sandie, BCE, MEngSc(Melb), FIEAust, CPEng

Head, School of Biophysical Sciences and Electrical Engineering
D. Murphy, BE(Mon), MSc(Lond), DPhil(Oxon), FIE(Aust), CPEng

Head, School of Chemical Sciences
I.K. Jones, BAgSc, DipEd, PhD(Melb), FRACI

Head, School of Civil Engineering and Building
R.B. Sandie, BCE, MEngSc(Melb), FIEAust, CPEng

Head, School of Computer Science and Software Engineering
D.D. Grant, MSc(Melb), PhD(Reading)

Head, School of Mathematical Sciences
P.L. Jones, DipEd(Mon), BSc(Melb), PhD(Mon)

Head, School of Mechanical and Manufacturing Engineering
M.D. Buley, BE(Chem)(Mon), DipMechEng(SUT), MSc(Aston), TTTC(TTC)

Head, The Swinburne School of Design
Professor Bob Miller-Smith, FCSD, FDIA, FSTD, FRSA
TAFE Division

Director
P. Veenker, DipBus(Acc)(PCAE), BBus(SIT), MEdStud(Mgt)(Mon), TTTC(HIE), CPA, MACE

Deputy Director (Operations)
D. Bennett, BA, DipEd, BEd, MEd(Melb), MACE

Assistant Director TAFE Planning and Educational Services
Peter Lochert, BSc(Biol)(LaT)

Assistant Director TAFE Administration and Information Systems
Philip Wilkins, BBus(VicC), GradDipAIS(CIT), AASA

Manager, TAFE Institutional Development
G. Wickes, AssDipPA(RMIT), GradCertEntMan(SIT)

Senior Curriculum Development Officer
C. Grayson, BSc(Hons), DipEd(Mon), BArch(Hons)(RMIT)

Senior Executive Officer to Director
J. Johnston, BSc(Ed)(Melb)

Head, PC Support Services
D. Williamson, CNE(SIT)

School of Business and Information Systems

Head
R. Conn, BBus(SIT), DipEd(Mon), CPA

Assistant Head
D. Tonkin, BIPBusStud(Adv), DipEd

Head, Financial Services
M.J. Joyce, BBus(SIT), DipEd(HIE), ASCPA

Head, Management Studies
H. Hayes, BA(RMIT), DipEd(HIE), GradCertBusAdmin(SIT)

Head, Marketing and Administration Studies
C. Kent, NZTC(CSTC), BA(SIT)

Manager, Centre for Business Development and Training
Vacant

School of Engineering and Industrial Science

Head
Ray Fallu, BSc(Mon), DipEd(Mon), CompIAust

Deputy Head (Acting)
A.G. Hampton, TechCert(Electronics)(HIE), BEd(Deakin)

Head, Electrical and Electronics Technology Department (Acting)
M. Cadillac, COT(Elec)(SIT), DIPTT(HIE), BEng(CompSys)(SUT)

Head, Industrial Sciences Department
J. Cashion, BSc(Melb), DipEd, DipCompSc, GradAIP

Head, Mechanical and Manufacturing Technology Department (Acting)
K. Decd. Jig&ToolTechCert(SIT), BEd(HIE)

Manager, Centre for Engineering Technology
L.J. McLaughlan, Cert(Jig&ToolDraft), Cert(Toolmaking), TTrIC, DIPTT(Haw)

Manager, Training and Development Support Unit
P. DeFelice, BSc(Mon), DipEd(Rusden)

Manager, National Scientific Instrumentation Training Centre
G. Jordan, MPharm(VicCollPharmacy)

School of Social Sciences and Arts

Head
J. Bissland, BA(Hons), GradDipChDev, GradDipEd, MA, MEd

Deputy Head
G. Arnott, BEC, BEd(Mon), GradDipBusAdmin(SIT)

Access, Community and Language Programs (Acting Head)
L. Cutting, GradDipSecStudies(UK), DipEd(LaTrobe), MA(Melb)

Director, English Language Centre
A. Redpath, BA, DipEd, GradDipTESL

Head, Adult and General Education
B. Brosnan, BA(Hons), MEd(Monash), DipTEFL(ILC Edinburgh)

Head, Child Studies and Health
C. Forbes, TPTC, BA, BSc(Hons)(Mon)

Head, Arts
P. Creed, BA(Hons), DipTeaching

Head, Family and Community Studies
M. Juchnowski, BA, DipEd, MA

Manager, Workplace Skills Unit
G. Cohen, BEd
Swinburne University of Technology

Governance Structure
Organisational Chart

Council

Statutory Boards of the University
- Academic Board
  - Divisional Boards
  - Higher Degrees Committee
  - Degree and Diploma Review Committee
  - Finance & Resources Committee
  - Academic Policy & Planning Committee

Board of TAFE

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
Swinburne University of Technology

University Structure
Organisational Chart

Council

Chancellery
Vice-Chancellor
Deputy Vice-Chancellor

* Further details in the following charts
Division of Business, Humanities and Social Science

Pro Vice-Chancellor
Deputy Head of Division
Policy and Planning Administration-DivManager
Student and Course Administration-DivManager

Professor Murray Frazer
Mr Darrell Adams
Ms Maree Conway
Ms Toni Kilsby

School of Social and Behavioural Science
Associate Professor Ken Heskin

School of Information Systems
Ms Julie James

School of Commerce
Mr Neville Allport

School of Management
Ms Barbara Cargill

School of International and Political Studies
Mr David Mayer
Division of Science, Engineering and Design

Pro Vice-Chancellor
Academic Development Director
Divisional Manager/Administration

Professor Jock McLean
Mr Ted Hausler
Ms Jackie Berry

School of Computer Science and Software Engineering
Associate Professor Doug Grant

School of Chemical Sciences
Dr Ian Jones

School of Mathematical Sciences
Professor Peter Jones

The Swinburne School of Design
Professor Bob Miller-Smith

School of Civil Engineering and Building
Mr Bruce Sandie

School of Mechanical and Manufacturing Engineering
Mr Malcolm Buley

School of Biophysical Sciences and Electrical Engineering
Associate Professor Dale Murphy
University Services

Access Education Services
Access Education is part of the Department of Access, Community and Language Programs. Several services and programs are available.

Compensatory Education
Teacher in charge
R. Thomas, 9214 8816

Secretary
H. Heathcock, 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 particular 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 from the houses located at 40 to 44 William Street in Hawthorn and room H638 at Prahran. Understanding staff are available to discuss people's problems in English and/or mathematics and follow up with appropriate tuition.

Community Access Programs
Ph: 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. In addition, courses are provided with appropriate mathematics and English content to cater for students interested in sitting an entrance examination in nursing, the police force, ambulance service or the fire brigade.

Swinburne 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 enables you to stay in touch with friends made at Swinburne by organising reunions, seminars and other functions. Three times a year all alumni receive 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:

Jennifer Cookson,
Telephone: 9214 8705
(For information about chapter groups, consult divisional entries.)

Bookshops
(Student Bookshop Co-operative Limited)

Manager
R. Wilkens, 9214 8225

General enquiries
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.
Phone: 9214 6730

Lilydale
The bookshop is located in the LA Building next to the library and cafeteria. Phone: 9215 7181

Normal trading hours
Hawthorn campus
Monday-Thursday 8.30am-7.30pm
Friday 8.30am-5.00pm

Prahran campus
Monday-Thursday 9.00am-6.00pm
Friday 9.30am-5.00pm

Lilydale campus
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 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.

Centre for Business Development & Training
Originally established in 1986 as a centre to service small business, the Centre for Business Development and Training has evolved to become Swinburne's premier corporate and industry training centre.

The Centre for Business Development and Training is totally committed to providing quality training to all our clients - whether they be individuals seeking to acquire new skills or companies seeking to develop their staff as part of a greater change process. Our trainers are highly qualified industry based specialists who provide tailored "hands-on" programs to our clients.

In essence, the Centre has embraced a "can-do" approach working with you, the client, as the prime focus of our activities.

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 for students include
- career counselling
- résumé writing
- employment interview preparation
- careers/employment information and resources
- professional links program
- vocational assessment

Services for staff and community include
- course information
- schools liaison
- career development workshops
- resource development for careers practitioners
- individual consultations

Chaplaincy
Hawthorn Campus
Chaplain
Mavis Payne
Office Location
473 Burwood Rd, Room 475B106 (alongside Student Health Centre)
Telephone: 9214 8489
Available: Monday, Tuesday, Wednesday
Assistant Chaplain
Christopher Gibson
Available: Thursday (office), Wednesday (The Place - see below) and Friday (office)
Lilydale campus
Richard O’Brien is the visiting chaplain, and is on campus one lunch-time each week, or by appointment.
Telephone: 9725 5370

Prahrancampus
Howard Langmead is the visiting chaplain, and is available at St Matthew’s church (opposite the campus) or by appointment. Ph: 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 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, Students for Christ, Overseas Christian Fellowship, Indonesian Campus Ministries, Hillel: Foundation of Jewish Campus Life, and the Swinburne Islamic Society, all meet at Swinburne.

The Place
The Place is a Student Drop-In Centre, situated in the Hall opposite the Hawthorn campus on Burwood Road. It is open Monday-Friday during semester as a meeting place for Swinburne students. It is run by the churches in Hawthorn with the cooperation of the chaplains.

A quiet/prayer room and an Islamic Prayer room are both rooms set aside for use by students.

Child-care Centre
Coordinator
S. Somerville, 9214 8519

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’s two houses 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 caters for children up to five years of age, not only from Swinburne parents, but other members of the community. A sliding scale of fees has been adopted. Early application for use of this service is advised as there is a waiting list.

Evening child-care
Evening care until 10.00pm is available for children between the ages of 0-14 years at reasonable rates on a casual basis. Please contact the Child-care Service on 9214 8519.

Computing Facilities
Open Access Computing Laboratories
Student access to computing laboratories is provided by Computer and Network Services (CNS) at each campus. Together with a team of student cadets, CNS manage and maintain the open access computing laboratory in the West Wing (2nd floor, West Engineering Building, Hawthorn) as well as several classrooms. Nearly 100 PCs are provided in the West Wing laboratory, running a range of software packages for all University students and staff, and user manuals are available for loan. 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, operated by the cadets, 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: 9214 8574

The West Wing is not open every weekend so please call to check before coming in.

CNS also manage 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-ROM on some machines in the Library Studies area. JAC, the Job and Course Explorer, is also available.

Opening Hours – Hawthorn TAFE
Monday – Thursday: 8.30am - 8.00pm
Friday: 8.30am - 7.00pm
Saturday: 10.00am - 3.00pm
Enquiries: 9214 8037
Opening Hours – Prahran TAFE
Monday – Friday: 8.00am – 9.30pm
Weekend access and access after normal weekday hours must be arranged with your lecturer, who will provide you with a memo giving permission.
Enquiries: 9214 6705

Opening hours – Lilydale
Monday – Friday: 9.00am – 5.00pm
Laboratories at all campuses are open to both TAFE and Higher Education students from all Swinburne campuses and each campus has several other classrooms which students can use between scheduled classes.

Central computing facilities
CNS manage seven 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 CNS’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.

Swinburne’s Network is available for dial-in access via modem. Dial-in numbers are 9214 8619 for 1200/2400 bps modems and 9214 5219 for 9600 modems. SLIP/PPP access is now available, the dial-in number is 9214 5109.

Help Desk
For assistance with any facilities supported by CNS contact the ISG central Help Desk on 9 214 5000 or email helpdesk@swin.edu.au. The Help Desk is open between 8.00am and 6.00pm Monday to Friday and is located in Room EN211A.

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 publication, Policies and Procedures handbook 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 http://www.swin.edu.au

English Language for Migrants

Migrant Education Coordination
Gina Gawenda
Prahran 9214 6957
Hawthorn 9214 5337
Swinburne offers a variety of courses and support programs for migrants, for whom English is their second language, who are:
• 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 courses
Preparation for further study and work — Hawthorn and Prahran campus.

Part-time, evening courses
Preparation for further study and work — Hawthorn and Prahran campus.

January summer school
English for academic purposes (full-time program) — Hawthorn campus.

Language support within a mainstream course
At both 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 both 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, 9214 8151.

Equity Unit
Manager (Acting)
L. Shave, 9214 8855
Location
477 Burwood Road
Swinburne University of Technology is committed to providing a learning and working environment that is based on equality of opportunity for all.
Discrimination on the basis of gender, ethnicity, marital or
family status, impairment, religious or political beliefs, age, or sexual preference will not be tolerated.

Student admission and assessment procedures, as well as staff recruitment and selection, will be conducted in accordance with the merit principle.

Swinburne is committed to providing an environment free from sexual harassment as well as pursuing a policy of Affirmative Action.

For further advice or assistance please contact the Equity Unit on 9214 8855.

**International Office**

473 Burwood Road, Hawthorn, 9214 8151, 9214 8647

Dean

I.A. McCormick

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**

Head

Ms Catherine Chu

The International Student Unit (ISU) provides a focal point for international students at Swinburne. ISU is responsible for international applications and admissions to Swinburne’s University, TAFE and ELICOS courses. ISU is also responsible for the welfare of international students during their studies, and provides a range of support services.

All prospective international students should contact ISU for information on studying at Swinburne. All applications by international students must be sent directly to ISU.

**Off-Shore Programs**

Swinburne conducts a number of education programs offshore. For further information contact the International Office.

**Library**

Libraries on each of the three campuses provide learning and information resources and services in support of Swinburne’s teaching and research programs.

The combined collections include over 200,000 books, 3000 periodical titles, print and CD-ROM indexes and abstracts, and a large collection of audio and video tapes, slides, interactive videodiscs and computer software. All materials in the collections are available for use in the libraries, and most may be borrowed. Access to all collections is facilitated by an online catalogue and an inter-campus loan service. The range of resources available is extended through reciprocal borrowing arrangements with other Victorian university and TAFE libraries, and a number of networked access arrangements to electronic resources including Internet access.

Library staff work closely with teaching staff to develop collections and resources and help students to make best use of them. Programs designed to develop students' information skills are an integral part of most courses. Individual assistance is provided at service desks on each campus during opening hours. A range of printed guides to library resources and services is also available.

**Opening hours**

Opening hours during teaching periods are:

**Hawthorn campus**

Tel.: 9214 8330

Monday-Thursday: 8.15am-10pm

Friday: 8.15am-8.30pm

Most Saturdays, some Sundays, Labour Day, Anzac Day, Queen’s Birthday, Melbourne Cup Day.

**Lilydale campus**

Tel.: 9215 7115

Monday-Thursday: 8.30am-6.00pm

Friday: 8.30am-5.00pm

Some Saturdays, Anzac Day, Queen’s Birthday, Melbourne Cup Day.

**Prahran Campus**

Tel.: 9214 6998

Monday-Thursday: 8.15am-8.30pm

Friday: 8.15am-5pm

Queen’s Birthday, Melbourne Cup Day, most Saturdays

Check library guides, on-line catalogue, bulletin board, Library home page and noticeboards for weekend and public holiday times, non-teaching periods and changes.

**Summary of Library borrowing regulations and conditions of use**

**Persons entitled to use the library**

Each campus library is available for the use of all full-time and part-time students and staff of Swinburne University of Technology who accept the library regulations. Members of the general public, including past students and staff, are welcome to read or use the facilities within the library provided that they also accept the regulations. They may also borrow from the library on payment of a membership fee to the Swinburne Library Information Service or the Alumni Association.

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 the Council and Board of TAFE of Swinburne.

Full-time and part-time staff members of Swinburne University of Technology.

Full-time and part-time students 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.
Such other persons or organisations as the University Librarian or Campus Librarian may from time to time approve as borrowers.

Photocopying
Photocopying machines are available in the library. Users must note the relevant provisions of the Copyright Act and abide by them.

Borrowing
All material borrowed must be recorded at appropriate issue points before the patron 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. The library reserves the right to recall any item on loan before the expiration of the normal loan period.

Most library materials may be returned to any of the campus libraries.

Identity cards
A current Swinburne identity card must be presented each time an item is borrowed, otherwise service will be refused. Cards are not transferable and lost identity cards must be reported and replaced immediately.

Borrowing periods
Students: the normal loan period for books is a fortnight. This period may be extended provided that the item has not been reserved by another user and that it is not overdue.

Staff: the normal loan period for staff members and higher degree students for books is four weeks. This period may be extended provided that the item has not been reserved by another user and that it is not overdue.

Reserve collections
Most material in these collections may be borrowed for a period of two hours for use within the library. A small number of items are available for overnight loan.

Items not available for home loan
These include material in the reference collection, rare books and archive collection, and any items marked ‘Not for loan’ or ‘Display’.

Periodicals and audiovisual material
Details of loan conditions for items from the periodicals and audiovisual collections are contained in the campus library guides.

Holds and intercampus requests
Students and staff members can reserve an item which is out on loan or request an item from another campus by placing a hold on it using the computer catalogue.

Lost or damaged material
If an item is lost or damaged this must be reported immediately. The borrower is responsible for the replacement cost plus an administrative charge. Borrowers are responsible for the cost of replacement or repair of damaged items.

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. Further details of these 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 students or staff who have accrued fines in excess of $30.00 during the previous twelve months.

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.

An atmosphere of quiet must be maintained in the library so that it is at all times a place conducive to independent study and quiet reading. Discussion is permitted only in areas so designated.

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 engages in anti-social behaviour or 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.

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 University Librarian.

At the discretion of the University Librarian 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
A range of specialized equipment to assist students with disabilities is available at Prahran and Hawthorn campus libraries. For example, a Xerox scanner with voice
synthesizer and screen enlarger is available at Hawthorn campus, while Artic Dectalk Express voice synthesizer with Artic Magnum Deluxe Screen Enlargement software is available at both Prahran and Hawthorn to enable access to the catalogue and various Windows applications for those with visual disabilities. All levels of Prahran and Hawthorn and Lilydale libraries are wheelchair accessible, and several adjustable height tables are available for use at Prahran. Storage lockers are available on request and TTY telephones are located at the Information desk at both Prahran (9214 6833) and Hawthorn (9214 8840). For more information on these and other services, including assistance with searches and item retrieval, contact the disability liaison librarian at each campus: Hawthorn - phone 9214 8337, Prahran - phone 9214 6785, Lilydale - phone 9214 7115.

**Office for Quality and Educational Development**

The Office for Quality and Educational Development (QED) was formed in 1996. It employs the principles and practices of quality management in order to assist staff with their efforts to achieve the University's strategic teaching and learning, and institutional development goals. QED consists of the following core functions:

- the course evaluation system to survey student and graduate perceptions of course quality;
- the Educational development Unit, to assist the professional development of teaching staff;
- the Quality Unit, to support and develop the improvement of University's management of its work processes through the Swinburne Quality Management System (SQMS).

Through these functions QED provides a range of projects, training programs and consultancy services to help continuously improve the quality of the University's educational programs, related services and administrative procedures.

**Transport, Access and Parking**

**Public transport**

**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 Burwood Road (No. 732 to Box Hill) and Auburn Road (No. 624 from Kew to Chadstone Shopping Centre).

**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. 16 Glen Iris tram stopping outside the door in High Street, as well as the North Richmond - Prahran (no. 78, 79) in nearby Chapel Street.

**Swinburne at Lilydale**

Swinburne at Lilydale is served by train and buses. The campus is on the Lilydale train line. Numerous buses leave from Lilydale Station.

**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. 16 Glen Iris tram stopping outside the door in High Street, as well as the North Richmond - Prahran (no. 78, 79) in nearby Chapel Street.

**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 permits**

Available from Facilities and Services. Student identity card is required.

**Part-time students**

Evening and other part-time students may not leave cars in Swinburne car parks during the day while they attend work.

**Short course students**

Students require a parking permit issued by the office organising the course. Availability of space is not assured.

**Hours of access**

The main car parks open at 7.45am and close at 10.00pm. 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 $40.00. 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 9214 8855 and Prahran 9214 6743.

Motorcycles and bicycles
Campus motorcycle parking and bicycle rack locations can be obtained from Facilities and Services at each campus.

Car pooling
Consideration is given to the provision of reserved spaces for students car pooling at each campus.

Location of car parks
On-campus parking areas are indicated on the campus maps in this Handbook and on the reverse of parking applications and permits.

Possible changes
Swinburne is developing a new University-wide parking policy for staff and students on all campuses and all the above parking regulations are subject to change. It is expected that parking fees will be changed from 1 January 1997.

Student Residence & Carpark
A student accommodation college including apartments and car parking is due to be completed by the beginning of 1997. The complex contains an 86 bedroom student residential college and 38 two and three bedroom apartments. It will provide much needed accommodation for Swinburne students from the country and overseas.

In addition the complex will provide parking for more than 680 cars. The five deck car park will solve many of the problems local residents and the Swinburne community has faced as Swinburne has grown.

Student Services
Director
Zena Burgess
Room BA206c, Business & Arts Building, Hawthorn
9.00am - 5.00pm (Monday-Friday)
Phone: 9214 8423

Prahran Campus
Coordinator
Dinesh Balgovind, Room U206, Building U, Level 2
9.00am - 5.00pm (Monday)
9.00am - 6.00pm (Tuesday, Wednesday, Thursday)
9.00am - 4.00pm (Friday)
Phone: 9214 6720

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Health Service (Hawthorn)
Coordinator
Jan Fischer
Room SH107, Laneway behind library
8.45am - 5.00pm (Monday-Friday)
Phone: 9214-8703
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)
Coordinator (Housing & Part-time Employment)
Gabrielle Rolan, Room 463B203, Phone: 9214-8882
465 Burwood Road, Hawthorn (access via laneway behind library)
9.00am - 5.00pm (Monday-Friday)
Coordinator (Finance, Austudy & Student Loans)
Beth Graham, Room 463B204, Phone: 9214-8953
465 Burwood Road, Hawthorn (access via laneway behind library)
9.00am - 5.00pm (Monday and Thursday)
9.00am • 1.00pm (Wednesday)
1.15pm - 5.00pm (Friday)
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 and advice on Austudy (we have contacts within Austudy and can help sort out and speed up your Austudy application)
  - Financial counselling, including student loans
  - Assistance with fees
  - Information on tax and budgeting
Look under Financial Assistance Schemes for more information.

Financial Assistance Schemes
AUSTUDY
Austudy provides financial assistance to many students, but not all students are eligible and not all get the same amount. Whether you are eligible or how much you get depends on a lot of things, like:
  - what course you are studying
  - how many years you have been studying
  - whether you are full-time or not
  - whether you need to live away from home
  - how much you, your parents or partner earn
  - the value of the assets you and your family have when you applied, etc.

Helpful hints about AUSTUDY
  - Pick up your application form and information booklet from Austudy, a CES office or from Student 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.
  - 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 early — it always takes Austudy some weeks to process your application.
  - If applying for first semester get your application in by 31 March, if you want to receive backpay from 1 January.
  - Don’t accept a decision from Austudy 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 Austudy know immediately.

Some students (including part-time) in receipt of certain Department of Social Security benefits may also be entitled to a Pensioner Education Supplement of $30 per week.
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.
Austudy offers a voluntary loan scheme which is referred to as the Austudy Supplement. Ask your financial adviser on campus for more information before taking up the Supplement option.

**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 Austudy may be eligible for a Health Care card, enabling them to receive a range of concessions.

**Rent Assistance**
Rent Assistance may be available to certain DSS beneficiaries and students in receipt of the Student Homeless Rate.

**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 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.

**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 Services on your campus.

**Concession tickets**
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 Union**

**Brief description**
The Student Union is the primary body offering support services to students at Swinburne, as well as playing an important role in facilitating the representation of student interests to the University. It is a legally incorporated company which all students contribute to through the payment of their General Service Fee to the University. In 1996 membership of the Student Union was free and involved filling out a Union membership form. Membership of the organisation entitles students to stand and vote in elections; and all students are entitled to use services, whether they are members or not.

The Student Union has a solid history of achieving gains for students in the educational arena, through contribution to the University policy making process and assisting individual students who are experiencing problems. In 1995 considerable emphasis was placed on the development of student-friendly academic policy and regulations, workable processes and support programs where required.

At the same time a wide variety of services are offered to students on all campuses, which strive to offer quality at an affordable price and in many instances are free.

**Organisational aims**
The purposes for which the Union is established are:
- to advance the social, educational and general welfare of the student body of Swinburne and to provide services for the student body;
- to represent and safeguard the students in matters affecting their interests and privileges and to afford a recognised means of communication between the students and the authorities of Swinburne and other educational bodies;
- to promote, encourage and coordinate the activities of student committees and societies;
- to strive for wider recognition and greater appreciation of the standard of all academic awards of Swinburne.

**Management**
At the time of writing, the representative structure of the student body is undergoing a thorough review with
expectation that it will better reflect the decision-making flow of the University.

The Union is currently managed by an Executive comprised of the president, the vice-president, finance director, education director, activities director and media director.

The role of the Executive is to manage the business and affairs of the Union. The meetings of the Executive occur at least once a month from February to November and are open to all students.

The affairs of the Union fall principally into the following areas: education and welfare services, social activities, and media. These areas are governed by management committees, whose responsibility is to develop policies of the Union in the areas of their activity. The management committees consist of: the relevant executive as chairperson, two to three students from the Union Executive, two to four students elected from the student body. At monthly meetings the Executive receive and consider policy submitted by the management committees.

In March or April of each year the Executive calls an Annual General Meeting to present the preceding year’s audited financial statement. In October or November of each year the Executive convenes a budget meeting. At this meeting the proposed budget for the next financial year is presented by the Executive to the student body for their approval. Further, the Executive reports on the activities of the Union for the period since the preceding budget meeting.

**Hawthorn campus**

**Student Union Support Services**

The Student Union offers a wide range of support services which all aim to improve the quality of the educational experience of students and to foster a Swinburne community spirit. All services are funded partially or fully by the General Service Fee which students pay on enrolment. All services strive to meet the demands of students as a group, without losing sight of the individual student, and ensuring high standards are met.

**Union Office/Reception**

Telephone: 9214 5440

Facsimile: 9819 2256

The office is situated on the fourth level of the Union Building. Union personnel located on this level include the president, administrative officer, manager, accountant and executive.

Various services are provided here including room bookings, Legal Adviser bookings, insurance claims, facsimile and general information. Also, Youth Hostel Australia Travel Discount cards (YHA) and International Student Identity cards (ISIC). Both give students great discounts and cheap accommodation and travel packages.

The Australian Buying Advisory Service (ABAS) is available at no charge to students. This service guarantees that the price you have been quoted is in fact an unbeatable offer.

**Other services offered:**

**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.

**Ethel Hall**

Clubs and Societies can use the hall for their functions. Bookings must be made at least two weeks in advance.

**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 are made to the Student Union Administration Officer.

**Legal Adviser**

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. Appointments must be made at the Union Office, on 9214 5440.

**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.

**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 must be made through the Union administration officer.

**Student Union Computer Centre**

The Computer Centre offers access to a number of MS Windows PC workstations at both Hawthorn and Prahran. Popular word processing, spreadsheet and DTP packages are available.

**Laser Printing**

Users of the Computer Centre workstations have access to networked laser printers at low per page rates.

**Resumé Typing**

The Computer Centre offers a professional resumé service to word process, print and bind resumes for students at reasonable cost.

**Binding Service**

A thermal glue binding service is available at Hawthorn and Lilydale at a reasonable cost. The covers are A4 with a clear acetate cover.
Student Advisory and Academic Support Centre

The Student Advisory and Academic Support Centre (SAASC) provides a broad range of educational support services and programs. The reception desk aims to be 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.

Professional staff employed within SAASC 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 at SAASC 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 are coordinated by SAASC to provide individual students with greater opportunities and to foster the community spirit. In 1997 a mentor scheme will be operational across many academic areas, which will link new students with returning students, in order to help new students to settle into University life and ensure they can access help if problems arise. SAASC provides 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 resolution. The Youth Initiative provides scholarships for students who undertake work for disadvantaged youth in the wider community.

Student-oriented research is conducted by SAASC, providing quality statistical information to be fed into the policy process and to improve service delivery on campus. SAASC is located on the corner of Burwood Road and John Street.

Opening hours: Monday–Thursday 9.00am–7.00pm, Friday 9.00am–4.00pm.
Telephone: 9214 5455.

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-enrolment.

Student Publications

Students publish a magazine called Tabula Rasa at least once per semester. Tabula Rasa provides 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 the Rasa Writers Club or come to the Media Office.
Telephone: 9214 5448

Visual and Performing Arts (VPA) Activities

In conjunction with the Activities Management Committee, the VPA 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-timers’ evenings and the E Lounge. Students help to organise activities through the Activities Management 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. The VPA office is located on Level 4 of the Union Building, Hawthorn campus.
Telephone: 9214 5459

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 organising events which suit their members. There are more than fifty clubs and societies for students at Hawthorn to choose from and the ability to start more. High quality meeting and storage facilities are provided in the SAASC Centre. A mini bus is available for clubs and societies to book via the Tool Library, with no charge except for a deposit, refundable upon the return of an undamaged bus. The Clubs and Societies office, located at SAASC, will assist with queries regarding the starting of clubs, affiliation and support with resources.
Telephone: 9214 5455

Orientation

All new students 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 in the Contact Building and 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, closed
Wednesday.
Telephone: 9214 8291

Night Bus
To ensure safety after dark a night bus service is offered,
which picks students up from outside the Administration
Building and drops them at their cars. Drivers are selected
and trained to be safety conscious and to offer a quality
service. This service runs from Monday to Thursday from
6 pm to 10 pm, throughout teaching and exam weeks. This
service is funded through the General Service Fee.

Union Services TAFE
There is a Student Union outlet available in the Corner
Building, to Higher Education and particularly TAFE
students, who study close by. At the Union Services desk
all types of queries can be resolved by the staff. The staff
welcome all enquiries and possess a high level of knowledge
about the campus. Student and staff may be referred to
other services on campus.

Notices for notice boards are approved by staff at this
outlet for students wishing to promote club activities,
advertise sale of textbooks, calculators etc. A poster run is
conducted by the Student Union once a week and students
may leave notices at the Union Services desk to be put up.
Newspapers and magazines are available for students to
borrow and read while they eat their lunch in the cafeteria.
Stationery, games and playing cards are also available for
student use.

Located in the Corner Building, on the corner of John and
Wakefield Streets.
Telephone: 9214 8869

Photocopying
The Student Union operates a photocopying service in the
Corner Building, corner of John and Wakefield Streets.
Photocopying is cheaper here than in the library and high
quality colour and black-and-white copying on recycled
paper is available. Copying on transparencies for overheads
is also available at a very reasonable price, and there are
staff present to give assistance.

A copytext card machine with a choice of $2.00 and $5.00
cards is available for the use of Student Union photocopiers.

Catering Department
Courtyard Cafeteria
Located on the ground floor of the Union Building, this
popular new cafeteria offers a wide variety of fresh
sandwiches, focaccias, salads and fried foods. The cafeteria
offers an Asian style of dining and is perfect for the student
on a budget. Smokers are catered for in the undercover
seating area and the environment is clean and inviting.
Seats forty-eight inside and thirty-six outside.

Opening hours: 8.00am–9.00pm, Monday–Thursday
during teaching semester times.
8.00am–3.00pm, Friday.
Telephone: 9214 8823

Ethel Caf

The Ethel Caf is the largest cafeteria on campus, located on
the third floor of the Union Building adjacent to the
Greenhouse Bar/Bistro. The Amusement Centre, offering
pool tables, video games and pinball machines, is situated
here and the food servery offering a range of fast foods
opens daily between 10.00am and 3.00pm to service
players. This cafe offers a large space for student clubs to
run special activities and seats about 250 people.
Telephone: 9214 8247

Greenhouse Bar/Bistro
The Greenhouse is the place to be seen on campus. Enjoy a
wine or beer with your meal, or relax with friends over a
delicious cappuccino and cake. The Greenhouse is located
on the third floor of the Union Building. The bar offers
Victorian and boutique bottled beers, a large selection of
spirits and cocktails and wines from the Yarra Valley. For
diners who like to eat and drink in the fresh air, the
outdoor terrace offers a garden retreat. Our Student Union
Functions Department caters for weddings, twenty- firsts
and other social events in the Greenhouse for both
students and staff at competitive prices.

Opening hours: Monday–Wednesday 9.00am–6.00pm,
Thursday–Friday 9.00am until late and weekends
depending on functions. Seats 120 inside, 48 outside.
Telephone: 9214 5453, 9214 8174

Corner Caf
Located on the corner of John and Wakefield streets, this
extremely popular cafeteria provides an upmarket range of
salads, gourmet sandwiches and snacks at a reasonable
price. The Corner Caf has a clean and pleasant
environment and is convenient to both University and
TAFE students and staff.

Seats 70.
Opening hours: Monday–Friday: 8.00am–8.00pm,
Friday: 8.00am–3.30pm Telephone: 9214 8380

Functions Department
If you are having a wedding, 21st, graduation party or
maybe just a meeting, this department can offer clubs,
students and staff a wide range of catering from buffets and
sit-down meals, to light luncheons, afternoon teas, cocktail
parties and BBQs. The Functions Supervisor can advise
you on menus and quantities. Please remember we do need
two working days notice for refreshments and five working
days for larger functions.
Telephone: 9214 8174, 9214 8247 or 9214 8172

Lilydale campus
Student Union facilities at the Lilydale campus include a
Student Union Services Desk which is staffed between 9.00
am and 4.00 pm, to provide students with an information
The Student Union also offers a student meeting room and a student lounge with a pool table, access to CD player and reading material.

**Manager, Lilydale campus**
A. McGill, 9215 9351 or 9215 7181

Nearly all Union Services outlined in the Handbook are available at Lilydale at the Student Union Services Desk.

**Catering - Lilydale**
The Student Union also provides limited catering facilities at Lilydale. These can be found at the kiosk on the ground floor, set back from the Atrium next to the Student Union Services Desk. We offer a small range of hot and cold food, such as sandwiches, cakes, pies and snacks.

Opening hours - Mon - Thurs 8.00 am - 3.30 pm
Fri 8.00 am - 3.00 pm.

Telephone: 9761 9350 or 9215 7181.

**Catering Supervisor**
L. Forster, 9761 9350

**Prahran campus**
The Student Union offices are located on level two of Building K, behind the Union Services Desk. From here, students can book the Student Union meeting room (also located on this level), borrow one of the many magazines for leisure reading and find out information about the functions and activities of the Union. An Education Officer is employed at Prahran to look after the educational needs of Prahran students and follow up any concerns of students.

We provide two photocopiers for quality copying at the cheapest rate on campus, and we sell transparencies for use on our copiers. The student lounge is a comfortable and pleasant alternative to the other areas on the Prahran campus. Daily papers are available so students can keep up with life outside the campus. A water dispenser is available in the lounge for students to use, you can either buy a cup from the services desk for 5c or bring your own 500 ml bottle or cup.

There are regular activities for students to participate in, either by turning up on the day or more actively by helping with their organisation. They are all advertised in the Student Union newspaper *The Swine*. These activities ensure all students have the opportunity to relax and mingle with each other in an enjoyable environment.

There are a number of clubs on the Prahran campus and the potential for more, if students are interested in being involved.

The weekly publication of the Student Union, *The Swine*, is distributed right across campus. Prahran students can contribute articles, public notices, letters or advertisements by filling in a contribution sheet from the Student Union Services Desk. Students can pick up their copy of *The Swine* from the various distribution points across campus.

For more information visit the Student Union Services Desk or phone 9214 6729.

**Catering - Prahran**
Located in Building U on John Street, the Caf is proving to be a match for any of the food on Chapel Street at a much cheaper price, offering a wide range of hot and cold gourmet foods, salads, freshly made sandwiches, snacks and beverages. We also offer a catering service to clubs and internal departments.

Opening hours: Monday–Thursday: 8.00 am to 8.00 pm and Friday: 8.00 am to 3.30 pm.

Telephone: 9214 6501

**Sports Association**

**Opening hours and contact**

**Hawthorn**
Monday-Friday 7.00 am–10.00 pm
Saturday-Sunday 12.00 pm–5.00 pm
Sports Centre (Building 19)
Phone: 9214 8018

**Lilydale**
Monday-Friday 10.00 am–4.00 pm
Prahran
Monday-Friday 9.00 am–5.00 pm
Room Student Services, Building K
Phone: 9214 6745

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 1969. It is managed by students and has eight full-time employees across the three campuses.

**Recreations**
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 costs are subsidised by the Association, making it possible to enrol in an activity which would normally be too expensive.

**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, tae kown do, soccer and volleyball to the recreational based clubs such as hang-gliding, scuba, snowskiing, sky-diving, 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.

**Intercampus 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.

**Swinburne Graduate Research School (SGRS)**

General Manager, Research and Graduate Studies

J. Baird

The mission of the Swinburne Graduate Research School and the Office of Research and Graduate Studies is to promote and coordinate research and development activities by Swinburne staff and postgraduate students. It provides a University-wide perspective on research at the University. There are several key service areas for staff and postgraduates.

**The Swinburne Graduate Research School**

The 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 School 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 degrees and coordination of other research studies. It provides prospective doctoral students with a variety of information on doctoral study including: details about admissions to candidature, 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, phone 9214 5224.

**Office of Research and Graduate Studies**

The Office 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 9214 5223.

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.
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Swinburne Centres

Research Centres at Swinburne

In 1995, the University's Board of Research and Graduate Studies adopted a three-tier structure for research development and support. Tier 1 includes major research centres or institutes and tier 2 is comprised of other recognised research centres. During 1995/6 two major research centres were given the status of institutes. The establishment of two tier 2 research centres for 1996 has been approved by the Board of Research and Graduate Studies.

Tier 1 Research Centres or Institutes
Brain Sciences Institute (formerly the Swinburne Centre for Applied Neurosciences)
Industrial Research Institute Swinburne (IRIS) (formerly the Centre for Computer Integrated Manufacture)
Centre for Applied Colloid and BioColloid Science
Centre for Urban and Social Research
Tier 2 Recognised Research Centres
Asia-Australia Research Centre
Swinburne Computer Human Interaction Laboratory

Centre for Applied Colloid and BioColloid Science

Head
Dr I.H. Harding
School of Chemical Sciences
Telephone: 9214 8715
Fax: 9819 0834
Email: iharding@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 some biochemistry. 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. 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 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.

Asia-Australia Research Centre (AARC)

Director
Professor Ken Young
Deputy Director
Dr Pradeep Taneja

Division of Business, Humanities & Social Science
Telephone: 9214 5243 or 9214 8101 Fax: 9214 8747

The Centre was established in 1996. Its mission is to become an internationally recognised centre of excellence in research, scholarship and commentary on Asia and Australia, their relationships and role in the contemporary world. It aims to win recognition within the wider scholarly, government and business community of Swinburne's expertise in Asia, to develop a significant consulting and advisory service for business, government and the community, and to raise Swinburne's profile in the area of Asia-oriented research.

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 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.
Centre for Biomedical Instrumentation

Director
Dr. A. Wood (Acting)
School of Biophysical Sciences and Electrical Engineering
Telephone: 9214 8867 Fax: 9214 8867
Email: andrewwood@swin.edu.au

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. At present, research activities include electrical impedance tomography, instrumentation for ambulatory monitoring, instrumentation for isometric muscle-strength assessment, instrumentation for electroencephalography, biological applications of laser scanning confocal microscopy, Raman and Mossbauer 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.

Brain Sciences Institute
(formerly the Centre for Applied Neurosciences est. 1985)

Director
Professor RB. Silberstein
School of Biophysical Sciences and Electrical Engineering
Telephone: 9214 8822 Fax: 9214 5525
Email: bsi@mind.scan.swin.edu.au

The Centre’s primary purpose is to facilitate research into the relationship between human behavioural states and measured brain activity. The Centre also undertakes contract research in areas consistent with its primary purpose. The Centre has extensive collaborative research links with Australian and international research centres.

At this stage, the Centre is engaged in research into:
(a) mechanisms underlying brain rhythmic activity
(b) modelling of brain electrical activity
(c) relationship between cognitive processes and brain electrical activity
(d) brain electrical activity and the learning process
(e) brain electrical activity and schizophrenia
(f) ageing and brain electrical activity
(g) brain electrical activity and disorders of mood
(h) monitoring of awareness and anaesthetic depth using brain electrical activity.

Other aims of the Centre 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 Centre.

COTAR (Victoria) Centre for Object Technology Applications and Research

Director
Professor Brian Henderson-Sellers
School of Computer Science and Software Engineering
Telephone: 9214 8524 Fax: 9819 0823

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 20 key researchers worldwide
- product and process metrics, funded by government and industry
- usability, particularly of software CASE tools
- the use of formal methods - the FOOM project
- technical and organizational issues of reuse
- object-orientated project management
- metamodelling - the COMMA project
COTAR promoted and facilitates technology transfer to the object-orientated 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-orientated 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.

**Design Centre**

Director Graphic Design
Stephen Huxley
Telephone: 9214 6909

Director Industrial Design
Barry Quantrell
Telephone: 9214 6973

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.

**Energy Systems Engineering Centre**

Director
Associate Professor Yos Morsi

School of Mechanical and Manufacturing Engineering
Telephone: 9214 8646 Fax: 9214 8678

Established in 1989, the Centre aims to provide a focus for research and teaching for the power generation, mineral and chemical process industries.

In meeting its obligations, the Centre is developing three major thrusts:

- development and application of numerical models such as manufacturing process models, finite element and finite difference models of thermo-fluid and material deformation processes and analytical models;
- development of ‘leading edge’ physical modelling diagnostic tools. In this area the centre is committed to the continuing development of its laser/Doppler velocimeter as a non-intrusive technique for two-phase flow measurement and flow borne particle sizing;
- production and process modelling at micro and macro levels of aggregation.

**Centre for Industrial Democracy**

Chair
John Morieson
School of International and Political Studies
Telephone: 9214 8540

The Centre was established in 1982 to provide an advisory and referral service to manufacturers, government departments and unions who intend to incorporate aspects of industrial democracy, employee participation and cooperative management.

Consulting, the writing of occasional papers, organising workshops and seminars, preparation of video-taped and printed training material are all part of the Centre’s work.

The Centre is also involved with ongoing contact with current cooperative developments in Spain and Italy.

**IRIS - Industrial Research Institute Swinburne** (incorporating the CIM Centre)

Director
Professor W. Thompson
Telephone: 9214 8600 Fax: 9214 5050

Secretary
Ms P. Manor

Coordinator
Mr R. MacMahon
Telephone: 9214 8280

Internet: http://www.swin.edu.au/iris

Swinburne’s first research institute was formed in 1995. The Institute focuses on applied research 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.
Centre for Information Systems Research

Director
Associate Professor Paul Swatman
Research Administrator
Ms Desiree Pretorius
Telephone: 9214 5249 Fax: 9819 0129
Email: cisr@swin.edu.au
Internet: http://www.cisr.swin.edu.au

The Centre for Information Systems Research (CISR) was established in November of 1994 as a focus for basic and applied research into Information Systems within an organisational or social context. Although its members were originally drawn primarily from the School of Information Systems, the projects undertaken by the Centre have attracted researchers from a wide range of backgrounds including Sociology, Philosophy, Economics, Multimedia communications and Software Engineering. The CISR has strong links with other researchers and research centres in Australia and overseas, including the Centre for Object Technology and Research (COTAR) at University of Technology, Sydney and at Swinburne University of Technology; Centres for the Study of Electronic Commerce at the University of Maribor in Slovenia and at the University of Denver and the University of Baltimore in the USA; researchers at Monash University and the University of Queensland.

Major projects at present include:
- **FOOM - A Method for High-Quality IS Development:** FOOM was developed by synthesis and logical argument, drawing on research in a number of largely independent areas across the breadth of the information systems and software engineering domains. Our research has demonstrated that the FOOM approach can be used beneficially in a typical IS environment. FOOM is currently undergoing evaluation and enhancement, support tools are being designed. The FOOM project also forms a basis for collaboration with COTAR on the OPEN project.
- **Virtual Communities and Organisations:** Modern telecommunications enable the emergence of new organisational forms (virtual organisations) and is encouraging existing organisations to restructure internally. In turn, these changes to organisations and organisational forms enable electronic commerce (EC). We focus on the potential impact of telecommunications on rural communities; and (in collaboration with the Centres for the Study of Electronic Commerce at the University of Maribor in Slovenia and at the University of Denver in the USA) on
  - Modelling the EC-capable Organisation.
  - Electronic Commerce for small and medium enterprises (SMEs).
- **The Social Dimensions of Information Technology:** The aim of this project is to undertake a thorough survey of the literature on the social implications of the impact of information technology enabled organisational change. It is already clear that most studies of business process reengineering are conducted from an implicit economic-rationalist philosophical standpoint. It is clear, however, that one could also legitimately view the social engineering involved from a subjective perspective.

**Application-Oriented Conceptual Modelling:** The aim of the AOCP project is to contribute to the goal of an improved approach to conceptual modelling. The use of the term "Application-Oriented" in the name is intended not only to indicate the comprehensive nature of what is being sought, but also to emphasize that a practical outcome is required.

**IS Management for the 90s:** The impact of quality on the management of IT is addressed in a number of research projects.

**Information Technology Induced Organisational Change:** The focus of this programme of research is on organisational change induced by Information Technology, primarily but not exclusively as a result of formal Strategic Information Systems Planning (SISP).

**The Design and Evaluation of Hypermedia-based Systems:** We are investigating measurement of the quality of Hypermedia products, especially those used for training and educational purposes.

**Innovation and Technology:** The focus is on the industrial use of Intelligent Systems, which comprise expert systems, artificial neural nets, case based reasoning systems, constraint based languages, etc. CISR has compiled and maintains a data base of intelligent systems.

**The Telecommunications Policy Dimension of Information Systems:**
including:
- The use of International Benchmarks of Performance to Assess Telstra's performance Against Best Practice.

**The Philosophical Implications of Computing:** This project considers the philosophical implications of theory and practice of Artificial Intelligence, Expert Systems, Neural Nets and connectionist models of thought.
Centre for Innovation and Enterprise Pty Ltd

Chief Executive Officer
Marcus Powe

Telephone: 9288 8717 Fax: 9650 3943

The Centre for Innovation and Enterprise Pty Ltd is a joint venture between leading international professional services firm Ernst & Young and Swinburne University of Technology. It 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 Centre for Innovation and Enterprise Pty Ltd (CIE) 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. The program was originally structured as an inter-faculty course between the former faculties of Business and Engineering. Gradually, the number of participants grew and the 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 within the then Faculty of Engineering, and the existing Graduate Diploma in Management added to the suite of programs. The Graduate Certificate in Training Management was developed in 1992/3. Since 1993, CIE has also offered its programs in Singapore and New Zealand, thus fostering links for business opportunities in Asia and the Pacific.

In 1994 the structure of the University was revised and the School of Innovation and Enterprise became a Centre within the School of Management in the Division of Business, Humanities and Social Science. Ernst & Young's Entrepreneurial Services division formed a strategic alliance with the Swinburne CIE to further develop its innovative award programs, training and consultation in the fields of innovation and entrepreneurial theory and practice.

Ernst & Young's premises at 120 Collins Street, Melbourne, the CIE offers:
- accredited postgraduate programs in the areas of innovation, entrepreneurship, management, and training management within Australia and overseas;
- accredited postgraduate programs, short courses, and training within corporations or other organisations, both in Australia and overseas;
- contract consulting services
- specialised research.

The Centre for Innovation and Enterprise Pty Ltd 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.

Media and Telecommunications Centre

Head
Professor Trevor Barr
Telephone: 9214 8106.

The Media and Telecommunications Centre, established in 1988, is based in the media studies subject area of the Division of Business, Humanities and Social Science. 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:
- in 1989, the establishment of 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.

The National Centre for Women: Employment, Education and Training

Manager
Jeanette Learmont
Telephone: 9214 8633 Fax: 9214 8643

463 Burwood Road

The National Centre for Women (NCW) is an initiative of Swinburne University of Technology. Within a national framework, the Centre aims to promote and enhance the education, employment and training of women in non-traditional areas.

In order to meet this objective, the Centre provides, on a fee for service basis, a range of services, products and research findings which encourage the exchange of ideas and practices between industry and post-secondary education. The NCW undertakes consultancy on gender related issues especially in regard to women in non-traditional areas. The Centre conducts research relating to gender issues in employment, education and training, particularly in areas which have traditionally been dominated by men and develops resources which will enhance women's prospects in the areas of employment, education and training.
National Korean Studies Centre
Manager
Lesley Smith
Telephone: 9214 8608
Internet:http://www.monash.edu.au/nksc
The National Korean Studies Centre was established with Commonwealth Government funding in 1990 as a joint venture of Swinburne University, La Trobe 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, the Centre:

- fosters the design and delivery of vocationally and culturally relevant Korean languages 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 awareness and mutual awareness of all aspects of the Australia-Korea business and trade relationship;
- promotes student and staff exchanges between Australian and Korean universities.

Centre for Organisational and Strategic Studies
Director
Associate Professor Chris Christodoulou
School of Management
Telephone: 9214 8403  Fax: 9819 2117
Email: cchristodoulou@swin.edu.au
The Centre for Organisation and Strategic Studies (C OSS) was established in 1996. The aim of this centre is to become a nationally and internationally recognised research centre of organisational and strategic studies. The centre aims to attract postgraduate research students of the highest calibre to facilitate visits from internationally respected fellow, to develop collaborative ventures with other research groups worldwide, to disseminate its research findings to both the academic and the broader community, and to maintain an ongoing colloquium program.

Centre for psychological Services
Manager
Roger Cook
School of Social and Behavioural Sciences
Telephone: 9214 8653  Fax: 9819 6857
16 Wakefield St, Hawthorn
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.

Science Education Centre
(The Swinburne Travelling Science Show)
Coordinator
Peter Lees
Telephone: 9214 8503
18 Wakefield St, Hawthorn
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 Siemen's Science School and participates in events such as the ANZAAS Junior Science and Technology festival.
Centre for Social Research
Chair
John Pidgeon
Division of Business, Humanities and Social Science
Telephone: 9214 8306, 9214 8825 Fax: 9819 5349

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.

Swinburne Computer Human Interaction Laboratory (SCHIL)
Director (Acting)
Dr Steve Howard
Telephone: 9214 856618180
email: showard@swin.edu.au

School of Computer Science and Software Engineering
SCHIL has emerged as a laboratory that aims 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 1990's to meet the needs of the important research and consulting areas of usability and human factor in computing systems. SCHIL, located within the School of Computer Science and Software Engineering (CS&SE), provides a 'centre of excellence in, the human issues which underpin information technology and the systems development processes.

SCHIL is broad in its interest, but always focused on the usability of technology. The following list highlights key projects areas:
- Trade-off decision making in user interface design
- Multimedia user interface prototyping
- Usability and the internet
- Interface evaluation process guidelines
- Opportunism in design
- Implicit theory in design methodologies
- Temporal aspects of usability
- Design rationale in user interface design
- Applying bifocal displays to data visualisation
- Comparative study of auditory icons and earcons
- Designing a user interface for folding editors to support collaborative work
- Applying distortion-oriented presentation techniques to geographical information systems

Other activities of the centre include the teaching of human computer interaction at undergraduate levels, the supervision of postgraduate research students, and the conduct of high level consultancy in the areas of usability and user interface design.
Taxation Research and Advisory Centre

Director
Denis Vinen
Telephone: 9214 8474

Division of Business, Humanities and Social Science
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
- computer programs for problem solving, simulation studies and cash flow analysis
- 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
- extensive computer hardware and software
- excellent library including 500 volumes on taxation, video and audio tapes and facilities for computerised literature searches
- experienced and qualified staff with legal, accounting, economic and computing 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.
### Undergraduate courses

**Division of Business, Humanities and Social Science**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Campus</th>
<th>Duration</th>
<th>Entry Requirements</th>
<th>Special Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>N061</td>
<td>Certificate in Commercial Radio</td>
<td>H</td>
<td>6 mths</td>
<td>Satisfactory completion of VCE or equivalent</td>
<td></td>
</tr>
<tr>
<td>N062</td>
<td>Associate Degree in Social Science</td>
<td>H</td>
<td>2 yrs</td>
<td>Satisfactory completion of VCE or equivalent</td>
<td></td>
</tr>
<tr>
<td>N050</td>
<td>Bachelor of Arts</td>
<td>H</td>
<td>3 yrs 6 yrs</td>
<td>Refer to course entry</td>
<td></td>
</tr>
<tr>
<td>N053</td>
<td>Bachelor of Arts (Media &amp; Communications)</td>
<td>H</td>
<td></td>
<td>Refer to course entry</td>
<td></td>
</tr>
<tr>
<td>N051</td>
<td>Bachelor of Arts (Psychology and Psychophysiology)</td>
<td>H</td>
<td></td>
<td>Refer to course entry</td>
<td></td>
</tr>
<tr>
<td>N054</td>
<td>Bachelor of Arts/Associate Dip of Business (Office Administration)</td>
<td>H</td>
<td></td>
<td>Refer to course entry</td>
<td></td>
</tr>
<tr>
<td>A055</td>
<td>Bachelor of Business</td>
<td>H</td>
<td>3 yrs 6 yrs</td>
<td>Satisfactory completion of VCE (including all English work requirements)</td>
<td>It is advisable to have studied mathematics to at least Year 11 or equivalent level</td>
</tr>
<tr>
<td>A055</td>
<td>Bachelor of Business plus Industry Based Learning</td>
<td>H</td>
<td>4 yrs 8 yrs</td>
<td>The business degree course combined with major study in Italian.</td>
<td></td>
</tr>
<tr>
<td>A058</td>
<td>Bachelor of Arts/Bachelor of Business (Italian)</td>
<td>H</td>
<td>4 yrs 8 yrs</td>
<td>The business degree course combined with major study in Italian.</td>
<td></td>
</tr>
<tr>
<td>A057</td>
<td>Bachelor of Arts/Bachelor of Business (Japanese)</td>
<td>H</td>
<td>4 yrs 8 yrs</td>
<td>The business degree course combined with major study in Japanese.</td>
<td></td>
</tr>
<tr>
<td>A059</td>
<td>Bachelor of Arts/Bachelor of Business (Korean)</td>
<td>H</td>
<td>4 yrs 8 yrs</td>
<td>The business degree course combined with major study in Korean.</td>
<td></td>
</tr>
<tr>
<td>A065</td>
<td>Bachelor of Arts/Bachelor of Business (Vietnamese)</td>
<td>H</td>
<td>4 yrs 8 yrs</td>
<td>The business degree course combined with major study in Vietnamese.</td>
<td></td>
</tr>
<tr>
<td>A066</td>
<td>Bachelor of Information Systems</td>
<td>H</td>
<td>3 yrs 6 yrs</td>
<td>Satisfactory completion of VCE (including all English work requirements)</td>
<td>It is advisable to have studied mathematics to at least Year 11 or equivalent level</td>
</tr>
<tr>
<td>A057</td>
<td>Bachelor of Information Technology</td>
<td>H, M</td>
<td>3 yrs NA</td>
<td>Refer to course entry</td>
<td>Taught in conjunction with the Division of Science, Engineering and Design.</td>
</tr>
</tbody>
</table>

### Honours year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Campus</th>
<th>Duration</th>
<th>Entry Requirements</th>
<th>Special Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>N052</td>
<td>Bachelor of Arts (Honours)</td>
<td>H</td>
<td>1 yr 2 yrs</td>
<td>Satisfactory completion of BA or equivalent</td>
<td></td>
</tr>
<tr>
<td>A064</td>
<td>Bachelor of Business (Honours)</td>
<td>H</td>
<td>1 yr 2 yrs</td>
<td>Satisfactory completion of a BBus or equivalent</td>
<td></td>
</tr>
<tr>
<td>A063</td>
<td>Bachelor of Business (Honours) plus Industry Based Learning</td>
<td>H</td>
<td>1 yr 2 yrs</td>
<td>Satisfactory completion of a BBus or equivalent</td>
<td></td>
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</table>
## Undergraduate courses
Division of Science, Engineering and Design

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Campus</th>
<th>Course Mode &amp; Length</th>
<th>Entry Requirements</th>
<th>Special Comments</th>
<th>Refer Page</th>
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<tbody>
<tr>
<td>2052</td>
<td>Bachelor of Applied Science (Biochemistry/Chemistry)</td>
<td>H</td>
<td>4 yrs NA</td>
<td>Satisfactory completion of VCE or equivalent</td>
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<tr>
<td>2051</td>
<td>Bachelor of Applied Science (Chemistry)</td>
<td>H</td>
<td>4 yrs NA</td>
<td>Ref. to course entry</td>
<td>Available to TAFE students only</td>
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</tr>
<tr>
<td>2060</td>
<td>Bachelor of Applied Science (Computer Science conversion)</td>
<td>H</td>
<td>2 yrs NA</td>
<td>Ref. to course entry</td>
<td></td>
<td>117</td>
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<tr>
<td>2075</td>
<td>Bachelor of Applied Science (Computer Science &amp; Psychology)</td>
<td>H</td>
<td>2 yrs NA</td>
<td>Satisfactory completion of VCE or equivalent</td>
<td>IBL component</td>
<td>118</td>
</tr>
<tr>
<td>2063</td>
<td>Bachelor of Applied Science (Computer Science and Software Engineering)</td>
<td>H</td>
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<td>Satisfactory completion of VCE or equivalent</td>
<td>IBL component</td>
<td>118</td>
</tr>
<tr>
<td>2056</td>
<td>Bachelor of Applied Science (Computing and Sci. Instrumentation)</td>
<td>H</td>
<td>4 yrs NA</td>
<td>&quot;</td>
<td>&quot;</td>
<td>120</td>
</tr>
<tr>
<td>H050</td>
<td>Bachelor of Applied Science (Environmental Health)</td>
<td>H</td>
<td>4 yrs NA</td>
<td>&quot;</td>
<td>&quot;</td>
<td>121</td>
</tr>
<tr>
<td>2059</td>
<td>Bachelor of Applied Science (Mathematics and Computer Science)</td>
<td>H</td>
<td>4 yrs NA</td>
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<td></td>
<td>122</td>
</tr>
<tr>
<td>2061</td>
<td>Bachelor of Applied Science (Medical Biophysics and Instrumentation)</td>
<td>H</td>
<td>4 yrs NA</td>
<td>Ref. to course entry</td>
<td></td>
<td>123</td>
</tr>
<tr>
<td>2043</td>
<td>Bachelor of Applied Science (Multimedia Technology)*</td>
<td>H</td>
<td>4 yrs NA</td>
<td>Taught in conjunction with the Div of BHSS</td>
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<td>124</td>
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<tr>
<td>2062</td>
<td>Bachelor of Applied Science (Psychology and Psychophysiology)</td>
<td>H</td>
<td>3 yrs NA</td>
<td>Taught in conjunction with the Div of BHSS</td>
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<tr>
<td>2073</td>
<td>Bachelor of Applied Science (Honours) (Applied Chemistry)</td>
<td>H</td>
<td>1 yr</td>
<td>Incorporated with degree program</td>
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<tr>
<td>2072</td>
<td>Bachelor of Applied Science (Honours) (Biochemistry/Chemistry)</td>
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<td>1 yr</td>
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<tr>
<td>2065</td>
<td>Bachelor of Applied Science (Honours) (Computer Science)</td>
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<td>1 yr</td>
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<tr>
<td>Z069</td>
<td>Bachelor of Applied Science (Honours) (Environmental Health)</td>
<td>H</td>
<td>1 yr</td>
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<tr>
<td>2066</td>
<td>Bachelor of Applied Science (Honours) (Medical Biophysics)</td>
<td>H</td>
<td>1 yr</td>
<td>&quot;</td>
<td>&quot;</td>
<td>127</td>
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<tr>
<td>Z068</td>
<td>Bachelor of Applied Science (Honours) (Medical Biophysics and Scientific Instrumentation)</td>
<td>H</td>
<td>1 yr</td>
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<td>&quot;</td>
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<td>2079</td>
<td>Bachelor of Applied Science (Honours) (Psychophysiology)</td>
<td>H</td>
<td>1 yr</td>
<td>&quot;</td>
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<tr>
<td>1050</td>
<td>Bachelor of Information Technology</td>
<td>M, H</td>
<td>3 yrs NA</td>
<td>Taught in conjunction with Div of BHSS</td>
<td></td>
<td>140</td>
</tr>
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</table>

NA = Not available  
* Subject to accreditation
## Undergraduate courses
Division of Science, Engineering and Design

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Campus</th>
<th>Duration</th>
<th>Entry Requirements</th>
<th>Special Comments</th>
<th>Refer Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design</strong></td>
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<td></td>
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<tr>
<td>D020</td>
<td>Bachelor of Design</td>
<td>P</td>
<td>3 yrs</td>
<td>Refer to course entry</td>
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<td>130</td>
</tr>
<tr>
<td>D040</td>
<td>(Graphic Design)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>130</td>
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<tr>
<td>DP60</td>
<td>Bachelor of Design (Industrial Design)</td>
<td>P</td>
<td>3 yrs</td>
<td></td>
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<td>130</td>
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<tr>
<td><strong>Honours Year</strong></td>
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<td></td>
<td></td>
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<tr>
<td>D050</td>
<td>Bachelor of Design (Honours) (Graphic Design) (IBL)</td>
<td>P</td>
<td>4 yrs</td>
<td></td>
<td></td>
<td>131</td>
</tr>
<tr>
<td>D060</td>
<td>Bachelor of Design (Honours) (Graphic Design) (Design Centre)</td>
<td>P</td>
<td>4 yrs</td>
<td></td>
<td></td>
<td>131</td>
</tr>
<tr>
<td>DP61</td>
<td>Bachelor of Design (Honours) (Industrial Design)</td>
<td>P</td>
<td>4 yrs</td>
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<td></td>
<td>131</td>
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<tr>
<td><strong>Engineering</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>CH055</td>
<td>Bachelor of Engineering (Chemical)</td>
<td>H</td>
<td>5 yrs</td>
<td>10 yrs</td>
<td>Satisfactory completion of VCE or equivalent IBL component</td>
<td>132</td>
</tr>
<tr>
<td>C050</td>
<td>Bachelor of Engineering (Civil)</td>
<td>H</td>
<td>5 yrs</td>
<td>10 yrs</td>
<td></td>
<td>133</td>
</tr>
<tr>
<td>E050</td>
<td>Bachelor of Engineering (Communication and Electronic, Computer Systems, Electrical Power and Control)</td>
<td>H</td>
<td>5 yrs</td>
<td>10 yrs</td>
<td></td>
<td>134</td>
</tr>
<tr>
<td>P050</td>
<td>Bachelor of Engineering (Manufacturing)</td>
<td>H</td>
<td>5 yrs</td>
<td>10 yrs</td>
<td></td>
<td>135</td>
</tr>
<tr>
<td>M050</td>
<td>Bachelor of Engineering (Mechanical)</td>
<td>H</td>
<td>5 yrs</td>
<td>10 yrs</td>
<td></td>
<td>136</td>
</tr>
<tr>
<td>R050</td>
<td>Bachelor of Engineering (Robotics and Mechatronics)</td>
<td>H</td>
<td>5 yrs</td>
<td>10 yrs</td>
<td></td>
<td>137</td>
</tr>
<tr>
<td>E058</td>
<td>Bachelor of Engineering (Telecommunications &amp; Networks)</td>
<td>H</td>
<td>5 yrs</td>
<td>8 yrs</td>
<td></td>
<td>138</td>
</tr>
<tr>
<td>Z044</td>
<td>Bachelor of Software Engineering*</td>
<td>H</td>
<td>5 yrs</td>
<td>10 yrs</td>
<td></td>
<td>141</td>
</tr>
<tr>
<td>M055</td>
<td>Bachelor of Technology (Aviation)</td>
<td>H</td>
<td>3 yrs</td>
<td></td>
<td></td>
<td>142</td>
</tr>
<tr>
<td>C051</td>
<td>Bachelor of Technology (Building Surveying)</td>
<td>H</td>
<td>4 yrs</td>
<td>8 yrs</td>
<td></td>
<td>143</td>
</tr>
<tr>
<td>E030</td>
<td>Bachelor of Technology (Telecommunications, Computer Systems, Electrical Power &amp; Industrial Engineering, Instrumentation)</td>
<td>H</td>
<td>3 yrs</td>
<td>With advance standing for Thai diplomats</td>
<td></td>
<td>145</td>
</tr>
</tbody>
</table>

### Double Degrees

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Campus</th>
<th>Duration</th>
<th>Entry Requirements</th>
<th>Special Comments</th>
<th>Refer Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z030</td>
<td>Bachelor of Applied Sci/Engineering (Medical Biophysics &amp; Instrumentation /Electrical Engineering)</td>
<td>H</td>
<td>5 yrs</td>
<td></td>
<td>1 yr optional IBL component</td>
<td>128</td>
</tr>
<tr>
<td>Z031</td>
<td>Bachelor of Applied Sci/Engineering (Multimedia Technology/ Telecommunications &amp; Networks)</td>
<td>H</td>
<td>5 yrs</td>
<td></td>
<td></td>
<td>129</td>
</tr>
<tr>
<td>E000</td>
<td>Bachelor of Engineering/Business (Civil, Chemical, Electrical &amp; Electronic, Manufacturing, Mechanical &amp; any Business major)</td>
<td></td>
<td></td>
<td>See entry</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Subject to accreditation
Honours Year

Honours programs are available on the Hawthorn campus (Applied Science, Arts, Business courses) and Prahran campus (Design courses).

For information regarding honours year studies, please contact the appropriate Divisional office or see the course description in this Handbook (as per the page numbers listed in this chart).
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.

Division of Business, Humanities and Social Science

Certificates
Certificate in Commercial Radio CertCommRadio

Associate Degrees
Associate Degree in Social Science AssocSocSc

Degrees
Bachelor of Arts BA
Asian Studies
Australian Studies
Cultural Studies
European Studies
Italian
Japanese
Korean
Literature
Media Studies
Philosophy and Cultural Inquiry
Political Studies (can include Australian Studies)
Psychology
Psychology and Psychophysiology
Sociology
Vietnamese

Bachelor of Arts (Media & Communications) BA
Bachelor of Arts/Associate Diploma in Business (Office Administration) BA
Bachelor of Arts (Honours) BA(Hons)

Cultural Studies
Languages
Psychology
Social Sciences

Bachelor of Business BBus
Accounting
Business Law
Business Modelling
Economics
Finance
Information Systems
Marketing
Organisation Behaviour

Bachelor of Business (Honours) BBus(Hons)
Accounting
Business Law
Business Modelling
Economics
Information Systems
Marketing
Organisation Behaviour

Bachelor of Business/Bachelor of Arts (Language) BBus/BA(Lang)
Italian BBus/BA(Italian)
Japanese BBus/BA(Japanese)
Korean BBus/BA(Korean)
Vietnamese BBus/BA(Vietnamese)

Bachelor of Information Technology BInfTech
Bachelor of Information Systems BInfSys

Division of Science, Engineering and Design

Degrees
Bachelor of Applied Science BA(BAppSc
Applied Chemistry
Biochemistry/Chemistry
Computer Science (conversion course)
Computer Science and Psychology
Computer Science and Software Engineering
Computing and Instrumentation
Environmental Health
Management Science and Computing
Mathematics and Computer Science
Medical Biophysics
Multimedia Technology
Psychology and Psychophysiology

Bachelor of Applied Science (Honours) BAppSc(Hons)
Applied Chemistry
Biochemistry
Computer Science and Software Engineering
Environmental Health
Mathematics and Computer Science
Medical Biophysics
Psychology and Psychophysiology

Bachelor of Design BDes
Graphic Design BDes(GraphicDesign)
Industrial Design BDes(IndustrialDesign)

Bachelor of Design (Honours) BDes(Hons)
Graphic Design BDes(Hons)(GraphicDesign)
Industrial Design BDes(Hons)(IndustrialDesign)
Bachelor of Engineering (BEng)
- Chemical Engineering
- Civil Engineering
- Communications and Electronic Computer Systems
- Electrical Engineering
- Manufacturing Engineering
- Mechanical Engineering
- Bachelor of Technology
  - Aviation (BTech(Avia))
  - Building Surveying (BTech(BldgSurv))

**Swinburne at Lilydale**

**Degrees**
- Bachelor of Applied Science (BAppSc) Computing
- Bachelor of Business (BBus) Accounting
  - Marketing
- Bachelor of Social Science (BSocSc) Media Studies
  - Psychology
  - Sociology

**Undergraduate application and entry**

**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 1996

1996 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.

**Full-time: Second year and higher**

Applications for Humanities, Business, Social Science and Applied Science courses should be made to VTAC, 40 Park Street, South Melbourne 3205.

Applications for Graphic Design and Engineering should be made direct to Swinburne. Forms can be obtained from the Admissions Officer, 9214 8386.

Closing dates for full-time places in second and higher years are:
- Graphic Design: 30 October 1996
- Engineering: 17 January 1997

**Part-time**

Applications for admission to listed part-time Humanities, Business and Social Science courses must be made through VTAC. All application for part-time course in Engineering must be made direct to Swinburne. Forms are obtained from the Admissions Officer, 9214 8386.

Closing dates for part-time places are:
- Humanities and Social Science (VTAC): 27 September 1996
- Business (VTAC): 27 September 1996
- Engineering (Direct): 17 January 1997

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

**International Students**

Applications by International students for entry to all Swinburne courses must be made through the International Office. Because of Australian government regulations, part-time study is not available to full-fee paying international students.

**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 of English.

   Any person offered a place at Swinburne may be required to present for a fluency 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 division conducting the course and listed in the Swinburne Handbook.

3. Each 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 Curriculum and Assessment Board. Such qualifications may include interstate and overseas qualifications and associate diploma studies at a TAFE institution.
Alternative Category Entry
The Swinburne Alternative Category Entry program enables 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.

Enrolment and other regulations
Definitions of Enrolment terms
In this section:

*Enrolment* includes 're-enrolment'.

*Enrolment form* includes 're-enrolment form'.

*Subject* means any area of study which is part of a course leading to an award and which has a title and code number in the subject register maintained by the University; the singular includes the plural.

*Awarding School* means the School or, where courses are organised on a divisional basis (the Division of Business, Humanities and Social Science; the Division of Science, Engineering and Design), the division responsible for the particular course; 'head of awarding division' has a similar meaning and includes the Pro Vice-Chancellor of the division where appropriate and the nominee of the head of the awarding department or Pro Vice-Chancellor.

*Deferred entry* means an intending first-year student defers enrolment for up to one year on receipt of an offer of a place.

*Leave of absence* means the suspension of enrolment during a course for a specified period at the discretion of the appropriate divisional board on the basis that the enrolment will be resumed at the end of the period.

*Amendment to enrolment* means the addition, deletion or changing of subject enrolments in a student's course of study.

*Abandonment* means discontinuation of enrolment without formal notification. *Abandon* has a similar meaning, unless the contrary intention is expressed.

Conditions of enrolment
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 regulations, 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 1997 may apply for a deferment until 1998. Applications must be addressed to the Divisional 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 by the division concerned.

The Deferment Procedures policy can be found in the separate publication *Policies and Procedures*.

**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 (non-credit) enrolments in 1997 will be at the rate per weekly contact hour as set by the division, plus the appropriate general service fee.

The offering of places in single subjects is at the discretion of the division 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 concerned or the Admissions Officer.

**Exemptions**
For details on exemptions please see the entry in the appropriate Divisional chapter.

**Pathways: Articulation and Credit Transfer**
The Pathways Program in place at Swinburne is designed to provide easy articulation between TAFE and Higher Education Division courses through defined credit transfer arrangements.

Credit transfer agreements have been completed with the Higher Education Sector. Articulation is possible both from TAFE to Higher Education courses and from Higher Education to TAFE.
Detailed information on the extent of credit transfer and specific additional requirements which would attract maximum credit will be contained in the divisional brochures. In addition, a Credit Transfer Guide for the whole University is available from the Information Office, Student Administration Office and within schools.

Students currently in the TAFE Division of the University are able to lodge a direct application for entry to Higher Education Division programs.

**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 Divisional Office.

**Identity cords**
When on campus, all enrolled students are required to carry, and to produce on request of a member of staff, the photographic identity card issued to them.

The card, which has a maximum life of four years, must be presented for update/validation for the forthcoming year on re-enrolment.

The card includes the authorisation for borrowing from the Swinburne Library.

A student who loses an identity card should notify the library as soon as the loss is detected. Cardholders are, under library rules, responsible for any transaction made on the card up to the time of notification of the loss. A replacement card can be issued at the Student Administration Enquiries Office for a fee of $10.00.

Any student who has had their identity card stolen, will be issued with a free replacement identity card upon supplying a copy of a police report.

**Amendments to enrolments**

**Withdrawing from subjects**
A student may withdraw from a subject or unit without penalty of failure up to the dates shown below:

- (a) for subjects concluding at the end of the first semester 31 March 1997 or
- (b) for subjects concluding at the end of the second semester 31 August 1997

A withdrawal made after the dates set out above will result in a fail being recorded on the student's academic record (the symbol NWD — not pass because of late withdrawal — will appear).

A student who believes that the failing result NWD should not be recorded must obtain the specific approval of the Vice-Chancellor of the division concerned.

Circumstances supporting the application must be set out on the Amendment to Enrolment form on which the approval for the withdrawal is sought.

If, as a consequence of withdrawing from a subject or subjects, a student changes from full-time to part-time status, a refund of a portion of the general service fee will be made only if the withdrawal is made before 31 March 1997 for semester one, or for semester two, before 31 August 1997.

**Adding subjects**
No subject may be added to a student's enrolment without the approval of both the teaching and the awarding schools. Students should be aware that some divisions have restrictions on the period during which subjects can be added.

**Notwithstanding** any divisional rules, after 31 March 1997 (for subjects concluding at the end of the first semester) or 31 August 1997 (for subjects concluding at the end of the second semester) an amendment will be permitted only where special circumstances exist and the approval of the Pro Vice-Chancellor of the division concerned and the Academic Registrar has been given. A penalty fee of $50 per subject, up to a maximum of $250 per semester, may apply to students adding subjects after the census date.

*Note: This penalty fee would be in addition to the late enrolment fee where applicable. (Refer 'Late Enrolment / Payment Fee')*

Students should note that the addition of subjects may result in a change from part-time to full-time status. In such circumstances the amendment will only be recorded when an amount of money being the difference between the part-time and full-time general service fee paid has been paid. It is the responsibility of students to ensure that they are aware of any additional fees required and to arrange for their payment.

**Amendments to personal details**
A student who changes his or her name, address or place of employment should complete an Amendment to Personal Details form which is available from the Student Administration Enquiries Office or the Divisional Office.

Students recording a change of name will be required to produce legal documentary evidence (e.g. marriage certificate, statutory declaration, deed poll certificate) in addition to completing an Amendment to Personal Details form.

**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 Divisional Office of any errors existing in the records, will be required to pay a substantial fee for each amendment to be made. (See 'Adding Subjects')
Leave of absence

Students who have enrolled in a course and who wish to apply for a period of leave of absence may do so on a Leave of Absence/Withdrawal form lodged with the Divisional Manager of the appropriate division. The application should clearly indicate the circumstances on which the request is based and the length of time for which leave is sought.

Each application will be considered within the guidelines of the Leave of Absence Procedures. (See separate Policies and Procedures Handbook)

Students who have been granted leave of absence will be notified in writing by the division concerned. Enrolment for all subjects for the duration of the leave will be cancelled.

Students who have been granted leave of absence will be eligible for a refund of their 1997 General Service Fee only if their application is received before 31 March 1997 for semester one or 31 August 1997 for semester two.

Assessment Review

The full details and text regarding Assessment Reviews are contained under section 16 of the Higher Education Procedures Relating to Student Assessment and Appeals. (See separate Policies and Procedures Handbook)

Students who are dissatisfied with any aspect of their assessment should first contact the relevant member of the teaching staff to discuss the matter informally. This process should be completed within 20 working days of receipt by the student of the assessment.

A fee of $40.00 may be charged for each subject reassessment. This may be refunded under circumstances outlined in the Procedures.

Certification of Official Documents

Policy and Procedure

It is the policy of Swinburne University of Technology to certify official documents relating to individual students and graduates of Swinburne University of Technology. 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 Academic 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 Statement
Award letter
Enrolment Status letter
Exemption letter
Result Certificate
Testamur/Certificate

Certification

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

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

Academic statements

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

2. Other statements are available, on request, at the fees shown:

   (a) List of all results and a statement indicating completion of course if applicable. $15.00

   (b) 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 five working days after the request has been made.

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 1997 are:

<table>
<thead>
<tr>
<th>Student Status</th>
<th>Total GSF $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full time, full year</td>
<td>209.00</td>
</tr>
<tr>
<td>Full time, semester</td>
<td>108.50</td>
</tr>
<tr>
<td>Part time, full year</td>
<td>108.50</td>
</tr>
<tr>
<td>Part time, semester</td>
<td>54.75</td>
</tr>
<tr>
<td>Coop/Work Exp: full time</td>
<td>49.00</td>
</tr>
<tr>
<td>Coop/Work Exp: semester</td>
<td>24.50</td>
</tr>
<tr>
<td>Full time student:</td>
<td></td>
</tr>
<tr>
<td>1 semester coop.</td>
<td>24.50</td>
</tr>
<tr>
<td>1 semester full time</td>
<td>108.50</td>
</tr>
<tr>
<td>Total</td>
<td>133.00</td>
</tr>
<tr>
<td>Part time student:</td>
<td></td>
</tr>
<tr>
<td>1 semester coop.</td>
<td>24.50</td>
</tr>
<tr>
<td>1 semester full time</td>
<td>54.75</td>
</tr>
<tr>
<td>Total</td>
<td>79.25</td>
</tr>
</tbody>
</table>

Note: All students enrolling at Swinburne for the first time will be required to pay an additional $20.00 towards the Student Amenities Capital Reserve Fund.

International Students

Full-fee paying international students do not pay HECS fees. Please contact the International Office 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.

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 are:

- Applied Science degree 2nd and 3rd years
- Graphic Design degree 3rd year
- Civil, Electrical and Electronic, Manufacturing and Mechanical Engineering degrees 3rd and 4th years

**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 $50 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 $50 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 Divisional Office before 31 March 1997 for semester one and 31 August 1997 for semester two.

No refunds of fees will be made where a student withdraws from study after 31 March 1997 for semester one and 31 August 1997 for semester two.

**Higher Education Contribution Scheme (HECS)**
The Higher Education Contribution Scheme (sometimes referred to as the graduate tax) came into effect on 1 January 1989.

Unless exempt from the provisions of the scheme, all students enrolled in the Higher Education Sector have to make a contribution to the cost of their studies. In 1996 the annual charge was $2442 for a full-time student (or $1221 for each full-time semester).

Part-time students pay a contribution in proportion to their full-time load.

**HECS Payment Options**
Most students have the option of:

(i) Paying the contribution on an 'Upfront' basis (i.e., in 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 $100) and having the balance collected via the taxation system. Partial payments will not attract a discount. If permission is given to make more than one partial payment a handling fee may be charged.

*Note: Students who are required by legislation to pay HECS up-front do not receive a 25% discount.*

**Tax File Numbers**
All students selecting the 'Upfront' with the 'Safety Net' (ii) or the 'Deferred' (iii) option 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 may 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, before the census date, the student's HECS status remains unchanged and carries over into the following semester.

**Census dates**
- First semester 1997: 31 March 1997
- Second semester 1997: 31 August 1997

**Late HECS Payment Fee**

(i) Students who enrol after the University's HECS payment date will incur a $100 late HECS payment fee (in addition to the $50 late enrolment/payment fee).

(ii) Students who pay HECS fees after the University's HECS payment date will incur a $100 late HECS payment fee. The $100 late HECS payment fee will apply to students who change their HECS payment option from Deferred to Upfront after the due date.

**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 overseas students;
- students otherwise subject to Overseas Student Charge arrangements;
- students enrolled in a course which is either fully or jointly Commonwealth/Industry funded;
- holders of a HECS postgraduate scholarship.
All exempt students must lodge a Payment Options form by completing the exemption declaration section on the form. Proof of exemption will be required.

Further details about the Scheme are available from the Student Administration Enquiries Office.

HECS refunds
HECS refunds will be made to 'Upfront' payees where a student withdraws from the course on or before 31 March for semester 1 and 31 August for semester 2. Students who require a refund must apply to their Divisional Administration Office. A copy of the receipt must be provided.

HECS liability
Students who withdraw from subjects or total enrolment after 31 March 1996 for subjects concluding at the end of the first semester or after 31 August 1996 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 1995 will still incur a HECS liability for semester 1. Students who withdraw from a full year subject after 31 August 1995 will incur a HECS liability for two semesters.

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 for all awards close on 31 May (for students completing their courses at the end of first semester) or 31 October (for students completing their courses in December) of the year in which the student anticipates completion of the academic work for the award.

AUSTUDY (H.Ed.)

Generally 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 Commonwealth Employment Service offices and from the University’s Housing, Part-time Employment, and Finance Office.

Students applying for 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 or Divisional 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.

Student Administration Office

The Student Administration Office provides information and procedural advice on admissions, enrolments, examinations and awards. Other functions include processing identity cards, providing enrolment processing forms (e.g. amendment to enrolment form), result certificates, academic statements, enrolment status letters, authorising concession forms, certifying University documents, maintenance and storage of students' academic records and personal details and hire of academic gowns.

Location and office hours

Hawthorn campus

Enquiries 9214 8088
The Student Administration Enquiries Office is located in Room AD121, Administration Building (AD), John Street, the Student Administration Wing.

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.

Lilydale campus

Enquiries 9215 7111
Office hours are as follows:
8.30am – 5.00pm Monday to Friday

Note: The office is closed on public holidays.

Prahran campus

Enquiries 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.
Prizes and Scholarships

Division of Business, Humanities and Social Science

The Division of Business, Humanities and Social Science has been fortunate in obtaining a large number of scholarships and prizes for its students, mostly provided by industry. These are to encourage and reward the academic excellence that the Division encourages at all times.

Scholarships

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.
- **Aspect Computing Scholarship**: Awarded on interview to a second stage computing student.
- **Bourne 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 Division of Business, Humanities and Social Science. Applications close in April.
- **Swinburne Association of Marketing (SAM) Scholarship**: Awarded on the basis of need and academic performance to a full-time second or third stage student with a major study in marketing in the Division of Business, Humanities and Social Science.
- **The Profile Management Consultants Prize**: Awarded to the second or third year student whose research project most convincingly demonstrates the ability to undertake applied research using appropriate methodology and techniques. Value: $500.

Corporate Prizes

These annual prizes are made by corporate donors for the best Swinburne student in the following course, study disciplines or specific subjects:

- **The A.F.E. Tylee and the K. Kennewell Memorial Prizes**: These are awarded in the fields of social science, mathematics and civil engineering.
- **ANZ Bank Prize**: For *International Finance*. Awarded for completion with overall distinction of a fourth year course in psychology. Value: $100.
- **Arthur Andersen Prize**: For *Financial Management I*.
- **Australian Chamber of Manufacturers Prizes**: For *Industrial Relations and Industry and Government*.
- **Australian Computer Society Prize**: For final stage computing practical work. (Awarded to a BBus student in 1997, alternate years to a BAppSc student) For *Human Resource Management*.
- **Australian Human Resources Institute**: For completion of the Bachelor of Business with a major in economics.
- **The Australian Institute of Management Business Administration Prize**: For the Graduate Diploma in Business Administration.
- **Australian Society of Certified Practising Accountants Prizes**: For first, second, and third stage accounting subjects.
- **Australian Society of Corporate Treasurers' Prize**: For finance major.
- **P. Blashki & Sons**: For the Graduate Certificate in Business Administration ‘public’ course.
- **Bounty Services Prize**: For final year marketing.
- **Brooke Bird & Co Prize**: For *Company Law*.
- **William Buck and Co. Prize**: For the ten best students from first year Accounting.
- **Butterworths Books Prizes**: For *Marketing and the Law, International Business Law and Advanced Tax*.
- **Carlton and United Breweries Limited Prize**: For coursework in the Master of Business (Organisation Behaviour).
- **Coopers and Lybrand Prizes**: For *Management Accounting I* and *Management Accounting 2*.

Note: All prizes and scholarships are correct at time of publication. However, the Division's ability to award prizes and scholarships is dependent on the continued support from a variety of sponsors. Unfortunately, sponsors may withdraw their support at short notice and the Division would therefore be unable to provide the nominated prize or scholarship.
DMR Prizes

Deloitte, Ross and Tohmatsu Prize
Economic Society of Australia Prize
EDP Auditors Association Prize
ICI Prize
Jim Watkins Memorial Prize
Market Research Society Prize
National Australia Bank Prize
National Mutual Prize

Promax Prize
QANTAS Airways Ltd Prize
Siddons-Ramset Prize
Stockdale Memorial Prize
VicRoads Prize

Swinburne Prizes

The following prizes are presented by different Schools and organisations within the University to the best student in the following course, study disciplines or specific subjects.

Economics Prize
Information Systems Prize
Italian & European Studies Prizes
Japanese Prizes
Korean Prizes
Swinburne Graduate Society Prizes
T.W. Higgins Prize
Vietnamese Prize

Centre for Innovation and Enterprise Pty Ltd Prizes

Ernst & Young Prize
Management Achievement Award
IW Wheddon Prize
VECCI Prize
Village Nine Leisure Prize
WF Gillian Prize

Division of Science, Engineering and Design

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

IBM Prize
Awarded by IBM to the top final year Applied Science, Engineering or Design student. The annual prize is usually a computer and monitor.

School of Chemical Sciences

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

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

Undergraduate Scholarships
Three or four scholarships available upon application from students completing first year of the chemistry or biochemistry courses. The scholarship value is $9000 per annum for three years.

School of Computer Science and Software Engineering

Postgraduate research scholarships for Master of Applied Science 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 $12000 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 Computer Science students:

**Aspect Computing Prize**
The amount of $1000 will be awarded to a student in the final year of a computing degree course (not BIT) on the basis of results in second year computing subjects. The student should have completed IBL if they are undertaking a degree which has an IBL component. 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**
The amount of $150 will be awarded to the 'best' student on a degree accredited by the ACS at level one or two. Students are evaluated on the basis of their aggregate performance on final year computing subjects.

**School of Computer Science and Software Engineering Staff Prize**
An amount of up to $300 will be awarded to the student nominated by the School for the Eric Bode Prize.

**Darren Golden Memorial Prize**
This prize is funded from the Darren Golden Memorial Trust and is awarded to the most outstanding student in the final two years of the Bachelor of Information Technology. 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.

**Swinburne Centre for Applied Neurosciences Postgraduate Scholarship**

**Kenneth Clarke Prize**
Amount of $200 and plaque. The Kenneth Clarke prize is awarded to the best student in the final year of the Medical Biophysics and Instrumentation course 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.

**SCAN Prize**
The amount of $200 and a plaque are awarded to the best student in the final year of Psychology/Psychophysiology course based on the highest weighted average marks in final year. The award is sponsored by the Swinburne Centre for Applied Neurosciences (SCAN), a research centre within the school.

**Intergraph Award Software from Intergraph Corporation**

**School of Biophysical Sciences and Electrical Engineering**

**Postgraduate Scholarship**
At least one twelve-month scholarship is normally provided for students undertaking full-time postgraduate research in an area of study relevant to the School. The value of the scholarship 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. One scholarship is normally provided to a student undertaking full-time postgraduate research in an area of study relevant to the Centre. The value and duration of the scholarship is determined by the Director of the Centre.

**Swinburne Centre for Applied Neurosciences Postgraduate Scholarship**

**Intergraph Award Software from Intergraph Corporation**

**School of Mathematical Sciences**

**The ASOR Medal**
(Australian Society of Operations Research)

Awarded to the best final year Operations Research student at the University, by the Operations Research Society of Australia on the recommendation of the School of Mathematical Sciences.
Engineering
A complete list of the sources of financial support and the various awards available to students is given in the general section of this Handbook. Brief information on awards most likely to be of interest to engineering students is given below.

**Entrance Scholarships**
Details of entrance scholarships available may be obtained from the Administrative Officer, telephone 9214 8456.

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

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

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

**F.W. Green Memorial Prize**
Books to the value of $50 are awarded to the most outstanding final-year engineering student graduating each year.

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

**Harold E.R. Steele Prize**
A prize of $100 is awarded to the best student in the course leading to the degree of Bachelor of Engineering with major studies in electrical power, communication and electronic, or computer systems engineering.

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

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

**Oscar Weigel Exhibitions in Engineering**
Value — up to $400 per year and tenable for a period not exceeding five years.

**Philips Prize**
A colour television is awarded to the student with the best final year project in the Degree of Bachelor of Engineering (Electrical).

**Postgraduate awards**
The Commonwealth Department of Education provides awards for full-time research leading to the degree of Master. 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. Further information may be obtained from the Head of each engineering school.

**Professional recognition of courses**

**The Institution of Engineers, Australia**
The courses for degree of Bachelor of Engineering, in civil, electrical power and control, communication and electronic, computer systems, manufacturing, and mechanical engineering, have all received recognition by The Institution of Engineers, Australia, as satisfying academic requirements for corporate membership.

Students who are enrolled for engineering courses at Swinburne and are at least seventeen years of age may apply to the Institution of Engineers, Australia, to become student members. Application forms are available from engineering school offices and the Divisional office.

**Other professional bodies**
The course for the Bachelor of Engineering (Manufacturing) is recognised by the Institution of Production Engineers and the degree in electrical engineering is recognised by the Institution of Radio and Electronics Engineers (Australia) as sufficient academic qualification for membership.
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DIVISION OF BUSINESS, HUMANITIES AND SOCIAL SCIENCE

Academic Staff

School of Commerce

Head
N.J. Allport, BEd(Mon), BCom, MBA(Melb), FCPA

Associate Professor
H.M. Paterson, DipEd, BCom(Melb), MEc, PhD(LaT), CPA

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B.R. Clarke, BEc, LLM(Mon), GradDipMkt(CIT), Barrister and Solicitor (Vic) Supreme Court
P. Holland, DipEd, BCom, LLB(Hons)(Melb), MEnvSc(Mon), Barrister & Solicitor (Vic) Supreme Court
W.C. Nash, BCom, DipEd(Melb), MBA(CranIT)
W.H. Platt, BCom, DipEd(Melb), MAdmin, MEnvSc(Mon), CPA
D.J. Thomas, MA(Syd), PhD(Mon)
J.B. Wielgosz, BCom(Hons), DipEd, MA(Melb)

Senior Lecturers
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M. Dunkley, BBus(CIT), DipEd(Melb), MBA(Mon), CPA
J.R. Gerrand, BEc(Mon), CPA
P.G.L. Harkness, BAgEc(UNE), MAdmin(Mon)
S. Holligan, BEc(Hons)(LaT)
S. Kapnoullas, LLM, BA, DipEd(Melb), Barrister and Solicitor (Vic) Supreme Court
D.J. Owens, BEc(Hons), MAdmin(Mon)
M. Psaltis, BA, LLM, DipEd(Melb), Barrister and Solicitor (Vic) Supreme Court
A. Richardson, BEc(Mon), GradDipEDP(CIT), MBA(Melb), ACA
R.N. Smith, BA(Hons), DipEd, DipContEd(UNE), GradDipBIT(SIT), MCom(NSW)
B.W. Spurrell, BCom(Melb), BA(Melb), DipEd(Melb), FCPA
D.G. Vinen, DipEd(UE), BSc(Leic), MSc(UEA), MACE, FTIA
J.D. Wells, BCom(Hons)(Qld), MAdmin(UE), FCPA, ACA
P.O. Xavier, MA(Leic), MEd(UE)

Lecturers
C. Barry, MEd(UE)
M. Barut, DipBus(Comp)(PIT), BBus(SIT), Grad Dip Acc(SIT), MBA(UE), FCPA
A. Bell, BBus(SIT), Grad Dip BIT(SIT), ASA
S. Edmonds, LL.M(UE), LL.B(Adel), Barrister and Solicitor (Vic) Supreme Court
J. Foreman, BBus(SIT), MBA(Melb)
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J. Gerstman, BA, BEd(UE)
C. Karunanathan, BSc(Hons)(UEA), MCom(CompSci)(Melb)
A. McCloy, BBus(AgSc)
P. McIntosh, BJuris, LLB(Melb), LL.M(Melb), Barrister and Solicitor (Vic) Supreme Court
C. Marsh, DipBus(Comp)(SIT), MTaxSt(Melb), ACA, FTIA
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A. Virk-Goraya, BSc(Hons)(Melb), ASA
S. Wilson, BJuris, LLB(Melb), Barrister and Solicitor (Vic) Supreme Court

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G.A. Murphy, BCom(Melb), CPA
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School of International and Political Studies

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Asian Languages and Cultures

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Marketing and Organisation Behaviour

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V. Power, BA(SUT), GradDipAppPsych(SIT), MAPsS
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T.G. Castleana, BA(Hons)(Ind), PhD(Mon)

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Lecturers
J. Bryant, BA(Hons)(LaT), DipEd(Melb)

Centres

Division of Business, Humanities and Social Science academic staff are associated with the following:
Asia-Australia Research Institute
Centre for Industrial Democracy
Centre for Information Systems Research
Centre for Innovation and Enterprise
Media and Telecommunications Centre
Centre for Organisational and Strategic Studies
Centre for Psychological Services
Centre for Social Research
General Student Information

Applications
Applications, including special entry, later year entry and part-time, must be made through the Victorian Tertiary Admissions Centre (VTAC). Students studying at Swinburne TAFE may apply directly by obtaining an application form from the Admissions and Examinations section of Swinburne University of Technology. Students enrolled in programs taught within the Division of Business, Humanities and Social Science may make application to transfer to other programs within the Division by completing an Application for Internal Course Transfer available from the Divisional office, Level 9 of the Business and Arts building.

For further information about application procedure or entrance requirements please consult the introductory chapter: Undergraduate courses: General Information.

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.

Completion of first year of undergraduate program
Bachelor of Arts
Full-time students are not normally permitted to enrol for second or third year subjects unless they have completed or are concurrently completing all outstanding core subjects. Where a student is enrolled for both first and second year subjects and wishes to withdraw from a subject, enrolment in first year subjects must be maintained. Part-time students may be permitted to complete a major sequence of study prior to first year electives providing permission is granted from the enrolment officer at the time of enrolment.

Bachelor of Business
Full-time and part-time students: requirements for full-time students in the Bachelor of Arts.

Standard Enrolment Load
Bachelor of Arts
All full-time stage one students are expected to enrol in, and remain enrolled in, four subjects per semester.
All full-time stage two and three students are expected to enrol in, and remain enrolled in, three subjects per semester.
All part-time students are expected to enrol in, and remain enrolled in, two subjects each semester for the duration of the course.

Bachelor of Business
Full-time students are expected to enrol in, and remain enrolled in, four subjects per semester.
Part-time students are expected to enrol in, and remain enrolled in, two subjects per semester.

Variations to the standard enrolment load will only be permitted in exceptional circumstances, and will normally be varied for one semester only.

Overload
Students will be permitted to enrol in one additional subject over the normal semester load if they have passed all enrolled subjects in the previous semester and it is the student's last semester of study. In exceptional circumstances approval may be given if a student has outstanding results. Applications must be made in writing to the relevant course administrator before the scheduled re-enrolment period.

In the case of more than one additional subject, applications, in writing, must be made to the Pro Vice-Chancellor at the time of pre-enrolment.

To undertake less than the normal load: Applications should be made to the relevant Course Administrator before the scheduled re-enrolment period, clearly stating reasons for the request.

Change of enrolment status
Students wishing to change their enrolment status from full-time to part-time may do so at the end of any semester, and students should contact the relevant Course Administrator to amend enrolment. Change of status from part-time to full-time will be permitted at the end of each year at the time of re-enrolment into the following year. Part-time students wishing to study full-time in Semester 2 of any year must apply in writing to the relevant course administrator before the beginning of Semester 2 and will only be permitted in exceptional circumstances.

Time limit for completion of degree
Full-time students 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).

Student-at-risk program
Students who do not pass at least fifty per cent of their enrolled load in any semester will be identified as being 'at risk' and will be advised of their status by letter within one week of the publication of results each semester. Students will be given the opportunity to discuss the situation with a member of the Student Progress Review Committee. Attendance at these sessions is highly recommended, but not compulsory.

The grades N, NA, NWD and PX will count as fail grades for the purpose of this section.

Unsatisfactory academic progress
The academic progress of a student will be considered to be unsatisfactory if:

- in the two most recent semesters in which the student was enrolled (excluding summer school), the student
fails fifty per cent or more of the enrolled workload; or
- a Bachelor of Business student fails a subject for the third time, or a Bachelor of Arts student fails a subject for a second time; or
- the student fails to meet the conditions previously imposed by the Progress Review Committee.

The grades N, NA, NWD and PX will count as a fail for the purpose of this section.

**Show cause applications**

Students whose progress is considered unsatisfactory will be advised in writing of their status within one week of results being released, and advised that a recommendation has been made to the Divisional Board that they should be excluded from the course in which they are enrolled. Such students are entitled to make a show cause application to the Student Progress Review Committee stating why they should not be excluded. No student will be excluded from the course without first being given the opportunity to show cause to the Student Progress Review Committee. Failure to make contact with the Committee will result in the exclusion of the student before the beginning of the next academic semester.

Show cause applications must be addressed to the Chair of the Student Progress Review Committee and lodged at the Undergraduate Office, as appropriate, by the date specified in the letter to students advising them of their status.

**Student Progress Review Committee**

**Composition**

There will be one committee for the Bachelor of Arts and one committee for the Bachelor of Business, Bachelor of Arts/Bachelor of Information Systems and Bachelor of Information Technology made up of academic staff teaching in the relevant course or courses.

- Chair and at least three members, all from academic staff teaching in the relevant courses. The Chairs are nominated by the Divisional Board and members are nominated by Heads of School.
- The Division’s International Student Liaison Officer for cases of show cause involving international students.
- The relevant Course Administrator (Secretary).
- Where requested by the student, the President of the Student Union or nominee may be present at the Committee for the consideration of that case only.

**Procedure**

Upon receipt of a show cause application from a student, the Chair and Secretary of the Student Progress Review Committee, on behalf of the Committee, will review the case and decide whether it will be necessary to interview the student.

Students will be advised whether their show cause application has been accepted without interview or whether an interview with the Student Progress Review Committee is required.

Additional information from appropriate academic staff about the student’s academic work may be sought by the Student Progress Review Committee before a decision is made.

**Powers**

The Student Progress Review Committee may, when considering a show cause application:

- accept the student’s show cause application and allow the student to re-enrol without condition;
- accept the student’s show cause application but place conditions upon the student’s enrolment in the following semester;
- in the case of a Bachelor of Arts student who fails a subject for the second time, the Committee may require the student to select another major course of study;
- require the student to take a leave of absence for a specified period; or
- exclude the student from the course for a minimum of two academic years.

**Enrolment conditions**

The academic record of students placed on condition will be reviewed by the Student Progress Review Committee at the end of the following semester and a decision made to:

- permit the student to continue studying without further condition; or
- impose a further condition on the student for an additional semester; or
- require the student to show cause why they should not be excluded from the course for a minimum of two academic years (four semesters excluding summer semesters).

**Appeals against decisions of the Student Progress Review Committee**

These regulations are contained in the University Procedures Relating to Student Assessment and Appeals.

**Period of exclusion**

Students who are excluded from the course will not be permitted to re-enrol for a minimum period of two academic years (four semesters excluding summer semesters), unless the student was excluded from the Bachelor of Business after failing a subject for the third time.

Bachelor of Business students excluded after failing a subject for the third time will be permitted to re-enrol once a subject equivalent to the subject failed for the third time has been successfully completed at another higher education institution and the student has provided proof of passing the equivalent of that subject.

Should a Bachelor of Business student choose another major area of study for which the subject that has been failed for a third time is not mandatory the student is not required to repeat the failed subject at another higher education institution.
Re-enrolment after a period of exclusion

Students wishing to re-enrol after a period of exclusion must contact the relevant Course Administrator three months before the semester in which they wish to enrol to receive advice about appropriate procedures. Students seeking re-enrolment after a period of exclusion will normally be expected to make a written case to the Student Progress Review Committee outlining their activities since they were excluded before they would be permitted to re-enrol. Re-enrolment will be subject to the normal application and selection policies and procedures of the course.

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 until classes have met.

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

Submission of assignments

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

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 nineteenth 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 in the previous Faculty of Business – now the Division of Business, Humanities and Social Science.

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.

Annual membership is $25, with optional life membership of $100, student membership of $10, and Library membership of $15.

For information contact: Brian Golland, PO Box 145, Camberwell 3124, Phone: 9641 8727 BH or 9435 6614 AH or fax 9432 2500.

The Industry based learning year (& the Cooperative education program)

**Manager**

J.R.W. Gerrand

**Secretary**

Helen White

The cooperative education program offers students an opportunity to combine study with practical on-the-job experience. Under the program students spend the third stage of their Bachelor of Business course employed in the professional, business, government or industry sectors on a paid full-time work experience program. This is the industry based learning year (IBL).

The program is optional and only available to full-time students. At the end of the IBL year students resume their studies at the University. To complete the Bachelor of Business, including IBL, takes a minimum of four years.

**The program**

Students are invited during the second stage of full-time study to apply for entry into the program. Successful students, who are selected on the basis of academic performance and attitude, are then assisted by the Division to find employment. Assistance is given in the form of information sessions with employers, lectures on interview techniques and skills, and general support in making sure that each participating student is placed.

IBL students are assigned a member of the academic staff to act as their mentor and to liaise between the employer and the Division.

Students are required to successfully complete a detailed report on their work experience year.

Students are **permitted** to study one subject per semester while working.

**Benefits of the program to students**

The IBL year is a wonderful opportunity to combine theory and practice.

- 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 have already held a job, career decisions are made easier and IBL students have more to offer to prospective employers.

- There is a 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.

- IBL enables students to use work experience to choose final year subjects.

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**UNDERGRADUATE COURSE DESCRIPTIONS**

**N061 Certificate in Commercial Radio**

**Course aims**
The course aims to provide specific instruction in all aspects of radio broadcasting, with hands-on experience in announcing and news presentation. Other areas of tuition include voice training, production, copywriting, news writing and presentation, sales and 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. Training is conducted in Swinburne’s modern, fully equipped radio centre, with personal access time available to all course participants.

An industry placement program will place students into commercial radio stations for several weeks during the course. This placement program is designed to allow participants to experience at first hand the environment and operating style of commercial radio, gain feedback on their skills and make personal contacts within the industry.

Guest lecturers from the radio industry reinforce information presented in all areas. Regular radio broadcasting from Swinburne’s studios develops skills in programming, writing, production and presentation. Participants in the course will have access to other courses run in Media Studies at Swinburne, including media criticism and public policy.

**Course structure**
Successful completion of the Certificate in Commercial Radio requires students to pass the following eight subjects:

- AM111 Radio in Australia
- AM112 Radio Management
- AM113 Radio Presentation 1
- AM114 Radio Presentation 2
- AM115 Radio Journalism 1
- AM116 Radio Journalism 2
- AM117 Advertising Copywriting
- AM118 Radio Advertising Production

**Course Convener**
Jim Barbour
Telephone: (03) 9214 8836

**N062 Associate Degree in Social Science**
The Associate Degree in Social Science will not be offered in 1997. It is offered only to continuing students.

Students who are interested in the course should make enquiries about the Diploma of Administration and Services (General Studies) which is a similar course offered in the TAFE Division of the University.

Graduating students will be prepared for a number of occupations within a range of administrative and service employment positions, in a variety of employment contexts.

The Associate Degree generally involves two years of full-time study. Part-time study may be arranged. To qualify for the award of the Associate Degree students are required to complete the program of study as outlined.

**Course aims**
The course is designed to give students the necessary background, knowledge and skills to allow them to perform in a range of administrative and service employment contexts. The course will develop the students’ ability to:

- collect and organise information
- analyse and interpret social and statistical data
- conceptualise and analyse problems and issues
- communicate in oral and written forms
- use appropriate information technology
- work and manage effectively in an organisation
- work as part of a team
- deal appropriately with members of the public.

The course provides students with a working knowledge of major social processes (e.g. Australian political and legal systems, social structures, patterns of social inequality) and organisational dynamics. The course is particularly appropriate for people who are employed or seeking employment in:

- administrative jobs in either public or private sectors
- service delivery to the public (especially through government bodies but also in quasi-government and private organisations which deal with the public)
- public relations, information provision or media liaison
- jobs which require research skills and carry responsibility for contributing to the processes of policy development, implementation, monitoring and evaluation.

The Associate Degree provides basic skills in the areas listed above but its structure anticipates the fact that these areas extend into high levels of professional competence which cannot be covered by associate degree level education.

**Articulation arrangements**
Students who complete the Associate Degree in Social Science will be eligible to apply for entry into Swinburne’s Bachelor of Arts degree (BA) but will not automatically be selected. Those who are selected will be eligible for credit transfer of up to one and a half years of the BA degree, depending on the subjects taken as part of the degree and the BA majors taken.
Course description
The Associate Degree is a two-year full-time course (or equivalent) with a combination of core subjects plus specialist streams. The core would be completed in the first year, the chosen stream in the second year of study. There are four streams in the Associate Degree:
- Administration and Management
- Human Services
- Planning and Policy
- Public Relations

Students choose one of the four streams. Most subjects are part of a list of prescribed offerings, but in both the core and the specialist streams, some electives can be chosen. The lists of electives for the various streams are overlapping — a subject may be compulsory in one stream but an elective in another. Language study must be taken over a whole year (for two semesters) and counts as two elective subjects.

Entry requirements
Applicants in the following categories will be considered for admission to the Associate Degree in Social Science course:

VCE
Selection of applicants may be determined on the basis of their performance and results in Year 12, which will be a pass in four VCE studies including Units 3 and 4 of English accredited by the Victorian Board of Studies. (Passes may be accumulated over more than one year.) In addition selection may involve a written application and/or an interview.

Special entry
Persons 21 years and over. Applications will be considered by a selection committee which will evaluate each applicant's likelihood of completing the course. The selection committee will take into account an applicant's educational background, employment background, and written reasons for wishing to undertake the Associate Degree course. A quota for this type of entry may be applied.

Persons under 21 years who have completed studies deemed by the course providers and the University to be the equivalent of Year 12 will be considered by a selection committee which will evaluate each applicant's likelihood of completing the course. The selection committee will take into account an applicant's educational background, employment background, and written reasons for wishing to undertake the Associate Degree course. A quota for this type of entry may be applied.

Persons who do not meet the above criteria should, in the first instance, consult with the Course Coordinator at Swinburne University of Technology.

Course structure
Core studies
(To be undertaken in first year)
The core studies undertaken in the first year are designed to provide all students with a basic understanding of major elements of Australian society and the economy, and with fundamental skills required for administrative and service employment.

Compulsory subjects:
- AD100 Analysis and Argument
- AD101 Australian Government
- AD102 Australian Society, the Economy and the Environment — 1
- AD103 Australian Society, the Economy and the Environment — 2
- AD104 Communication Skills
- AD105 Individuals, Groups and Organisations
- AD106 Using Information Technology — 1
- AD107 Using Information Technology — 2

Plus two electives
- AD108 Issues in Multicultural Australia
- AD109/ Language Other than English (counts as two electives)
- AD110 Technology and Society
- AD112 Understanding the Mass Media

Streams
(To be undertaken in second year)
In the second year students choose one of four course streams which relate to more specific areas of employment. Each stream includes a number of compulsory subjects as outlined below, but allows students to choose from among the whole range of subjects available across the stream including further study of Language Other than English.

Administration and Management
Compulsory subjects:
- AD200 Behaviour in Organisations
- AD203 Economic Decision-making in the Enterprise
- AD204 Equity and Opportunity in Australian Society
- AD206 Industrial Relations
- AD208 Negotiation and Change Management
- AD209 Report Writing

Plus four electives chosen from the range of second year subjects including Languages Other than English (AD212 and AD213).

Human Services
Compulsory subjects:
- AD200 Behaviour in Organisations
- AD202 Data Usage and Interpretation
- AD204 Equity and Opportunity in Australian Society
- AD205 Health and Illness
- AD208 Negotiation and Change Management
- AD209 Report Writing
Plus four electives chosen from the range of second year subjects including Languages Other than English (AD212 and AD213).

Planning and Policy

Compulsory subjects:
- AD202 Data Usage and Interpretation
- AD203 Economic Decision-making in the Enterprise
- AD204 Equity and Opportunity in Australian Society
- AD206 Industrial Relations
- AD209 Report Writing
- AD210 Research Skills

Plus four electives chosen from the range of second year subjects including Languages Other than English (AD212 and AD213).

Public Relations

Compulsory subjects:
- AD201 Culture and Ideas
- AD203 Economic Decision-making in the Enterprise
- AD207 Information Systems, Society and Technology
- AD209 Report Writing
- AD210 Research Skills
- AD211 Writing and Producing for Public Release

Plus four electives chosen from the range of second year subjects including Languages Other than English (AD212 and AD213).

Course Coordinator
Michael Elliott on (03) 9214 8631

N050 Bachelor of Arts

Full-time status
The Bachelor of Arts course requires three years of full-time study, during which time twenty semester subjects must be passed.

Part-time status
Many students undertake their courses by part-time study. This would usually take five years, but the time may vary according to the study time available to the student.

Career opportunities
The course is designed to foster individual student development, to develop skills and encourage investigation and enquiry which may be applied to a range of situations. Arts students learn how to gather, synthesise and assess information, how to conceptualise issues, and to express themselves effectively both orally and in writing.

Students may select courses which would be of particular value in following a career in such fields as: administration, personnel, publishing, public relations, media or allied work, and research services, or they may proceed to the degree of Master of Arts and Doctor of Philosophy. Graduates, after further study, may gain qualifications to become, for example, psychologists, librarians, sociologists or teachers.

Course structure

To qualify for the award of the degree of Bachelor of Arts students are required to:
(a) complete two of the following majors:
- Asian Studies
- Australian Studies
- Cultural Studies
- European Studies
- Italian
- Japanese
- Korean
- Literature
- Media Studies
- Philosophy and Cultural Inquiry
- Political Studies
- Psychology
- Sociology
- Vietnamese
- Or
- A double major in Political Studies
- Or
- Psychology and Psychophysiology

The following majors are available from the Bachelor of Business subjects:
- Accounting
- Business Law
- Business Modelling
- Economics
- Finance
- Information Systems
- Manufacturing Management
- Marketing
- Organisation Behaviour/Human Resource Management

(b) gain passes:
- in twenty semester subjects (or equivalent full-year subjects) including a minimum of six semester subjects or equivalent in each of stages one, two and three.

Note: Students in their first year, who do not take any language studies, are strongly encouraged:
- if full-time, to select their eight semester subjects from at least six different subject areas;
- if part-time, to select their four semester subjects from at least three different subject areas.

Students should check the duration and semester subject value of each subject, as set out under subject details at the end of this chapter.

Studies constituting major strands
In Italian, Japanese, Korean, Psychology, Sociology and Vietnamese, majors must include a full year of study at stage one as well as at higher stages. In Asian Studies, Australian Studies, Cultural Studies, Media Studies, Literature, Philosophy and Cultural Inquiry, Political
Studies and European Studies, majors may be constructed with one or two semester subjects at stage one.

Course Administrator
Aksone Chounlamountry
Telephone: (03) 9214 8630

Course descriptions

Interdisciplinary Majors
The Division of Business, Humanities and Social Science offers four interdisciplinary majors: Asian Studies, Australian Studies, Cultural Studies and European Studies.

Asian Studies
Asian Studies incorporates subjects from Political Studies and Asian Languages and Cultures. The major focus is on contemporary Asia, with emphasis on the political economy and international relations in some subjects, and on the historical-cultural background in others.

The subjects included in the major are listed below. In general, students must complete one subject at stage one, two semester subjects at stage two and three semester subjects at stage three for a major. In the case of the Asian Studies major, students must do at least one Political Studies subject in stage one and one in stage two.

Subjects offered
Stage 1
AJ102 Introduction to Japan — A Cultural Overview
AK102 Traditional Korea
AP114 Australia and Asia
AP115 Introduction to Modern Asia

Stage 2
AH208 Asian Traditions of Philosophy
AK207 Korean Society
AK208 Korean Politics and Economy
AP202 Europe, Capitalism and the Third World
AP204 Modern Japan
AP206 Politics of China A

Stage 3
AP304 Japan in Asia
AP311 Politics of China B
AP312 Problems of Contemporary Southeast Asia
AP313 India: Uneven Development

Australian Studies
As an interdisciplinary major, Australian Studies allows students to explore the contours of modern Australia by taking a combination of three compulsory subjects and three optional semester subjects chosen from Literature, Media, Philosophy and Cultural Inquiry, Political Studies and Sociology.

A major consists of one semester subject at stage one, two semester subjects at stage two and three semester subjects at stage three.

The three compulsory subjects, which form a core sequence in the major, are AP112 Australian Identities, AP207 Modern Australia and AP314 Work in Australia. In this sequence students examine several of the political, social, economic and cultural influences which have shaped contemporary Australian society.

To complete the six semester subjects which are necessary for a major, students must choose three more semester subjects from the options listed below. In choosing optional subjects at level three, students must have completed the prerequisites for those subjects at level two.

Students may not double-count subjects for two majors. For example, AP207 cannot be counted for both the Australian Studies and Political Studies majors. It can only be counted for one.

Subjects offered
Stage 1
AP100 Australian Politics
AP112 Australian Identities (compulsory)
AT118 Aboriginal Issues

Stage 2
AH206 Society, Culture and Resources
AL202 Contemporary Australian Writing
AM203 Popular Culture
AM207 Cultural Representation in Australia (not offered in 1996)

Stage 3
AP207 Modern Australia (compulsory)
AS204 Models of Sociological Analysis
AT218 Archaeology

Stage 3
AH306 Practical Ethics
AH307 Australian Science and Society
AL307 Australian Literature
AM300 Cinema Studies
AP300 Public Policy in Australia
AP308 Seminar in Political Studies
AP314 Work in Australia (compulsory)
AS307 Sociology and Social Policy

Cultural Studies

The Cultural Studies major is an interdisciplinary major which provides students with the theoretical understanding, the skills of critical analysis, and the diversity of disciplinary approaches appropriate to the study of culture.

The major in Cultural Studies comprises (a) at stage one: at least one of the core subjects from the stage one options listed below; (b) at stage two: AH204 Philosophy of Culture (core subject) together with any one subject from the stage two subjects listed below; (c) stage three: AH310 Approaches to Culture (core subject) together with any other two subjects from the stage two subjects listed below.

In choosing subjects at stages two and three, students should ensure that any relevant prerequisite subjects have been completed.

Students may not double-count subjects for two majors. For example, if ALM104 Texts and Contexts is counted as part of a literature major, it cannot be counted as part of a cultural studies major.
Subjects offered
Stage 1
Core subjects
Any one of the following:
AA119  Post-War Italy
AH101  History of Ideas
AJ102  Introduction to Japan
AK102  Traditional Korea
ALM104  Texts and Contexts
AP112  Australian Identities
Stage 2
Core subject
AH204  Philosophy of Culture
Other subjects
AA208  Twentieth Century European Literature and Thought
AH205  Social Philosophy, Politics and Ethics
AH206  Society, Culture and Resources
AL204  Reading, Writing and Criticism
AM203  Popular Culture
AP202  Europe, Capitalism and the Third World
AS204  Models of Sociological Analysis
AS206  Sex and Gender in Society
AY204  Social Psychology
Stage 3
Core subject
AH310  Approaches to Culture
Other subjects
AH301  Rationality
AH308  Social Studies of Science
AH311  Environmental Philosophy
AH312  Natural Philosophy and the Sciences
AL304  Cross-Cultural Perspectives
AL306  Renaissance Literary Culture
AM300  Cinema Studies
AS302  Sociology of Organisations
European Studies
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 six subjects, at least one subject at first year, two subjects at second year and three subjects in third year. AP101 Foundations of Modern Politics is a compulsory first year subject for the major in 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.

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 briefing 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, Industry Based Learning in Europe, involves work experience in a European country of choice.

The subjects offered are:
Stage 1
AA119  Post-War Italy
AH101  Nineteenth Century Literature (Not offered in 1997)
AP101  Foundations of Modern Politics (compulsory)
Stage 2
AA212  European Union
AH204  Philosophy of Culture
AP202  Europe, Capitalism and the Third World
AA208  Twentieth Century European Literature and Thought
Stage 3
AA377  International Business in the Italian Context (Not offered in 1997)
AA375  Industry Based Learning in Europe
AA376  European Study Tour
AA378  European Union Business Context
AH310  Approaches to Culture
AL306  Renaissance Literary Culture
AS308  Migration and Ethnicity
BM336  European Business Studies

Students may not double-count subjects for two majors. In choosing optional subjects at Stage 2, 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
Ms Kaye Nolan
Convener of European Studies
Telephone: (03) 9214 5339  Fax: (03) 9819 5475
Email: knolan@gpo.swin.edu.au

Asian Languages and Cultures
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 two concurrently with the second year subjects of each stream.

AJ102 Introduction to Japan — A Cultural Overview is also available to those not undertaking the full Japanese language course.

AP204, Modern Japan, offered by Political Studies, is also highly recommended.

The language subjects offered in Japanese have been specifically designed for non-native speakers of the Japanese language. These subjects will not meet the needs of native speakers of Japanese who will not be eligible to enrol in the language.

Subjects offered
Stage 1
AJ102 Introduction to Japan — A Cultural Overview
AJ103 Japanese 1A
AJ104 Japanese 1B
AJ105 Advanced Japanese 1A
AJ106 Advanced Japanese 1B
Stage 2
AJ202 Communication in Japanese
AJ203 Japanese 2A
AJ204 Japanese 2B
AJ205 Advanced Japanese 2A
AJ206 Advanced Japanese 2B
Stage 3
AJ302 Work Experience in Japan (only available to BBus/BA (Japanese) students)
AJ303 Japanese 3C
AJ304 Japanese 3D
AJ305 Advanced Japanese 3C
AJ306 Advanced Japanese 3D
AJ307 Reading Japanese Newspapers
AJ308 Japanese for Tourism and Hospitality
AJ310 Japanese for Business and Industry

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.

Korean
The course 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.

The subjects AK103, AK104, AK205, AK206, AK303, AK304, and AK305 form a degree major in Korean.

Students intending to complete a major should enrol in the first instance in AK103 and AK104.

Students undertaking a major in Korean are also strongly advised to enrol for subject AK102 Traditional Korea, which is offered in the first semester. This subject is also open to students not undertaking the full Korean language sequence.

Since language studies at Swinburne are designed for beginners, students with native proficiency in a language taught at Swinburne will not normally be eligible to enrol in that language.

All incoming students in Korean will be assessed in terms of their expertise in the language. Those students who display a high level of competence in this regard may be required to study an alternative syllabus to that shown in this Handbook.

Credit transfer is possible from a recognised tertiary institution in Australia.

Subjects offered
Stage 1
AK102 Traditional Korean
AK103 Korean 1A
AK104 Korean 1B
Stage 2
AK205 Korean 2A
AK206 Korean 2B
AK207 Korean Society
AK208 Korean Politics and Economy
Stage 3
AK303 Korean 3C
AK304 Korean 3D
AK305 Reading Korean Newspapers

Vietnamese
The major is designed to acquaint students with Vietnamese, an important community and trade language. The broad aim of the course is to provide students with communicative competence in the language together with knowledge and understanding of Vietnam.

The beginners stream consists of AV103, AV104 at stage one, AV203, AV204 at stage two, then AV303, AV304 and AV306 at stage three. Normally AV303 and AV304 are taken before or concurrently with AV306.

Subjects related to Vietnamese studies may also be offered, and students are advised to check with the division for
information.
It should be noted that the Vietnamese major is sequential in nature. Students must complete both subjects in stage one before enrolling in stage two subjects, and these, in turn, must be completed before enrolling in stage three subjects.

Subjects offered
Stage 1
AV103 Vietnamese 1A
AV104 Vietnamese 1B
Stage 2
AV203 Vietnamese 2A
AV204 Vietnamese 2B
Stage 3
AV303 Vietnamese 3A
AV304 Vietnamese 3B
AV306 Reading Vietnamese Newspapers

Italian Language and Culture
This 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 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 beginners stream and a post-VCE stream.
A beginners stream consists of AA109 and AA110 at stage one, followed by AA209 and AA210 of stage two, then AA309 and AA310 at stage three. Normally AA309 and AA310 are completed before, or concurrently with, AA313.

The post-VCE stream requires a pass and above at VCE level or equivalent and consists of AA106 and AA107 at stage one, followed by AA206 and AA207 at stage two, then AA306 and AA307 at stage three. Normally AA306 and AA307 are completed before, or concurrently with, AA313.

Students undertaking a major in Italian are also strongly advised to enrol for AA119 Post-War Italy and AA212 European Union.

The following subjects related to Italian studies are also offered:

AA208 Twentieth Century European Literature and Thought
AA375 Industry Based Learning in Europe
AA376 European Union Study Tour
AA377 International Business in the Italian Context

Students should note that in first year, semester two, AA107 and AA110 are each worth two semester subjects toward their degree subject total.

An honours program in Italian is available and MA and PhD programs by research and thesis in Italian are currently being offered. A double degree Bachelor of Business/Bachelor of Arts (Italian) is also available.

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.

Subjects offered
Stage 1
AA106 Advanced Italian 1A or AA109 Italian 1X
AA107 Advanced Italian 1B or AA110 Italian 1Y
AA119 Post-War Italy
Stage 2
AA206 Advanced Italian 2A or AA209 Italian 2X
AA207 Advanced Italian 2B or AA210 Italian 2Y
AA208 Twentieth Century European Literature and Thought
AA212 European Union
Stage 3
AA306 Advanced Italian 3A or AA309 Italian 3X
AA307 Advanced Italian 3B or AA310 Italian 3Y
AA313 Contemporary Italy
AA375 Industry Based Learning in Europe
AA376 European Union Study Tour
AA377 International Business in the Italian Context
AA378 European Union-Business Context

Media, Literature and Film

Literature
The Literature major is designed to provide students with the opportunity to consider literary works from a variety of historical periods, ranging from the renaissance to the twentieth century, and to explore the implications of cultural diversity in the literary traditions of Australia, America and post-colonial countries. In addition, the subjects offered are designed to encourage students to think critically about larger concepts beyond individual literary texts, such as the development of contemporary literary and critical theory, and the ways in which literature, as a form of communication, functions to give meaning to our experience and the world in which we live.

The Literature major has been developed out of a sensitivity to the changing nature of the world, and especially changes in the meaning of terms such as
literature, culture, and the popular. Through critical enquiry and hands-on experience, students will also have the opportunity to examine the implications of a global culture increasingly dominated by new electronic writing technologies, such as hypertext and multimedia.

A Literature major consists of ALM104 Texts and Contexts at stage one, students are also encouraged to take AT113 Writing Fiction. This is followed by a combination of any two of AL202 Contemporary Australian Writing, AL204 Reading, Writing and Criticism and AL205 American Literature at stage two, and three of the following stage three subjects, AL304 Cross-Cultural Perspectives, AL305 Australian Literature, AL306 Renaissance Literary Culture, ALM310 Electronic Writing and ALM 312 Media and Literature Project.

Subjects offered
Stage 1
ALM104 Texts and Contexts
AL102 Nature and the Machine Age: Pre and Post Industrial Culture in Nineteenth Century Literature
ALM104 Texts and Contexts
Stage 2
AA208 Twentieth Century European Literature and Thought
AL202 Contemporary Australian Writing
AL204 Reading, Writing and Criticism
AL205 American Literature
Stage 3
AL304 Cross-Cultural Perspectives
AL306 Renaissance Literary Culture
AL307 Australian Literature
ALM310 Electronic Writing
ALM312 Media/Literature Project

Media Studies
The approach in Media Studies is essentially analytical and critical, although students can acquire hands-on skills in publishing, electronic writing and radio production during the later stages of the course.

Subjects offered
Stage 1
ALM104 Texts and Contexts
AM105 The Media in Australia
Stage 2
AM208 New Media: The Telecommunications Revolution
AM203 Popular Culture
AM207 Cultural Representation in Australia
AM209 Media Voices, Media Style: The Process of Journalism
Stage 3
ALM310 Electronic Writing
ALM312 Media/Literature Project
AM300 Cinema Studies
AM302 Radio Production and Criticism
AM306 Professional Attachment Program
AM311 Information Society: A Global Perspective

Philosophy and Cultural Inquiry
The subjects offered in Philosophy and Cultural Inquiry draw on the traditional disciplines of philosophy, the history of ideas, and the history and philosophy of science. They are designed to introduce students to the techniques of philosophical inquiry and analysis, and to some of the important cultural and intellectual developments which have shaped our lives and the way we see ourselves in relation to the world. Many of the subjects give particular emphasis to the interrelationships between science, technology and culture, both from a historical and a contemporary perspective.

In addition to opening up new perspectives on our lives and our culture, philosophical inquiry develops practical skills in critical and creative thinking, reasoning and argument, and conceptual analysis. These skills not only play an important part in complementing studies in other subject areas, but are also of great value in both professional and personal life.

A major in Philosophy and Cultural Inquiry comprises one semester subject at stage one, two semester subjects at stage two, three semester subjects at stage three.

Some of the subjects offered below also may be used to construct majors in Australian Studies, Cultural Studies, or European Studies. Note, however, that students may not double-count subjects for two majors. For example, if AH204 Philosophy of Culture is counted as part of a major in Philosophy and Cultural Inquiry, it cannot at the same time be counted as part of a major in Cultural Studies.

Subjects offered
Stage 1
AH100 Introduction to Philosophy
AH101 History of Ideas
AH102 Theories of the Universe
AH103 Critical Thinking
AH201  Mind, Language and Thought
AH203  Nature and Human Nature
AH204  Philosophy of Culture
AH205  Social Philosophy, Politics and Ethics
  *(Not available to students who have previously passed AH200 Moral and Political Philosophy)*
AH206  Society, Culture and Resources
  *(Not available to students who have previously passed AH202 Technology and Society)*

Stage 3

AH301  Rationality
AH306  Practical Ethics
AH307  Australian Science and Society
AH308  Social Studies of Science
  *(Not available to students who have previously passed AH302 Social Studies of Science A)*
AH309  Special Topics in Philosophy
AH310  Approaches to Culture
AH311  Environmental Philosophy
  *(Not available to students who have previously passed AH309 Special Topics in Philosophy)*
AH312  Natural Philosophy and the Sciences
  *(Not available to students who have previously passed AH304 Philosophy of Science A)*
AH313  Knowledge, Science and Reality
  *(Not available to students who have previously passed AH305 Philosophy of Science B)*

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 AY100 Psychology 100 and AY101 Psychology 101. Each of these subjects comprises lectures, practical work and instruction in statistical analysis.

In stage two, AY202 Cognition and Human Performance, AY203 Developmental Psychology and AY204 Social Psychology are offered and for students wishing to major in psychology SM278 Design and Measurement 2A must be taken.

In stage three, subjects offered are AY312 Psychology of Personality, AY319 Psychological Measurement and AY320 Psychological Foundations of Counselling. In addition, students majoring in psychology must take SM378 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. These subjects are AY319 and AY320.
All other subjects in psychology are worth one semester subject.

A co-major in psychology and psychophysiology is taught jointly by the Schools of Social and Behavioural Sciences and the School of Biophysical Sciences and Electrical Engineering. Places on this program are strictly limited and entry to the program is either via the Division of Business, Humanities and Social Science leading to the award of a Bachelor of Arts degree or via the Division of Science, Engineering and Design leading to the award of a Bachelor of Applied Science degree.

Many people take up a career related to psychology after completion of a three-year program, but some choose to undertake further study in order to work specifically as psychologists. To be regarded as a professionally trained psychologist in Australia, it is becoming increasingly necessary to be eligible for registration as a psychologist with a State Psychologist Registration Board and for membership of the Australian Psychological Society (APsS). The minimum requirement for registration as a probationary psychologist in the state of Victoria is completion of four years progressive study in psychology including specified elements. The minimum academic requirement for associate membership of the APsS is completion of an accredited fourth-year program of psychological study. The Swinburne Bachelor of Arts and Bachelor of Applied Science psychology majors have APsS approval as three-year sequences of study. To become eligible for associate membership of the APsS, graduates must then complete an approved fourth-year course. (A list of approved courses is available from the APsS.) The Swinburne Graduate Diploma in Applied Psychology is an accredited fourth-year course and the honours year in Psychology has provisional APsS accreditation.

In addition to its undergraduate and fourth-year courses, the School of Social and Behavioural Sciences offers a fifth and sixth year part-time coursework program leading to the award of a Master of Arts degree in Counselling Psychology. The School also offers a Professional Doctorate in Psychology by coursework and thesis, available for full-time study by selected students.

The School also accepts a limited number of suitably qualified candidates, on a full-time or part-time basis, for the degree of Master of Arts and PhD in Psychology by research and major thesis.

**Subjects offered**

**Stage 1**

- **AY100** Psychology 100
- **AY101** Psychology 101

**Stage 2**

- **AY202** Cognition and Human Performance
  
  *(Not available to students who have previously passed AY313 Cognition and Human Performance)*

- **AY203** Developmental Psychology
  
  *(Not available to students who have previously passed AY200 Psychology 200)*

- **AY204** Social Psychology
  
  *(Not available to students who have previously passed AY201 Social Psychology)*

**SM278** Design and Measurement 2A

**Stage 3**

- **AY312** The Psychology of Personality
- **AY319** Psychological Measurement
  
  *(Not available to students who have previously passed AY311 Methods and Measures)*

- **AY320** Psychological Foundations of Counselling
  
  *(Not available to students who have previously passed AY314 Counselling and Interviewing)*

**SM378** Design and Measurement 3A

*(Not available to students who have previously passed SM279 Design and Measurement 2B)*

Note: SM278 and SM378 must be taken by students wishing to major in psychology. For details of the subjects SM278 Design and Measurement 2A and SM378 Design and Measurement 3A, students should refer to the subject description section at the end of this chapter.

**Psychology and Psychophysiology**

Students accepted into the co-major through the Division of Business, Humanities and Social Science study the major sequence of psychology subjects described above. In first year, students must take AY100 and AY101. In second year, students must study AY202, AY203, AY204, and SM278, and in third year, AY312, AY319, AY320, and SM378.

The major in psychophysiology is taught by the Division of Science, Engineering and Design. Students should consult the Division of Science, Engineering and Design section of the Handbook for details of the psychophysiology subjects constituting this major.

**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 is distinctive in two ways. To begin with, Australian society is examined from an international perspective, comparing it with other societies, especially those of East Asia, North America and Western Europe. Then the program takes an applied approach by emphasising how sociology can be used to solve practical problems faced by individuals, organisations and governments.

In stage one, we introduce the comparative approach to sociology, and use it to explore aspects of Australian
society, economy and government in an international context. This takes a full year of study, consisting of AS100 Sociology 1A and AS101 Sociology 1B.

Students are required to take two stage two subjects to pursue a major in sociology. Students intending to major in sociology are strongly advised to include AS204 Models of Sociological Analysis as one of the subjects.

At stage three, students completing a major must take AS306 Methodology of Social Research plus two of the other subjects offered. Not all of the optional stage two and stage three subjects are run in any one year. Please check the current timetable.

Students not majoring in sociology may apply to do any first, second or third year 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 Research and Policy. A Master of Arts by coursework in Urban Research 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.

Subjects offered

Stage 1
AS100 Sociology 1A
AS101 Sociology 1B

Stage 2
AS204 Models of Sociological Analysis
AS205 Sociology of Deviance and Social Control
AS206 Sex and Gender in Society

Stage 3
AS300 Urban Sociology
AS302 Sociology of Organisations
AS303 Current Issues in Sociology
AS306 Methodology of Social Research
AS307 Social Research and Policy
AS308 Migration and Ethnicity

N053 Bachelor of Arts (Media and Communications)

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're dealing with the Internet or with TV news.

Media studies at Swinburne falls into three overlapping groups:

- textual analysis, which is concerned with the various ways in which we make sense of film and media materials (TV, print, new media);
- 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; and
- 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).

Offering a uniquely broad-based education in the media and associated industries, the media studies course is primarily taught by people who have had extensive workplace 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 works, to be able to recognise the place it occupies within the broader social context, 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.

The Media Studies major consists of a minimum of six subjects over three stages, with students taking at least the compulsory subject Texts and Contexts (ALM104) at stage one followed by two stage two and three stage three subjects. Each subject involves three hours a week of class time plus a similar amount of private study.

Career opportunities

Media Studies is a vital ingredient if you are interested in a career as a journalist or a radio producer, or work in public relations or 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.

Duration

The course is normally completed in three years of full-time study or five years of part-time study.

Course structure

The Bachelor of Arts (Media and Communications) is a three-stage program divided into a number of semester subjects. Full-time students usually take eight semester subjects at stage one and six at stages two and three. Part-time students usually take four semester subjects each year. 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.
To qualify for the award of the Bachelor of Arts (Media and Communications), students must complete at least two majors (one of which must be Media Studies) plus a number of electives. A major is a three-stage sequence of study in the one discipline or specialisation.

The Media Studies major includes the following:

### Stage 1

- **ALM104** Media Literature Film: Texts and Contexts
- **AM105** The Media in Australia

### Stage 2

- **AM203** Popular Culture
- **AM208** New Media: The Telecommunications Revolution
- **AM209** Media Voices, Media Style: The Process of Journalism

### Stage 3

- **AM300** Cinema Studies
- **AM302** Radio Production and Criticism
- **ALM310** Electronic Writing
- **AM311** Information Society: A Global Perspective
- **ALM312** Media/Literature Project

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 (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, 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 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.

### Further information

For information please contact the Undergraduate Office on 9214 8511.

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### N054 Bachelor of Arts/Associate Diploma in Business (Office Administration)

The Bachelor of Arts incorporating the Associate Diploma in Business (Office Administration) is an innovative and flexible course taken over four years of full time study and resulting in students gaining awards in both the Bachelor of Arts and the Associate Diploma.

Students undertake subjects from the Associate Diploma run by the University's TAFE Division and undergraduate subjects taken from the Division of Business, Humanities and Social Science.

Swinburne’s Arts degree is characterised by its flexibility, variety and innovation. 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.

The Bachelor of Arts incorporating the Associate Diploma in Business (Office Administration) is offered at Swinburne’s Hawthorn campus.

### Career potential

Arts graduates find work in fields such as administration, personnel, publishing, public relations, media and research services. In the Bachelor of Arts incorporating the Associate Diploma in Business (Office Administration), students undertake a media studies major and further studies in office administration, creating greater opportunities of employability in the fields of administration and media.

### Course structure

The Bachelor of Arts incorporating the Associate Diploma in Business (Office Administration) is a four-stage program divided into a number of semester subjects. The full time course is normally completed in four years, however on the completion of two and a half years of full time studies students may elect to take out the award of Associate Diploma and not continue with the Bachelor of Arts.

In the first two years of the course, students will take one subject from the Bachelor of Arts and the remaining subjects from the Associate Diploma.

In the first semester of the third year, final subjects from the Associate Diploma are completed along with a greater load from the Bachelor of Arts. For the remainder of the course students undertake only Bachelor of Arts subjects.

### Further information

For course structure, subject descriptions and any other information please contact the Undergraduate Office on 9214 8511.
**Bachelor of Business**

The Bachelor of Business is a three year full-time (or six year part-time) degree program offered at the Hawthorn campus.

A new Bachelor of Business (L055) structure is offered on the Lilydale campus. For more information on this course please see the Lilydale undergraduate chapter in this Handbook.

**Business specialisations**

The course leading to the award of Bachelor of Business offers major, minor and elective studies in accounting, business law, business modelling, economics, finance, information systems and technology, marketing and organisation behaviour/human resource management.

The following majors are available from Arts subjects: Australian studies, Asian studies, cultural studies, European studies, Italian, Japanese, Korean, literature, media studies, sociology, political studies, psychology, philosophy and cultural inquiry, and Vietnamese.

In addition to the business core subjects one major must be taken from one of the approved business specialisations.

Key features of the major streams are described in the following section.

**Bachelor of Business course 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 subjects (at least two at stage three) from one specialisation. A minor consists of four subjects (at least one at stage three) from one specialisation.

Students should note the following restrictions on subjects that can be credited towards the Bachelor of Business:

- a maximum of twelve subjects from any specialisation (e.g. Accounting);
- a maximum of ten stage one subjects;
- a minimum of four stage three subjects;
- the subject AT119 Academic Communication Skills cannot be used for credits towards the Bachelor of Business;
- the subjects BC331 Taxation and BC336 Advanced Taxation may be counted towards either an Accounting or Law major or minor, but not both.
- BH334 Asian Business may only be counted as an elective, not towards any major or minor;
- 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.

**The seven core subjects are:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
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<tbody>
<tr>
<td>BC110</td>
<td>Accounting 1</td>
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<tr>
<td>BE110</td>
<td>Microeconomics</td>
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<tr>
<td>BH110</td>
<td>Organisations and Management</td>
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<tr>
<td>BL110</td>
<td>Legal Environment of Business</td>
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<td>BM110</td>
<td>The Marketing Concept</td>
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<td>BQ110</td>
<td>Quantitative Analysis</td>
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<tr>
<td>BT110</td>
<td>Information Technology</td>
</tr>
</tbody>
</table>
Prerequisites

Students must have passed prerequisites listed for each subject and must check that they have fulfilled pre-requisite 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.

IBL

For information about Industry Based Learning and Cooperative Education please see the section at the beginning of this chapter.

Further information

For further information please contact the Course Administrator Vicki Ryan on (03) 9214 5096.

Accounting

Accounting is the basic language of business. The accounting subjects offered by the School of Commerce 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 units 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 can be counted towards an accounting major or minor, or towards a finance major or minor (but not both at the same time).

Some students will undertake accounting studies as an essential adjunct to a career in business. An accounting background is of great benefit to those seeking careers in general management. Other students will wish to pursue a career in accounting, and choosing the appropriate combination of subjects will allow them to become members of the professional accounting bodies: the Australian Society of Certified Practising Accountants and the Institute of Chartered Accountants. Swinburne accounting qualifications are recognised both in Australia and overseas.

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.

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 (formerly BC226 Risk Analysis and Financial Theory)
BP001 Financial Accounting Pathways
BP002 Management Accounting Pathways

Stage three (Accounting stream continued)

BC330 Accounting Theory (A)
BC331 Taxation (A)
BC332 Strategic Cost Management
BC333 EDP Auditing
BC334 Financial Accounting
BC336 Advanced Taxation
BC337 Personal Investment (formerly BC335 Financial Management 2)

Note: BP001 Financial Accounting Pathways and BP002 Management Accounting Pathways are only available to students who have completed an Associate Diploma of Business (Accounting).

(A) Mandatory subjects for professional recognition by ASCPA or ICA

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, Legal Environment of 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.

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.
Stage one (core subject)
BL110  Legal Environment of Business

Stage two
BL220  Contract Law (A)
BL221  Company Law (A)
BL222  Marketing Law
BL223  Computer Law
BL224  Retailing Law
BL225  Tourism Law

Stage three
BL330  Advanced Company Law
BL331  International Business Law
BL332  Employment Law D
BL333  Finance Law

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 ICA

Business Modelling
The business modelling major will provide a comprehensive set of skills necessary for the successful analysis of everyday business problems and 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.

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.

Stage one (core subject)
BQ110  Quantitative Analysis (Enabling)
BQ110  Quantitative Analysis A; or
BQ111  Quantitative Analysis B

Stage two
BQ220  Business Forecasting
BQ221  Marketing Data Management
BQ223  Business Demography
BQ225  Economic Techniques for Business
BQ226  Marketing Research 1(M)
BQ227  Marketing Research 2 (M)
BQ228  Management Decision Techniques (formerly BQ222 Quantitative Management Techniques)

Stage three
BQ330  Market Modelling
BQ331  Survey Research Methods
BQ335  Quality Mechanisms and Measures

(Economics)
Understanding economic principles is a fundamental requirement for a career in business. An economic approach to important practical social and business problems is the focus of the economics major.

Stage one is designed to acquaint students with the economic principles necessary to understand and evaluate economic commentary and reports and to analyse the operations of government and industry in Australia.

In stage two students may choose from subjects which emphasise the relationship between industry and government; managerial economics; environmental economics; industrial relations; macroeconomic policy and economic techniques used in business.

The third stage provides an added insight into some of the specialist practical areas in economics, such as international trade, international finance, public finance, financial institutions and monetary policy and industry relevant economic research.

Students completing an economics major find employment in a wide range of challenging fields. These include administration in both public and private sectors, management consulting, economic policy evaluation and financial analysis and economic research.

Stage one (core subject)
BE110  Microeconomics

Stage two
BE220  Macroeconomics (A)(E)
BE221  Managerial Economics
BE222  Industry and Government
BE223  Industrial Relations (D)
BE224  Economic Evaluation
BE226  Applied Macroeconomics
BE227  Environmental Economics
Stage three
BE331  Public Finance
BE332  Economic Research
BE333  Financial Institutions and Monetary Policy
BE334  International Trade
BE335  International Finance
BE336  Economics of Social Issues
BE337  Economic Development
BE338  Comparative Labour Relations
BE339  Comparative Economic Systems

(A) Mandatory subjects for professional recognition by ASCPA or ICA

(D) Mandatory subjects for professional recognition by the Australian Human Resources Institute

(E) Mandatory subject for Economics and Finance majors/minors.

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. It is taught under the auspices of both departments. A finance major 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.

Stage one (core subjects)
BC110  Accounting 1
BE110  Microeconomics

Stage Two
BC224  Financial Management 1
BC227  Finance Risk Management
BE220  Macroeconomics

Stage Three
BC337  Personal Investment
BE333  Financial Institutions and Monetary Policy
BE335  International Finance

Information Systems and Technology
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 discipline areas and the student can select majors or minors based on interest or career aspirations. These options can be categorised under three main headings:

Business computing
This 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
This 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 taking 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 select appropriate subjects from the information systems offerings qualify for level one membership of the Australian Computer Society.

Stage one
BT110  Information Technology (core subject)
BT112  Business Programming 1 (non-core subject)

Stage two
BT220  Data Analysis and Design (C)
BT221  Business Computing
BT223  Information Systems 1 (C)
BT228  Business Programming 2A (C)
BT229  Business Programming 2B (C)

Stage three
BT331  System Architecture 1 (C)
BT332  System Architecture 2 (C)
BT333  Information Systems 2
BT334  Information Technology Strategies (C) or BT337
BT335  Business Software Engineering (C)
BT336  Advanced Application Development (C)
BT337  Programming 2B (C) or BT334
BT339  Database Management Systems 1
BT340  Business Computing Applications
BT341  Knowledge Based Systems
BT342  Database Management Systems 2
BT343  Database Management Systems 3

(C) Mandatory subjects for Australian Computer Society accreditation
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.

The study of Manufacturing Management at Swinburne when allied with other Bachelor of Business areas and double degree options can provide an interesting variety of employment and career opportunities.

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.

Because of the multi-discipline nature of work in manufacturing, a variety of choices exist in the structure of the major following the compulsory subjects.

Part 1

Compulsory subjects:
BH228 Manufacturing Management 1
BH336 Manufacturing Management 2

Additional subjects:
BC222 Management Accounting 1
BE223 Industrial Relations
BM222 Marketing Planning
BH221 Human Resource Management 1
BH223 Dynamics of Diversity in the Workplace
BH332* Enterprise Bargaining
BH333* Managing Quality in Organisations
BH337* Managing Technology and Innovation

* One of these subjects must be completed

Part 2

The fifth and sixth subjects in the major must be taken from the one area. The eight areas are: Business Law, Business Modelling, Economics, Information Systems and Technology, Human Resource Management/ Organisational Behaviour/Management, Marketing or approved subjects from the Division of Science, Engineering and Design. These choices allow for a variety of career interests within the field of Manufacturing 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 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, marketing research, marketing planning, product and services management, retail, 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 will have an international orientation.

Stage one (core subject)
BM110 The Marketing Concept

Stage two
BM220 Market Behaviour (M)
BM222 Marketing Planning (M)
BP003 Marketing Pathways

Stage three
BM330 Product Management (M)
BM331 Service Marketing and Management (M)
BM332 International Marketing
BM333 Communications
BM336 European Business Studies
BM338 Asian Pacific Business Practices
BM339 Marketing Channel Management
(formerly BM 334 Retail Marketing)
Stage three
BH330  Organisation Behaviour 2 (D)
BH331  Human Resources Management 2 (D)
BH332  Enterprise Bargaining (D)
BH333  Managing Quality in Organisations (D)
BH334  Asian Business (may only be counted as an elective)

Equivalent subjects
BQ221 Marketing Data Management and BE225 Economic Techniques for Business are equivalent subjects and students are permitted to enrol in one only.

Professional associations
To be eligible for membership of the various professional associations, students must complete the following requirements.

Australian Computer Society (ACS)
Students in the Bachelor of Business or Graduate Diploma in Business Information Technology with an appropriate selection of subjects can qualify for level 1 membership of this society.

Australian Society of Certified Practising Accountants (ASCPA) and Institute of Chartered Accountants in Australia (ICA)
To be eligible for associate membership of the ASCPA or entry to the professional year of the ICA, graduates must have completed the following post-core subjects:

Australian Human Resources Institute
To be eligible for associate membership of the AHRI, graduates would need to have followed their first stage core subjects with all eight organisation behaviour and human resource management subjects:

BQ221 Organisations and Management
BQ222 Industrial Project (not counted towards degree)

Note: BP003 Marketing Pathways is only available to students who have completed an Associate Diploma of Business (Marketing).

(M) Mandatory subjects for Marketing major
Organisation Behaviour (OB)/Human Resource Management
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 management roles in business;
- develop a strong understanding of 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 organisation behaviour 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 eight units offered in the OB/HRM area, in appropriate sequences and to additionally include in their degree two further specified units.

Many students will wish to take OB studies without a career in HRM in mind. Such a major 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 (core subject)
BH110  Organisations and Management

Stage two
BH220  Organisation Behaviour 1 (D)
BH221  Human Resource Management 1 (D)
BH222  Organisation Design (D)
BH223  Dynamics of Diversity in the Workplace (D)
A further two subjects from other discipline areas:

BE223     Industrial Relations
BL332     Employment Law

are also required, making a total of ten subjects post-core.

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 Bankers is open to all full-time students undertaking the Bachelor of Business degree.

Financial Planning Association of Australia

The Financial Planning Association of Australia will grant students who complete the appropriate subjects 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:

BC331     Taxation and BC336 Advanced Taxation: one exemption
BC224     Financial Management and BC337 Personal Investment: one exemption

Institute of Corporate Managers, Secretaries and Administrators

Information about membership of this association is available from the Course Administrator (Bachelor of Business Honours).

The Foundation of Australian Manufacturing Education (FAME)

The Foundation of Australian Manufacturing Education (FAME) will be offering graduate membership to Swinburne Bachelor of Business graduates. This will be based on completion of the Manufacturing Major (as described in the course structure section), plus three additional subjects.

Manufacturing Management may also be taken as a minor, if after the major, the subjects will be as for FAME graduate accreditation plus one other subject or if as a minor only (50 credit points as in Part 1 in the course structure).

A065 Bachelor of Business/Bachelor of Arts (Language) — double degree

The Bachelor of Business/Bachelor of Arts (Language) is of four years duration comprising of 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, Korean, or Vietnamese subjects in order to complete the requirements of two degrees.

Entrance requirements

See section under Entrance requirements in the chapter, Undergraduate Courses: General Information.

BL

For information about Industry Based Learning and Co-operative Education please see the beginning of this chapter.

Degree structure

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 subjects; plus ten mandatory subjects equivalent to 11 semester subjects from the chosen language; and elective subjects which may be selected from those offered in either the Bachelor of Arts or Bachelor of Business specialisations (with the exception of AT119 Academic Communication Skills) or disciplines outside the Division by approval. Students should note that a maximum of twelve stage one subjects can be credited towards the Bachelor of Business/Bachelor of Arts (Language) and that in addition to the mandatory stage three language and area studies subjects a minimum of four stage three subjects must be completed.

The following language subjects are studied depending upon the language specialisation chosen:

A058 Italian

Beginners stream

<table>
<thead>
<tr>
<th>Code</th>
<th>Language Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA109</td>
<td>Italian 1X</td>
</tr>
<tr>
<td>AA110</td>
<td>Italian 1Y (=2 subjects)</td>
</tr>
<tr>
<td>AA209</td>
<td>Italian 2X</td>
</tr>
<tr>
<td>AA210</td>
<td>Italian 2Y</td>
</tr>
<tr>
<td>AA309</td>
<td>Italian 3X</td>
</tr>
<tr>
<td>AA310</td>
<td>Italian 3Y</td>
</tr>
</tbody>
</table>

Advanced stream

<table>
<thead>
<tr>
<th>Code</th>
<th>Language Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA106</td>
<td>Advanced Italian 1A</td>
</tr>
<tr>
<td>AA107</td>
<td>Advanced Italian 1B (=2 subjects)</td>
</tr>
<tr>
<td>AA206</td>
<td>Advanced Italian 2A</td>
</tr>
<tr>
<td>AA207</td>
<td>Advanced Italian 2B</td>
</tr>
<tr>
<td>AA306</td>
<td>Advanced Italian 3A</td>
</tr>
<tr>
<td>AA307</td>
<td>Advanced Italian 3B</td>
</tr>
</tbody>
</table>

Both streams

<table>
<thead>
<tr>
<th>Code</th>
<th>Language Code</th>
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</thead>
<tbody>
<tr>
<td>AA313</td>
<td>Contemporary Italy</td>
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</tbody>
</table>

Both streams non-language subjects

<table>
<thead>
<tr>
<th>Code</th>
<th>Language Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA119</td>
<td>Post-War Italy</td>
</tr>
<tr>
<td>AA212</td>
<td>The European Union</td>
</tr>
</tbody>
</table>
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.

A057 Japanese 
Beginners stream
AJ103 Japanese 1A
AJ104 Japanese 1B (2 subjects)
AJ203 Japanese 2A
AJ204 Japanese 2B
AJ303 Japanese 3C
AJ304 Japanese 3D

Advanced stream
AJ105 Advanced Japanese 1A
AJ106 Advanced Japanese 1B (2 subjects)
AJ205 Advanced Japanese 2A
AJ206 Advanced Japanese 2B
AJ305 Advanced Japanese 3C
AJ306 Advanced Japanese 3D

Both streams to take one of
AJ307* Reading Japanese Newspapers
AJ308* Japanese for Tourism and Hospitality
AJ310* Japanese for Business and Industry

Both streams — non-language subjects
AJ102 Introduction to Japan — A Cultural Overview
AJ202 Communication in Japanese
AP204 Modern Japan or
AP304 Japan in Asia

Elective
AJ302 Work Experience in Japan
* May be taken as electives if not included as a stage three mandatory subject in the Japanese major.

A059 Korean 
AK103 Korean 1A
AK104 Korean 1B (2 subjects)
AK205 Korean 2A
AK206 Korean 2B
AK301 Korean 3B
AK303 Korean 3C
AK304 Korean 3D
AK305 Reading Korean Newspapers

Bachelor of Business/Bachelor of Arts (Language) — double degree structure

Bachelor of Business

Electives

Bachelor of Arts subjects

Cultural

Electives

9 Non-language subjects (Korean continued)
AK102 Traditional Korea
AK207 Korean Society
AK208 Korean Politics and Economy

Asian Business (Korean)
A065 Vietnamese
AV103 Vietnamese 1A
AV104 Vietnamese 1B (2 subjects)
AV203 Vietnamese 2A
AV204 Vietnamese 2B
AV303 Vietnamese 3A
AV304 Vietnamese 3B
AV305 Vietnamese 3C

Non-language subjects
AP114 Australia and Asia
AP312 Problems of Contemporary South East Asia

The third non-language subject is currently being developed.

Elective component
Students may choose to use the four elective subjects to complete an additional approved minor. This minor may be taken from either specialisations offered in the Business or Arts degree courses or from other courses by approval.

Conveners
Asian Languages Italian Language
Dr Alina Skoutarides Ms Laura Hougaz

A066 Bachelor of Information Systems

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.

Career potential
Careers in the computing profession for graduates range from systems analysts or project managers to technical specialists in a range of information technology environments, products or analytic methods. Specialties include programming, communications, business analysis etc.

IBL
For information about Industry Based Learning and Co-operative Education please see the section at the beginning of this chapter.

Course structure
To qualify for the degree, students must complete twenty-four (24) semester subjects or equivalent. These subjects are taken over 3 years full-time or 6 years part-time study.

Students must complete 12 information systems and 12 non-information systems subjects. Eight of the information systems subjects are mandatory to form a firm foundation for selection of 4 final year subjects to complete a specialisation in either computer software development or the analysis of information systems needs.

Information systems students should combine their chosen information systems specialisation with one of the following business or humanities major/minor study sequences, depending on their chosen career aspirations or interests:

- Accounting
- Business Modelling
- International Studies
- Media Studies
- Marketing
- Manufacturing Management
- Organisation Behaviour
- Sociology

Stage 1
- BT111 Introduction to Information Systems
- BT112 Business Programming 1

Stage 2
- BT220 Data Analysis and Design
- BT221 Business Computing
- BT223 Information Systems 1
- BT228 Business Programming 2A
- BT229 Business Programming 2B

Stage 3
- BT301 Industry Based Learning
- BT331 System Architecture 1
- BT332 System Architecture 2
- BT333 Information Systems 2
- BT334 Information Technology Strategies
- BT335 Business Software Engineering
- BT338 Information Systems Project
- BT339 Database Management Systems 1
- BT340 Business Computer Applications
- BT341 Knowledge Based Systems
- BT342 Database Management Systems 2
- BT363 Database Management Systems 3

Further information
Further specific information about Bachelor of Information Systems course contact the Division of Business, Humanities and Social Science, telephone (03) 9214 5046. Internet Address: http://www.swin.edu.au/dbhss/welcome.html
1050 Bachelor of Information Technology

The course is offered only as a full-time program of three years duration. Students are actively engaged in the course for an average of forty-four weeks each year. There are eight segments in the course — four semesters, two summer terms and two twenty-week periods of industry based learning. These provide a course which is essentially a four year course completed in three years.

Swinburne awards a scholarship to each student admitted to the course. Scholarship levels are expected to be an average of $9000.

Application procedure
Selection will be based on academic merit and interview. Applications must be made both through the Victorian Tertiary Admissions Centre and directly to the course authorities at Swinburne. Applications direct to Swinburne must be received by 27 September 1996. Interviews will be held shortly after the end of VCE examinations. Deferment of offered places will not be possible. No alternative entry schemes apply. See also entry under Undergraduate Information: General Information.

Career potential
The course equips graduates with the knowledge to apply information technology within business and industry and provides them with an appropriate grounding in management education to prepare them for future roles in management.

Prerequisites (entrance 1997)
Units 3 and 4: English. Mathematics: any.

Course structure

<table>
<thead>
<tr>
<th>Segment 1</th>
<th>Credit</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC110</td>
<td></td>
<td></td>
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<tr>
<td>IT101</td>
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<tr>
<td>IT102</td>
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<td>IT103</td>
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<tr>
<td>IT105</td>
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<tr>
<th>Segment 2</th>
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<tr>
<td>IT201</td>
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<tr>
<td>IT202</td>
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<tr>
<td>IT203</td>
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<tr>
<td>Plus two non-computing electives each</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Segment 3 (Summer Term)</th>
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<tbody>
<tr>
<td>IT301 Systems Software 1</td>
</tr>
<tr>
<td>IT302 Organisation Behaviour</td>
</tr>
<tr>
<td>IT303 Data Base Management Systems 1</td>
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<table>
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<tr>
<th>Segment 4</th>
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</thead>
<tbody>
<tr>
<td>IT401 Industry Based Learning</td>
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</table>

<table>
<thead>
<tr>
<th>Segments 5 and 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ten subjects must be studied in these two consecutive segments. They can be taken in any order that prerequisites allow, and must include six core subjects, four chosen from the specialist subjects on offer and two non-computing electives.</td>
</tr>
</tbody>
</table>

Core subjects*

| IT501 | Systems and Information Analysis 1 | 10.0 |
| IT503 | Data Base Management Systems 2 | 10.0 |
| IT504 | Data Communications 1 | 10.0 |
| IT509 | Software Engineering 1 | 10.0 |
| IT601 | Systems and Information Analysis 2 | 10.0 |
| IT609 | Software Engineering 2 | 10.0 |

Specialist subjects*

Approved specialist computing subjects may be chosen from either the Bachelor of Applied Science or the Bachelor of Business courses (10 points each).

<table>
<thead>
<tr>
<th>Segment 7</th>
</tr>
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<tbody>
<tr>
<td>IT701 Industry Based Learning</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Segment 8 (Summer Term)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT803 Emerging Information Technologies</td>
</tr>
<tr>
<td>IT804 Computing in the Human Context</td>
</tr>
</tbody>
</table>

*Not all subjects will be offered each semester.

Further Information
For further information please contact:
Manager
G.A. Murphy, BCom, CPA
Administrative Officer
Anne Lahza

Honours year

NO52 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 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 consist of four subjects.
Duration
The Bachelor of Arts (Honours) program involves one year of full-time study or the equivalent part-time.

Entrance 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 Divisional undergraduate office) and submit it by a date in November to be advised. Selection will be made by the Honours Committee.

Course 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%

Full-time course (1997 syllabus)

Cultural Studies strand
For students who have majored in Asian studies, literature, media studies, philosophy and cultural inquiry or political studies.
- AC440 Cultural Studies Seminar A
- AC441 Cultural Studies Seminar B
- AC442 Honours Thesis A (Cultural Studies)
- AC443 Honours Thesis B (Cultural Studies)

Industry and Community Studies strand
For students who have majored in Australian studies, media studies, political studies or sociology.
- AI440 Industry and Community Studies Seminar A
- AI441 Industry and Community Studies Seminar B
- AI442 Honours Thesis A (Industry & Community Studies)
- AI443 Honours Thesis B (Industry & Community Studies)

Languages strand
For students who have majored in Italian, Japanese, or Korean.
- AA440 Languages Seminar A (Italian)
- AA441 Languages Seminar B (Italian)
- AA442 Honours Thesis A (Italian)
- AA443 Honours Thesis B (Italian)
- AJ540 Languages Seminar A (Japanese)
- AJ541 Languages Seminar B (Japanese)
- AJ542 Honours Thesis A (Japanese)
- AJ543 Honours Thesis B (Japanese)
- AK540 Languages Seminar A (Korean)
- AK541 Languages Seminar B (Korean)
- AK542 Honours Thesis A (Korean)
- AK543 Honours Thesis B (Korean)

Psychology strand
For students who have majored in Psychology.
- AY440 Psychology Seminar A
- AY441 Psychology Seminar B
- AY442 Honours Thesis A (Psychology)
- AY442 Honours Thesis A (Psychology)

Social Science strand
For students who have majored in media studies, Asian studies, Australian studies, political studies or sociology.
- AF440 Social Science Seminar
- AF441 Social Science Seminar B
- AF442 Honours Thesis A (Social Science)
- AF443 Honours Thesis B (Social Science)

Staff
Honours Year Coordinator
Associate Professor Tanya Castleman

Conveners
Cultural Studies Strand: Dr Arran Gare
Industry & Community Studies: to be advised
Languages Strand: Dr Alina Skoutarides
Psychology Strand: Dr Glen Bates
Social Science Strand: Dr Peter Love

Course Administrator
Aksone Chounlamountry (03) 9214 8630.

A064 Bachelor of Business (Honours)

The Bachelor of Business (Honours) program provides students with an opportunity to enhance their research ability and permits further studies and specialisation in their discipline. The Bachelor of Business (Honours) program is offered by the Schools of Commerce, Management and Information Systems.

The program offers students the opportunity to add considerable depth to their understanding of concepts within their chosen discipline and encourages students to pursue excellence in their studies at a higher level.

The program encourages a multidisciplinary approach by permitting students to undertake, where appropriate, subjects offered by other schools, divisions or institutions.

Program duration
The Bachelor of Business (Honours) program may be undertaken over one year full-time or over two consecutive years part-time.
Admission requirements
A student may be admitted into the Bachelor of Business (Honours) program if they have satisfied the requirements for a Swinburne Bachelor of Business degree and have achieved an average level of attainment of a credit (C) or better in an appropriate discipline or range of disciplines considered by the Division of Business, Humanities and Social Science Honours Committee to be acceptable for entry to the Bachelor of Business (Honours) program.

Program timetable
The honours program consists of a 25% research methodology component, a 25% discipline specific component and a 50% research project component or a 50% discipline specific component and 50% research component at the discretion of the discipline.

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. Two-thirds of the subject will be presented as a common core, with one third of the syllabus being discipline specific. Assessment will be based on assignments, case studies and presentations 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 Division of Business, Humanities and Social Science Honours Committee, a pass in an equivalent subject at a graduate level may entitle the student to an exemption from this subject.

Discipline specific and research components
Students should seek advice from the Honours Convener in the appropriate school when formulating their discipline specific course of study and their research project proposal.

Students may, subject to approval, undertake selected honours level coursework subjects from other schools, divisions, or institutions provided that they show the relevance of these coursework subjects to their proposed area of research. Such arrangements are subject to the student having any necessary prerequisite studies and may be subject to any quotas imposed on these subjects by the offering school.

Students must submit a proposal to their Honours Convener for approval before the commencement of their honours program. Approval for a student's discipline specific course of study and research project proposal shall be subject to the availability of any necessary resources and the availability of appropriate staff supervision. Research projects may be individually supervised or supervised within a group seminar setting.

As part of the Bachelor of Business (Honours) program, students may be required to make class presentations at progressive stages in their program and to attend and participate fully in a series of seminars conducted by staff.

At the end of their research component students will be required to submit a written dissertation of about 15,000 words.

Course Administrator
Vicki Ryan
Telephone: (03) 9214 8082
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Division of Science, Engineering and Design

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Centres associated with Division of Science, Engineering and Design

Centre for Applied Colloid/Biocolloid Science
Centre for Applied Neurosciences
Centre for Biomedical Instrumentation
Centre for Computer Integrated Manufacture
Centre for Engineering Technology
Centre for Systems Methodologies
Swinburne Design Centre
Energy Systems Engineering Centre
Laboratory for Concurrent Computing Systems
National Scientific Instrument Training Centre
Science Education Centre
National Centre for Women: Employment, Education and Training

Schools

The Division of Science, Engineering and Design includes:
- School of Biophysical Sciences and Electrical Engineering
- School of Chemical Sciences
- School of Civil Engineering and Building
- School of Computer Science and Software Engineering
- School of Mathematical Sciences
- School of Mechanical and Manufacturing Engineering
- The Swinburne School of Design

General Student Information

Application, admission and selection

Application procedure

In addition to the information given below applicants should refer to 'Application procedure' in the general section of the Handbook.

Applications for admission to undergraduate or postgraduate programs in 1996, at Hawthorn, Prahran or Mooroolbark/Lilydale campus, should be made on the appropriate application form, obtained and lodged as follows:

Undergraduate

Bachelor of Applied Science - all years
Bachelor of Engineering - first year
Bachelor of Design - first year
Bachelor of Engineering - later years
Bachelor of Design - later years
Bachelor of Applied Science (Honours)
Alternative Category Entry

Postgraduate**

All postgraduate programs by coursework
Master by research and
Doctor of Philosophy

Bachelor of Design Direct application form
closure date 30 October 1996

Bachelor of Design Direct application form
closure date 15 November 1996

Bachelor of Design Direct application form
closure date 15 November 1996

Bachelor of Design Direct application form
closure date 15 November 1996

Application forms are available from the Information Office, telephone (03) 9214 8444.

Bachelor of Design programs are only available on the Prahran campus.

Overseas students must in the first instance contact the International Student Unit.

** Part-time - Some postgraduate programs may be offered only as full-time, or only as part-time.

Alternative category entry

The Swinburne Alternative Category Entry program enables 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 part VCE or equivalent. However, applicants for courses offered by Engineering and Science must have passed the course prerequisites.
- 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.

Admission with advanced standing

A student who has successfully completed, or partly completed, an acceptable post-secondary program may be admitted with advanced standing to Science and Engineering and Design programs at Swinburne. Admission with advanced standing is granted by the Divisional Board and applicants are informed in writing of the Board's decisions. Until this letter is received applicants should not assume approval of any application for admission with advanced standing.
The policy of the Divisional Board with regard to admission with advanced standing is set out in the following regulations:

1. General
1.1 The Board will consider applications for admission with advanced standing:
   (a) a student should be brought on to a standard program as soon as possible after entry into the Higher Education sector of the University.
   (b) students who have passed a particular level of a similar program at a different institution may be admitted to the standard program at the next successive year level, possibly with a small amount of additional program work being required.
   (c) admission with advanced standing may be granted on the basis of relevant industrial experience.

1.2 To qualify for an undergraduate award in the Division of Science, Engineering and Design, a student must complete as a minimum, an equivalent full-time year in the Division.

1.3 For all graduate diploma programs offered by the Division of Science, Engineering and Design, a student must normally complete at least fifty per cent of the prescribed total time for the particular program in which they have enrolled at Swinburne.

2. Application
2.1 In applying this policy the Board will follow these guidelines:
   (a) normally admission with advanced standing is only approved at the beginning of a program of study.
   (b) admission with advanced standing will only apply to a specified program of study in the Higher Education sector of the University.
   (c) admission with advanced standing will only be valid for a particular program and syllabus and only for the duration of such program or syllabus.

2.2 To request admission with advanced standing, students entering a program will normally be required to register their intention to seek admission with advanced standing at the time of first enrolment, together with supporting documentation.

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.

Applied Science
As standard entry requirements vary between each Applied Science program, refer to individual program entries in this Handbook.

Engineering
To be eligible for consideration for standard entry, you must have satisfactorily completed your VCE or equivalent in the following subjects (an average of Grade D or better is required):

Prerequisites Units 3 and 4: English, Mathematical Methods, and one of: Physics, Chemistry, Biology, Specialist Mathematics, Information Technology (Information Systems) or Psychology.

Associate diploma entry
Persons who have completed an associate diploma with very good results may be eligible for credit of one year or more in the degree program. All applications will be considered individually.

Design
Graphic Design
To be eligible for consideration, you must have satisfactorily completed your VCE or equivalent in the following subjects:

Prerequisite: A grade average of at least C in English
Note: Applicants are advised to undertake Art or any art related study in Units 3 & 4.

Industrial Design
To be eligible for consideration, you must have satisfactorily completed your VCE or equivalent in the following subjects:

Prerequisite: A grade average of at least C in English.
Note: Applicants are advised to satisfactorily complete a minimum of two units of Mathematics (any), and as many subjects as possible from the following: Science, Materials and Technology, Technological Design and Development, Art Graphic Communication
(The folio should include three-dimensional models, technical drawings, renderings, photographs and sketches, including development back-up work and other written work. If a folio is not available or incomplete, a short test may be given.)

Special requirements
All Design applicants, including those from interstate and overseas, must participate in a preselection program and attend an interview and folio presentation in December if required. This program requires applicants to submit copies of slides of work and a written response to questions. Applicants required for interview should bring a folio of their own work which indicates a preparation and ability to undertake this program and be able to demonstrate an awareness of the program content and career opportunities.

All applicants who specify either graphic design or industrial design must follow carefully the procedure for application which is given with dates and other details in the Victorian Tertiary Admissions Centre publication, Guide to Courses in Colleges and Universities.

All applicants without resident status must apply direct to the International Student Unit.

All applicants must be able to attend for interview, if required, in December.
Assessment

Assessment of student performance regulations

Assessment of student performance is carried out in accordance with the Assessment Regulations set out in the ‘Policy & Procedures’ chapter of the Handbook.

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.

Students enrolled in a Bachelor of Design program: each year of the program is taken as a whole and in order to qualify an overall pass must be achieved on the year's work.

A Divisional pass may be awarded under exceptional circumstances. The School Board is the final authority for determining the results in any of the assessments for the School of Design. The Division of Science, Engineering and Design has responsibility for the processing of academic awards for the School of Design.

Assessment regulations

1. Student performance

1.1 Unsatisfactory performance • Applied Science and Engineering programs

A student whose performance is unsatisfactory will be required to repeat the failed subject(s) at the earliest opportunity. If a student has completed the necessary prerequisite subjects, they may also be permitted to enrol in additional subjects from the next stage of the program. This additional enrolment is conditional upon the timetable allowing attendance at all classes and no enrolment will be permitted in classes which overlap. If there is any change in the timetable which results in overlapping classes, it will be the responsibility of the student to notify the relevant School of the overlap and make the appropriate amendment to their enrolment. The existence of overlapping classes will not be accepted as an excuse for unsatisfactory performance.

Students who enrol in combinations of subjects where the combination involves only a small number of subjects must accept:

1. Timetabling of classes may be less than ideal;
2. Timetabling of examinations may involve successive examinations on the one day;
3. The difficulties encountered in 1 and 2 above may not be cited as reasons for poor performance.

1.2 Supplementary program

This policy is currently under review. Students will be informed of the new policy at re-enrolment/enrolment.

The Division of Science, Engineering and Design will operate supplementary examinations designed to assist students to achieve the standards expected in their programs. They will be conducted during inter-semester breaks, usually during December to February.

Supplementary examinations will embrace all undergraduate science and engineering subjects taught by the Division of Science, Engineering and Design.

Eligibility

All enrolments in the supplementary examinations program will be at the discretion of the Divisional Courses Committee, which will take the advice of the School responsible for the subject. Eligibility for supplementary examinations will be limited, will depend on overall performance and will not be automatically available.

The following conditions will normally apply:

1. The number of supplementary examinations that may be taken by any one student will be based upon the number of subjects attempted at the examinations. A student will not be eligible for supplementary assessment if the number of subjects failed exceeds thirty per cent of the enrolled load for semesters 1 and 2 in a normal academic year. Where a normal academic year consists of one semester of industry based learning and one semester of normal study, eligibility for supplementary assessment will be determined by the enrolled load in the normal study semester.

2. The student must have achieved a result of not less than forty per cent in a subject before consideration for a supplementary examination.

3. A supplementary examinations program in laboratory and project components will not be available and therefore the student must have satisfied the practical laboratory and/or project requirements for any subject for which enrolment in the supplementary examinations is considered.

4. The following result categories will be implemented for the supplementary examinations.

- **N** is an internal provisional result to be used where a student has failed a subject but may be eligible for a Supplementary Examination. If the student is subsequently ruled to be ineligible for a Supplementary Examination an N will be entered against the candidate's name on the list of candidates form.
- **SUP** will be entered against the candidate's name on the list of candidates form when a student is permitted to sit a Supplementary Examination.
- **SN** will be entered against the candidate's name on the list of candidates form when a student fails after a Supplementary Examination.
- **SP** will be entered against the candidate's name on the list of candidates form when a student passes after a Supplementary Examination. The SUP result will be changed to SN or SP after the supplementary examination.
If a student elects not to sit for a Supplementary Examination the SUP results will be changed to an N after the Supplementary Examination.

Subjects offered by the other Divisions will be bound by the rules of those teaching Divisions.

1.3 Standards of progress

All full-time and part-time students enrolled in undergraduate and postgraduate programs in the Division of Science, Engineering and Design are expected to maintain a minimum academic standard to be allowed to continue their studies. Unless otherwise specified these standards of progress apply to both undergraduate and postgraduate students.

Progress requirements

Full-time and part-time students are not permitted to enrol for a later year subject unless they have completed or are concurrently completing all outstanding subjects of the prior year.

Standard enrolment load

All full-time students are expected to enrol in, and remain enrolled in a full-time load in each semester. All part-time students are expected to enrol in, and remain enrolled in, a minimum of two subjects each semester for the duration of the course.

Variations to the standard enrolment load will only be permitted in exceptional circumstances, and will normally be varied for one semester only.

Unsatisfactory academic progress

Applied Science and Engineering

The academic progress of a student will be considered to be unsatisfactory in any of the following circumstances:

- Fifty per cent or more of the enrolled student load is failed in a semester;
- a repeated subject is failed.

Design

The academic progress of a student may be considered to be unsatisfactory if in an academic year they fail any subject.

Higher degree students

Students enrolled in a Master by Research or Doctor of Philosophy are governed by progress rules detailed in the University Statutes.

Procedures

The procedure for considering students whose academic progress is unsatisfactory in the Division of Science, Engineering and Design is as follows:

Letter of appeal

Students who have not achieved the required standard of progress will receive a letter advising them that unless they can account for their unsatisfactory performance they will no longer be permitted to study in the Division for a period of two years. Such students are entitled to make application in writing to the Progress Review Committee, within five working days from the date of the letter. They will not be permitted to re-enrol until the outcome of their application is known.

Students who do not submit a letter of application by the due date will be automatically excluded for a period of two years.

No student will be excluded from the Division of Science, Engineering and Design without first having been granted an interview with the relevant Progress Review Committee.

Process of appeal

Upon receipt of a written application from a student, the Chair and Secretary of the relevant Progress Review Committee, on behalf of the Committee, will review the contents of the letter and decide whether it will be necessary to interview the student.

Additional information from appropriate academic staff about the student's academic work may be sought by the Progress Review Committee before a decision is made.

Students will be advised in writing whether their application has been accepted without interview, or whether an interview with the relevant Progress Review Committee is required.

Powers

After considering any application, the Progress Review Committee will take one of these courses of action:

- accept the student's application and allow the student to re-enrol without conditions;
- accept the student's application but place conditions upon the student's enrolment in the following semester:
- require the student to take leave of absence for a specified period; or
- exclude the student from the Division of Science, Engineering and Design for a period of two academic years.

Enrolment conditions

The academic record of students who have had conditions imposed will be reviewed by the relevant Progress Review Committee at the end of the following semester and a decision made to either:

- permit the student to continue studying without further condition/s; or
- impose further condition/s on the student for an additional semester; or
- require the student to present to the Committee the reasons why the student should not be excluded from the course for a period of two academic years. If these reasons are not accepted, then the student will be excluded for a period of two academic years.

Appeals against decisions of Progress Review Committees

The regulations for such appeals are contained in the University Student Assessment and Appeals Regulations (Refer to the chapter Procedures and Regulations in the Handbook).

Period of exclusion

Students who are excluded from any course in the Division of Science, Engineering and Design will not be
permitted to re-enrol for a period of two academic years. After that period students may re-apply for admission to their course.

Progress Review Committee composition

**Applied Science**
Chair to be elected from Heads of Schools of:
- Biophysical Sciences and Electrical Engineering or nominee
- Chemical Sciences or nominee
- Computer Science and Software Engineering or nominee
- Mathematical Sciences or nominee
Manager, Administration or nominee
Student Union representative

**Engineering**
Chair to be elected from Heads of Schools of:
- Biophysical Sciences and Electrical Engineering or nominee
- Civil Engineering and Building or nominee
- Mechanical and Manufacturing Engineering or nominee
Manager, Administration or nominee
Student Union representative

**Design**
Chair, Head of Swinburne School of Design or nominee
Head, Graphic Design or nominee
Manager, Administration or nominee
Student Union representative

3. Interpretation
Nothing in these regulations shall be interpreted as contravening the Assessment and Regulations of the Academic Board.

**Results**

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 second semester. These reports are not formally published results but are an indication of students’ progress at mid-year.

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

**Result categories and percentage scores**
The relationship between result categories and normalised percentage score is:

<table>
<thead>
<tr>
<th>Result category</th>
<th>Range of scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD</td>
<td>85% - 100%</td>
</tr>
<tr>
<td>D</td>
<td>75% - 84%</td>
</tr>
<tr>
<td>C</td>
<td>65% - 74%</td>
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<tr>
<td>P</td>
<td>50% - 64%</td>
</tr>
<tr>
<td>N</td>
<td>0 - 49%</td>
</tr>
</tbody>
</table>

It should be noted that the above table is used in determining result categories for all students enrolled in a subject.

Additional grades, for which percentage scores are not applicable, may be awarded as a result of supplementary examinations. These are:
- SP  Pass at supplementary assessment
- SN  Fail at supplementary assessment
- SUP Supplementary assessment granted for this subject

**Other practicalities and policies**

**Guidelines for 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 Divisional 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 Sector 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 Divisional 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 Sector of the University in that same program will be treated as new students but will receive such credit for the subjects previously passed as is determined by the Divisional 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 transfer from the program of study for which they are enrolled to a later program of study but should recognise that such a transfer may involve the undertaking of some additional subjects.

**Minimum hours for part-time enrolment**

The normal load for part-time students is about half that of full-time students, and is typically between ten and twelve hours of class contact per week.

To enable the Division to admit as many students as possible within its quota limits, a minimum time commitment by part-time students is necessary. This minimum commitment has been set at seven hours per week, unless special circumstances apply. Such special circumstances include non-availability of suitable classes, quota limitations, graduate studies, or cases where the proposed enrolment arrangements lead into a standard full-time program. In such special circumstances, the enrolment requires the specific approval of the Head of the awarding school.

Part-time students who initially enrol for seven hours per week or more, and who subsequently withdraw from certain subjects, which reduces their enrolment to below seven hours per week, may withdraw from the program.

Normally the maximum hours of class contact for a part-time undergraduate student are fourteen hours per week, although special permission may be granted by the School Head to study up to sixteen hours per week, particularly if the increase in hours will allow the student to study on a full-time basis in the following year.

**Enrolment**

Although the Swinburne calendar is divided into two teaching semesters, students need enrol only once for the subjects they are undertaking in any one year. Where it is necessary to change the list of subjects entered for at enrolment a student must complete an *Amendment to Enrolment* form available from Student Administration, the Divisional office or School offices. Students should note that they must obtain the approval of the Head of their awarding school before amending their enrolment.

Applicants offered a place in any program in the Division will be expected to attend for enrolment in February. Successful applicants will be notified of enrolment times when they are offered a place.

Continuing students are required to be present for enrolment during the times set aside for re-enrolling students in December. Students need to check University noticeboards for details which are made available towards the end of the second semester. Students who do not re-enrol on the designated day and who do not make prior arrangements with the relevant administrative officer for an alternative time, will be liable to lose their place in the program.

For further information regarding enrolment see the section entitled 'Enrolment regulations' in the general section of this Handbook.

**Re-enrolment**

Re-enrolling students who require advice about their programs should consult their mentors. 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 programs should consult their School Administrative Officer before attempting to re-enrol.

**Continuing students**

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 Supplementary Passes will be admitted to a discipline but not necessarily that of their choice.

**Program requirements**

The syllabus for all courses in the Division of Science, Engineering and Design may be found in the separate sections of the Handbook.

Provisional timetables for all courses in the Division 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.

Some subjects in early years of the Bachelor of Engineering program are offered as part-time evening classes. However, in later years of the program part-time students will be expected to undertake some classes during the day. Enquiries regarding subjects available on a part-time basis should be directed to the Head of the relevant School.
Laboratory material and practical requirements

Students studying chemistry are expected to provide laboratory coats, safety spectacles, practical notebooks, and minor equipment such as spatulas. Other laboratory equipment and a locker are provided for student use on payment of a deposit. Lockers are allocated by the Chemistry Laboratory Manager to whom application for a locker must be made at the time of enrolment.

Laboratory & practical work in Applied Science

In all appropriate subjects a student must perform satisfactorily in practical or laboratory work in order to gain a pass. Each enrolled student must either complete adequately the laboratory work relevant to the current year, or obtain recognition for work previously completed at Swinburne or elsewhere. Students seeking such recognition should consult the lecturer in charge of the subject.

Practical work in Engineering

Practical work forms a significant part of most subjects in Engineering degree programs. Students are expected to attend all practical work sessions (for example, laboratory work, drawing office and field work, excursions and site visits) and to complete all the practical work assignments set by the lecturers responsible for a particular subject. Assignments not submitted by the due dates may fail to count as practical work completed. Students should approach their lecturers to find out the details of practical work requirements in each subject.

Examinations in Design

Students must enter for all subjects in a particular year of the program except where an exemption has been approved or electives offered. The form of the examination and the content of the project work assessment will be determined by the panel of examiners and moderators appointed by the School Board.

General conditions in Design

Swinburne reserves the right to retain any work executed by students as part of their program studies. Work not required may be claimed by the student after it has been assessed. The programs are available for part-time or external study.

Mobile phones in classes

The Divisional 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.

Awarding of degree with honours - Engineering

Each year the Pro Vice-Chancellor's Committee will determine which graduating students should be awarded a degree with honours. Four categories of honours will be awarded:

- Honours 1
- Honours 2A
- Honours 2B and
- Honours 3

Account will be taken of performance over the later years of the program. The proportion of final ranking allocated to each year will be as follows:

- 5th year 40%
- 4th year 30%
- 3rd year 30%

Overall, no more than approximately forty per cent of completing students will be awarded a degree with honours, with approximately equal numbers in each category. Only the first attempt at a subject will be taken into account in determining the weighted credit point score of a student for the purposes of the award of the degree with honours. Each School will submit ranking lists to the Pro Vice-Chancellor's Committee for its consideration.

Engineering feeder courses

An arrangement exists with LaTrobe University College of Northern Victoria, Bendigo, which enables students to undertake part of a Swinburne engineering degree program at Bendigo. The equivalent of the first two years of the programs in manufacturing, mechanical and electrical engineering are currently available at Bendigo. Students who complete these stages successfully are able to transfer to Swinburne with full credit. There is provision for students who commence their engineering studies at Bendigo to undertake the two six-month industrial experience components of their program in Bendigo.

Women in Applied Science and Engineering

Women are still a minority in applied science and engineering programs and the workforce. The Division of Science, Engineering and Design actively encourages women to choose applied science or engineering as their career and provides them with opportunities to form networks with other female students within the program and female practising scientists or engineers.

Many women who become scientists or engineers enjoy the variety of career opportunities that applied science or engineering opens to them and aspects of the work that all scientists and engineers share, such as:

- applying science to solve problems;
- working with people;
helping meet society's needs, such as energy usage and environmental issues;
- designing and creating solutions, such as with manufactured products, structures and community services.

Social and career-oriented activities are coordinated with the National Centre for Women and provide opportunities for women to interact.

Women who would like further information about the applied science and engineering degree programs and career opportunities should contact the Divisional Office on (03) 9214 8263 or National Centre for Women on (03) 9214 8633. Ms Pam Roberts, Equity Adviser on (03) 9214 8510.

Mentor scheme

Each first-year undergraduate student is allocated to a particular member of staff who is known as the student's mentor. These mentors are responsible for guidance on student difficulties, programs, exemptions and re-enrolments.

Industry Based Learning

General

Industry based learning (IBL) is a development process that combines the rigour of an accredited academic program with a period of paid, supervised and relevant experience in the workplace. This work is an integral part of assessment for the degree qualification.

A feature of most of the undergraduate courses offered in the Division of Science, Engineering and Design is their IBL format. These courses include components of paid work experience which form an integral part of the education program.

Benefits

Students who undertake an IBL course derive many benefits from their involvement in the program. Some of these are:
- academic performance improves following industrial experience;
- students earn while they learn (recognised rates are paid during periods of industry based learning);
- students work with professionals on real industrial problems under authentic conditions using theoretical concepts learnt in the classroom;
- students are able to sample particular areas of the chosen branch of their profession before graduation;
- industry based learning gained during the course is an advantage when graduates are seeking their first jobs.

Supervision

While in IBL, students are supervised by their employers and a member of the Division's academic staff who acts as the student's industrial tutor.

Bachelor of Applied Science

The Division of Science, Engineering and Design is committed to cooperative education and the placement of students in industry based learning. Most programs offered by the Division are structured to be delivered in the industry based learning (IBL) format. Therefore, it is expected that students will take the opportunity to participate in an approved industry based learning program. Students who have already worked in industry and gained relevant experience may be eligible for an exemption from IBL.

Students are permitted to take initiatives to secure their own industry based learning placements only with the approval of the appropriate Cooperative Course Coordinator. The placement and supervision arrangements must have the prior approval of the Cooperative Course Coordinator.

Where 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 industry based learning component(s) of the course.

Where industry based learning places are limited, opportunities for placement will normally be allocated on the basis of academic merit.

If 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 'an industry based learning component(s) of the course'.

Students without permanent resident status should be aware that IBL may not be available for certain courses. In the other courses, it is subject to the availability of industrial places and the achievement of a suitable level of English language skills by the student.

While the Division will assist students in finding an industrial placement, it is often not possible to find local employment for students without permanent resident status because priority is often given to Australian citizens and permanent residents.

Students without permanent resident status may in consultation with the appropriate Cooperative Coordinator seek placement in their home country. The Division will endeavour to provide information on academic institutions capable of providing supervision of industrial placements in their home country.

* Certain programs, such as in Computer Science or in Psychology/Psychophysiology, have been designed to run without industry based learning.

Bachelor of Applied Science courses offered as four year programs in the Division of Science, Engineering and Design are run in the IBL format and include three years of academic study plus one year of paid industry based learning. The IBL is an integral part of the academic program and makes up part of the final assessment.
Some students have the opportunity to obtain work experience overseas. In such cases, academic staff from local educational institutions visit the students at their places of work. Programs of exchange with the following institutions have been of particular value to students:

University of Surrey, England
University of Victoria, Canada
Drexel University, USA
Northeastern University, USA
FachHochschule für Technik, Mannheim, Germany

**Bachelor of Engineering**

Undergraduate courses offered as IBL programs are the engineering and technology degree courses in chemical, civil, electrical power and control, communication and electronics computer systems, manufacturing and mechanical engineering and courses in building surveying. Students are required to complete twelve months (two semesters) of approved IBL before becoming eligible for the award of an engineering degree, a building surveying degree.

**Placement of students**

Students may take initiatives to secure their own job placements but before contacting a prospective employer a student must contact the Cooperative Placement Service, to determine whether Swinburne has made an approach to the employer concerned.

Where all reasonable effort to find a job has been made by both Swinburne and students, but no placement has been found, the student may apply to his/her Head of School to reschedule the IBL components of the course.

Students without permanent resident status should be aware that while the Division will assist them in finding an industrial placement, it is frequently impossible to find local employment for students in this category. These students are advised to seek placement in their home country and the division will provide information on which academic institutions are able to provide supervision.

**Employing organisations**

A large number of companies support the Cooperative Education Program (IBL) by offering employment to students from the disciplines of Civil, Electrical/Electronic, Mechanical and Manufacturing Engineering. These companies are from the automotive, communications, electronics, computer, construction, and manufacturing industries and from local government.

**Overseas placement**

The Division cooperates with the following universities in organising overseas placements:

- Cleveland State University
- Drexel University, Philadelphia, Pennsylvania
- University of Surrey, Guildford, England
- University of Coventry, England
- Bradford University, England

**IBL graduates offer employers a competitive edge**

Swinburne higher education IBL programs place students out in industry, in paid work, where they get the opportunity to look at the realities of their chosen career paths. Therefore, when they graduate, they join the employer with the advantage of having had one year of structured work experience.

Recent surveys show that Swinburne Engineering graduates have one of the highest rates of employment after graduation of any engineering schools within Victoria.

This means:

- they are 'results-orientated';
- they already understand and accept workplace targets, relationships and disciplines;
- they are a year older and more mature;
- they have completed a longer course, e.g., engineers have had three-and-a-half years full-time study with the same teaching content of a four-year course, plus one year of supervised paid employment;
- they also bring with them knowledge of the latest technology, acquired in the course of their studies.

Employers alerted to the 'bottom line' advantages will also be interested in these further benefits:

- by employing a student for his/her training, the employer can evaluate a potential graduate's suitability to the organisation;
- regular and long-term contact between employers and divisional staff has a beneficial influence on course design and teaching methods;
- the student promotes the image of the employer's organisation at Swinburne.

**IBL graduates bring with them:**

- a realistic attitude to work;
- access to professional specialised division staff;
- access to Swinburne's high technology facilities including computer links to international information banks.

For further information, contact the Administrator, Cooperative Placement Service.

**Bachelor of Design (Graphic Design)**

At the completion of the second year, students with a credit or above in all subjects may be selected for the honours program. They are required to spend the whole of the third year working in an industrial situation organised by Swinburne. This third year enables the student to begin professional practice, supervised by senior staff.

During the year in industry, students are required to attend the University for one day per week for subjects: Print Technology and Art and Design Culture.
Student workload and credit point system

The Division of Science, Engineering and Design 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 associate diplomas

Associate Diploma of Applied Science in Laboratory Technology

Students who complete this associate diploma at an acceptable level and with an appropriate choice of electives are eligible for direct entry into the second year of the Bachelor of Applied Science degree programs in applied chemistry or biochemistry. The amount of credit granted in each case exceeds 100 credit points. Applications should be made through VTAC.

Associate Diploma of Applied Science in Computing and Applied Physics

Students who complete this associate diploma at an acceptable level and with an appropriate choice of electives are eligible for direct entry into the second year of the Bachelor of Applied Science degree programs in computing and instrumentation; computer science (conversion) and mathematics and computer science. In each case the amount of credit granted is up to 100 credit points. Applications should be made through VTAC.

Associate diplomas in computer science

 Students who have completed an appropriate TAFE associate diploma at an acceptable level may be admitted directly into a special two year full-time conversion program available to such students. The associate diploma maybe in business, science, or engineering, but must include acceptable introductory courses in computer systems and computer programming. Applicants will also be expected to have passed mathematics subjects to at least the equivalent of the VCE level required for normal entry into the first year of computer science degree programs in the Division of Science, Engineering and Design. Applications should be made through VTAC.

Applied Science courses

To qualify for a Bachelor of Applied Science, a student must complete successfully one of the following courses:

- Biochemistry/Chemistry
- Chemistry
- Computer Science (conversion course)
- Computer Science and Psychology
- Computer Science and Software Engineering
- Computing and Scientific Instrumentation
- Environmental Health
- Mathematics and Computer Science
- Medical Biophysics and Instrumentation
- Multimedia Technology
- Psychology and Psychophysiology

The structures of courses are described on the following pages in the above order (alphabetical).

Courses combining the single major chemistry with instrumentation, computing or mathematics are also offered on an individual basis, subject in each case to the approval of the Divisional Board.

As some courses may have minor changes made in 1996 some alterations may be made to subject codes and contact hours. Up-to-date listings of subjects and hours will be made available to students on enrolment and re-enrolment.

Z052 Biochemistry/Chemistry

1997 VTAC course code - 34608

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 in biochemistry/chemistry 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.
Career potential
Graduate biochemists are employed in a wide variety of industries — the manufacture of vaccines and pharmaceuticals, preparation 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 specialised 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.

Prerequisites (entrance 1997)
Units 3 and 4: Chemistry and Mathematical Methods.

TAFE articulation
Students who have completed the Swinburne TAFE Associate Diploma of Applied Science (Laboratory Technology), with appropriate bridging subjects TL501, TL502, TL503 may be admitted into second year of the course.

Course structure

Full-time course

Year 1 (1994 syllabus)

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<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
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<tbody>
<tr>
<td>SC108 Biology 1</td>
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<tr>
<td>SC154 Chemistry 1</td>
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<td>SP108 Physics</td>
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<table>
<thead>
<tr>
<th>Semester 2</th>
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<tbody>
<tr>
<td>SC254 Chemistry 2</td>
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<tr>
<td>SM1208 Mathematical Methods</td>
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<td>SP235 Instrumental Science</td>
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Year 2

<table>
<thead>
<tr>
<th>Semester 1</th>
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<tbody>
<tr>
<td>SC318 Microbiology 3</td>
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<td>SC370 Chemistry 3</td>
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<td>SC372 Biochemistry 3</td>
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<td>SC380 Practical Chemistry 3</td>
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<td>SC390 Computers in Chemistry 3</td>
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<table>
<thead>
<tr>
<th>Semester 2</th>
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<tr>
<td>SC418 Microbiology 4</td>
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<td>SC470 Chemistry 4</td>
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<td>SC472 Biochemistry 4</td>
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<td>SC480 Practical Chemistry 4</td>
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Year 3 (1990 syllabus)

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<th>Semester 1</th>
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<table>
<thead>
<tr>
<th>Semester 2</th>
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<tbody>
<tr>
<td>SC608 Industry Based Learning</td>
</tr>
</tbody>
</table>

Year 4 (1990 syllabus)

<table>
<thead>
<tr>
<th>Semester 1 (Biochemistry)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC504 Human Biochemistry</td>
</tr>
<tr>
<td>SC562 Analytical Biochemistry</td>
</tr>
<tr>
<td>SC565 Practical Biochemistry</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 1 (Chemistry)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC570 Chemistry</td>
</tr>
<tr>
<td>SC580 Practical Chemistry</td>
</tr>
<tr>
<td>SC590 Computers in Chemistry</td>
</tr>
<tr>
<td>SC708 Scientific Communications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2 (Biochemistry)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS619 Business and Management</td>
</tr>
<tr>
<td>SC604 Biotechnology</td>
</tr>
<tr>
<td>SC662 Analytical Biochemistry</td>
</tr>
<tr>
<td>SC665 Practical Biochemistry</td>
</tr>
<tr>
<td>SC670 Chemistry</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2 (Chemistry)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC680 Practical Chemistry</td>
</tr>
<tr>
<td>SC690 Computers in Chemistry</td>
</tr>
<tr>
<td>SC808 Scientific Communications</td>
</tr>
</tbody>
</table>

ICI is a major supporter of this course. It provides funds for the purchase of molecular graphics equipment as well as continuing support for the industry based learning program.

Application procedure
Refer to pages 54 and 106.

Z051 Chemistry

1997 VTAC course code-34101
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.

Career potential
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.

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.

Prerequisites (entrance 1997)
Units 3 and 4: Chemistry and Mathematical Methods.

TAFE articulation
Students who have completed the Swinburne TAFE
Associate Diploma of Applied Science (Laboratory Technology), with appropriate bridging subjects TL501, TL502, TL503 may be admitted into the second year of the course.

Course structure

Full-time course

Year 1 (1994 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC108 Biology 1</td>
<td>10.0</td>
</tr>
<tr>
<td>SC154 Chemistry 1</td>
<td>10.0</td>
</tr>
<tr>
<td>SK190 Computer Science</td>
<td>10.0</td>
</tr>
<tr>
<td>SM1208 Mathematical Methods</td>
<td>10.0</td>
</tr>
<tr>
<td>SP108 Physics</td>
<td>10.0</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC254 Chemistry 2</td>
<td>20.0</td>
</tr>
<tr>
<td>SM1208 Mathematical Methods</td>
<td>10.0</td>
</tr>
<tr>
<td>SP235 Instrumental Science</td>
<td>10.0</td>
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<tr>
<td>SC208 Biology</td>
<td>10.0</td>
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Year 2

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>SC353 Applied Chemistry</td>
<td>12.5</td>
</tr>
<tr>
<td>SC360 Practical Chemistry 3</td>
<td>15.0</td>
</tr>
<tr>
<td>SC370 Chemistry 3</td>
<td>15.0</td>
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<tr>
<td>SC390 Computers in Chemistry</td>
<td>7.5</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC473 Applied Chemistry 4</td>
<td>12.5</td>
</tr>
<tr>
<td>SC460 Practical Chemistry 4</td>
<td>15.0</td>
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<tr>
<td>SC470 Chemistry 4</td>
<td>15.0</td>
</tr>
<tr>
<td>SC490 Computers in Chemistry 4</td>
<td>7.5</td>
</tr>
</tbody>
</table>

Year 3 (1994 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC508 Industry Based Learning</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC608 Industry Based Learning</td>
<td>50.0</td>
</tr>
</tbody>
</table>

Year 4 (1990 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC553 Applied Chemistry</td>
<td>12.5</td>
</tr>
<tr>
<td>SC560 Practical Chemistry</td>
<td>15.0</td>
</tr>
<tr>
<td>SC570 Chemistry</td>
<td>15.0</td>
</tr>
<tr>
<td>SC590 Computers in Chemistry</td>
<td>5.5</td>
</tr>
<tr>
<td>SC708 Scientific Communications</td>
<td>2.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS619 Business and Management</td>
<td>10.0</td>
</tr>
<tr>
<td>SC653 Process Chemistry</td>
<td>10.0</td>
</tr>
<tr>
<td>SC660 Practical Chemistry</td>
<td>12.5</td>
</tr>
<tr>
<td>SC670 Chemistry</td>
<td>10.0</td>
</tr>
<tr>
<td>SC690 Computers in Chemistry</td>
<td>5.5</td>
</tr>
<tr>
<td>SC808 Scientific Communications</td>
<td>2.0</td>
</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.

Application procedure

Refer to pages 54 and 106.

Z060 Computer Science (Conversion Course)

The Bachelor of Applied Science (Computer Science) is a two year program, available only to students who have completed an appropriate associate diploma or equivalent, which includes computer programming, at a TAFE institution.

The degree program

The course combines studies in computer science and software engineering. Students are provided with an extensive education in contemporary approaches to the analysis, design and implementation of computer systems along with a sound understanding of the traditional aspects of computer science such as hardware and operating systems.

A range of coherent streams in the final year of the course allow the student to choose a specialisation. The acquired skills and knowledge are consolidated in a project subject in the final year.

Students are also able to study one non-computing elective.

Career potential

Employment prospects for graduates of the course are excellent. The expanding role of computers in business and industry means that there is a constant need for personnel with an in-depth understanding of computers and computer systems.

Graduates of the course are equipped with the knowledge and skills to make them valuable members of any team developing software. They have extensive skills in software development, have had experience in working on team projects, and have good oral and written communication skills.

Graduates usually start work as programmers, and can move into roles such as systems analyst, systems designer, project team leader or information technology manager.

Professional recognition

The degree provides credit at Level 1 (the highest level) towards professional membership of the Australian Computer Society.

Honours

Students who achieve excellent results during the course may apply to undertake an additional year of study, enabling them to graduate with an honours degree.

Credit transfer and Pathways

An advanced credit transfer system, known as the Pathways program, is in place at Swinburne. The Bachelor of Applied Science (Computer Science) is a special Pathways degree which provides block credit for the first year of a degree program. Apart from these block credit arrangements, students admitted to the degree may be granted additional credit for previous studies on a case-by-case basis.
Course structure

The duration of the course will normally be two years (four semesters). To qualify for the award of Bachelor of Applied Science (Computer Science), students must accumulate a minimum of 200 credit points (100 credit points per full-time academic year). Five subjects will generally be taken during each academic semester, with a total of between 15-17 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.

Full-time course

First Year

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES100</td>
<td>Object-Oriented Software Development 1</td>
</tr>
<tr>
<td>ES104</td>
<td>Professional Skills for Software Engineers</td>
</tr>
<tr>
<td>ES305</td>
<td>Database</td>
</tr>
<tr>
<td>SM111</td>
<td>Engineering Mathematics</td>
</tr>
<tr>
<td></td>
<td>Non-Computing Elective</td>
</tr>
</tbody>
</table>

sem 2

| ES200      | Object-Oriented Software Development 2 | 10 |
| ES204      | Software Engineering 1 | 10 |
| ES407      | Data Communications | 10 |
| ES409      | Introduction to Artificial Intelligence | 10 |
| SM119      | Mathematics for Technology | 10 |

Second Year

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES300</td>
<td>Object-Oriented Software Development 3</td>
</tr>
<tr>
<td>ES304</td>
<td>Software Engineering 2</td>
</tr>
<tr>
<td>ES306</td>
<td>Introduction to Human-Computer Interaction</td>
</tr>
<tr>
<td>ES524</td>
<td>Professional Issues in Software Engineering</td>
</tr>
<tr>
<td></td>
<td>Computing Elective</td>
</tr>
</tbody>
</table>

sem 2

| ES402      | Systems Programming | 10 |
| ES406      | Graphical User Interface Development | 10 |
| ES603      | Software Team Project | 10 |
|            | Computing Elective | 10 |
|            | Computing Elective | 10 |

Computing electives are offered in the following subjects:
Advanced Software Engineering
ES514 Formal Methods
ES614 The Personal Software Process
ES618 Computer Graphics
ES618 Computer Graphics and Virtual Reality
ES618 Computer Graphics and Animation
Client-Server Systems
ES507 Local Area Networks
ES605 Advanced Database
Knowledge-Based Systems
ES509 Knowledge-Based Systems Engineering
ES609 Soft Computing
Multimedia Systems
ES508 Multimedia Technology
ES608 Multimedia Development

Programming Languages
ES500 Compiler Design
ES600 Programming Paradigms

At least two computing electives must be chosen from the same subject area.

The non-computing elective may be chosen from areas such as marketing, accounting, organisational behaviour, physics, electronics and mathematics.

Availability of elective subjects is subject to resources and demand.

Application procedure
Refer to pages 54 and 106.

Further information
Further information may be obtained from the School of Computer Science and Software Engineering: telephone (03) 9214 8180, email csseinfo@swin.edu.au, or from our World Wide Web site http://www.csse.swin.edu.au; the Divisional Office, telephone (03) 9214 5255; or the Information Office, telephone (03) 9214 8444. International Students should, in the first instance, contact the International Student Unit, telephone (03) 9214 8647.

Z075 Computer Science and Psychology

Continuing students only.

Year 3

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY312</td>
<td>The Psychology of Personality</td>
</tr>
<tr>
<td>SM378</td>
<td>Design and Measurement 3A</td>
</tr>
<tr>
<td>SQ306</td>
<td>Human—Computer Interaction</td>
</tr>
<tr>
<td>SQ604</td>
<td>Object Oriented Programming</td>
</tr>
</tbody>
</table>

Semester 2

| AY319      | Psychological Measurement | 10 |
| AY320      | Psychological Foundations of Counselling | 10 |
| SQ407      | Data Communications | 10 |
| SQ412      | Systems Programming | 10 |
| SQ633      | Computer Science Team Project | 10 |

Z063 Computer Science and Software Engineering

1996 VTAC course code-34438

The Bachelor of Applied Science (Computer Science and Software Engineering) is one of the most popular computer science courses in Victoria, and entry to the course is increasingly competitive.

The course has a core which combines studies in computer science and software engineering. This core provides an extensive education in contemporary approaches to the analysis, design and implementation of large scale computer systems along with a sound understanding of the traditional aspects of computer science, such as hardware and operating systems.

The duration of the course will normally be three years (six
semesters), with the option of an additional year of paid, supervised industry based learning (IBL).

The skills and knowledge acquired during the course are reinforced by several project subjects.

Elective streams in the final year allow students to specialise in an area of interest. Students who wish to do so are also able to study several non-computing subjects.

Career potential

Graduates of the course are equipped with the knowledge and skills to make them valuable members of any team developing software. They will have extensive skills in software development, particularly relating to large scale projects, will have developed experience in working on team projects, and will have good oral and written communication skills.

Employment prospects are excellent. Graduates usually start work as programmers, and can move into roles such as systems analyst, systems designer, project team leader or information technology manager. As computers play a crucial role in business and industry, there is a constant need for personnel with an in-depth understanding of computers and computer systems.

Professional recognition

The degree provides credit at Level 1 (the highest level) towards professional membership of the Australian Computer Society.

Prerequisites (entrance 1997)

Applicants must have satisfactorily completed an appropriate Victorian Year 12 or its equivalent, such as an interstate or international Year 12 qualification.

VCE prerequisites: A grade average of D or higher in Units 3 and 4 Mathematical Methods. A bonus is awarded to applicants who have successfully completed Information Technology: Information Systems and/or Specialist Mathematics.

Industry Based Learning (IBL)

Where possible, students undertake an optional paid industry based learning year, normally between their second and final years. IBL complements the students' academic studies and gives them a real advantage in the graduate job market.

Honours

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.

Entry requirements

Credit transfer / pathways

Students admitted to the degree may be granted advanced standing for previous studies on a case-by-case basis. Students with excellent results in the first year of the course may be permitted to transfer to the Bachelor of Software Engineering, provided that they have selected Physics and Electronics as their first year elective subjects.

Course structure

To qualify for the award of Bachelor of Applied Science (Computer Science and Software Engineering), 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 between 15 - 17 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.

Full-time course

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sem 1</strong></td>
<td></td>
</tr>
<tr>
<td>ES100</td>
<td>Object-Oriented Software Development</td>
</tr>
<tr>
<td>ES104</td>
<td>Professional Skills for Software Engineers</td>
</tr>
<tr>
<td>ES107</td>
<td>Computer Systems</td>
</tr>
<tr>
<td>SM111</td>
<td>Engineering Mathematics</td>
</tr>
<tr>
<td>Non-Computing Elective</td>
<td>10</td>
</tr>
<tr>
<td><strong>Sem 2</strong></td>
<td></td>
</tr>
<tr>
<td>ES200</td>
<td>Object-Oriented Software Development</td>
</tr>
<tr>
<td>ES204</td>
<td>Software Engineering</td>
</tr>
<tr>
<td>ES207</td>
<td>Computer Systems</td>
</tr>
<tr>
<td>SM119</td>
<td>Mathematics for Technology</td>
</tr>
<tr>
<td>Non-Computing Elective</td>
<td>10</td>
</tr>
<tr>
<td><strong>Year 2</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sem 1</strong></td>
<td></td>
</tr>
<tr>
<td>ES300</td>
<td>Object-Oriented Software Development</td>
</tr>
<tr>
<td>ES301</td>
<td>Concurrent Programming in Ada</td>
</tr>
<tr>
<td>ES304</td>
<td>Software Engineering</td>
</tr>
<tr>
<td>ES305</td>
<td>Database</td>
</tr>
<tr>
<td>ES306</td>
<td>Introduction to Human-Computer Interaction</td>
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<tr>
<td><strong>Sem 2</strong></td>
<td></td>
</tr>
<tr>
<td>ES402</td>
<td>Systems Programming</td>
</tr>
<tr>
<td>ES403</td>
<td>Software Development Project</td>
</tr>
<tr>
<td>ES406</td>
<td>Graphical User Interface Development</td>
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<td>ES407</td>
<td>Data Communications</td>
</tr>
<tr>
<td>ES409</td>
<td>Introduction to Artificial Intelligence</td>
</tr>
<tr>
<td><strong>Year 3</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sem 1</strong></td>
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</tr>
<tr>
<td>ES503</td>
<td>Software Engineering Project</td>
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<td>ES524</td>
<td>Professional Issues in Software Engineering</td>
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<tr>
<td>General Elective</td>
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<tr>
<td>Computing Elective</td>
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<td>Computing Elective</td>
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<td><strong>Sem 2</strong></td>
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<tr>
<td>ES503</td>
<td>Software Engineering Project</td>
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</tbody>
</table>

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Computing Electives are offered in the following subjects:

**Advanced Software Engineering A**
- ES504 Advanced Software Engineering 1
- ES604 Advanced Software Engineering 2

**Advanced Software Engineering B**
- ES514 Formal Methods
- ES614 The Personal Software Process

**Computer Graphics**
- ES518 Computer Graphics and Virtual Reality
- ES618 Computer Graphics and Animation

**Client-Server Systems**
- ES507 Local Area Networks
- ES605 Advanced Database

**Human-Computer Interaction**
- ES506 Advanced Human-Computer Interaction 1
- ES606 Advanced Human-Computer Interaction 2

**Knowledge-Based Systems**
- ES509 Knowledge-Based Systems Engineering
- ES609 Soft Computing

**Multimedia Systems**
- ES508 Multimedia Technology
- ES608 Multimedia Development

**Programming Languages**
- ES500 Compiler Design
- ES600 Programming Paradigms

**Real-Time Systems**
- ES501 Real-Time Systems
- ES601 Concurrent Systems

Non-elective electives may be computing or non-computing.

Non-computing electives may be chosen from areas such as marketing, accounting, organisational behaviour, physics, electronics and mathematics.

Availability of elective subjects is subject to resources and demand.

**Application procedure**
Refer to pages 54 and 106.

**Further information**
Further information may be obtained from the School of Computer Science and Software Engineering: telephone (03) 9214 8180, email csseinfo@swin.edu.au, or from our World Wide Web site http://www.csse.swin.edu.au/; the Divisional Office, telephone (03) 9214 5255; or the Information Office, telephone (03) 9214 8444. International Students should, in the first instance, contact the International Student Unit, telephone (03) 9214 8647.

**Z056 Computing and Scientific Instrumentation**

1997 VTAC course code-34486

This program combines major studies in computer science with scientific instrumentation. Computer science includes the study of programming methodology using the C programming language, data structures and algorithms, software engineering, and the use of operating systems. In later years, studies include computer architecture and computer graphics.

The software emphasis in the computer science part of the program is complemented by the strong computer hardware orientation of instrumentation which is unique to Swinburne and is designed to meet the challenge of ever-increasing sophistication of instruments used in high technology areas. Emphasis is on the design and use of instruments to detect and measure physical phenomena, process and analyse information, and control various processes.

Special areas of interest in the program include computer based imaging, optical and nuclear instrumentation interfacing, and analogue and digital signal processing.

Areas of study in this major include nuclear and optical instrumentation together with a strong emphasis on information processing, digital and analogue electronics.

**Career potential**
Graduates are employed in areas ranging from industrial, clinical, academic and government to pure research and development fields.

**Professional recognition**
Accredited by Australian Computer Society as a level one course. Graduates are eligible for associate membership.

After four years relevant work experience, a graduate can apply for full membership.

**Prerequisites (entrance 1996)**
Units 3 and 4: Physics, Mathematical Methods. Middle band selection — bonuses will be handled in the manner specified for the following studies: Specialist Mathematics (15%), Information Technology (Information Systems)(10%).

Applicants who do not satisfy the above requirements may be considered on the basis of factors such as technical background, employment and, in borderline cases, an interview. Such special entry is not available to applicants who have within the last three years failed any of the formal entry assessments.

A limited number of places may be available to students without VCE Physics. These students will undertake a special first semester program.

**Course structure**

**Full-time course**

**Year 1 (1997 syllabus)**

**Semester 1 Credit points**
- SE110C Electronics and Measurement 10
- SE118C Physics 1 10
- SM1200 Mathematics 1 10
- ES100 Object-Oriented Software Development 1 10

**Semester 2 Credit points**
- ES107 Computer Systems 1 10
- SE120C Introduction to Instrumentation 10
- SE128C Physics 2 10
- SM1200 Mathematics 1 10
Career potential

The majority of environmental health professionals are employed by local government authorities and by state government health and community departments but some work with statutory authorities such as the Environment Protection Authority. Opportunities also exist in other state and federal departments and in the non-government sector.

Environmental health professionals can thus be involved in varied duties such as: disease control and immunisation; health standards in food establishments, food manufacturers, restaurants, hotels, etc.; food quality surveillance; the control of waste disposal; industrial health; pollution control; health education; and environmental health audits.

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. The number of these opportunities is increasing.

Some environmental health graduates are self-employed as consultants.

Professional recognition

Graduates are eligible for membership of the Australian Institute of Environmental Health. Students can become student members while doing the course.

Prerequisites (entrance 1997)

Units 3 and 4: Mathematical Methods plus one of Biology, Chemistry or Physics.

Course structure

Full-time course

Year 1 (1992 syllabus)

Semester 1  Credit points
AB2100  Behavioural Studies and Communication (1)  5.0
MP107  Engineering Drawing  5.0
SC100  Environmental Health  5.0
SC109  Biology  10.0
SC1500  Introductory Chemistry  10.0
SM110  Mathematical Methods  10.0
SP108  Physics  10.0

Semester 2
BS141  Introductory Law  5.0
SC209  Biology  10.0
SC252  Biological Chemistry  10.0
SK210  Introduction to Computing  10.0
SM2100  Applied Statistics  10.0
SP236  Physics  10.0

Year 2

Semester 1
AB310  Behavioural Studies and Communication (2)  5.0
BS2530  Environmental Health Law  10.0
CS349  Microbiology  10.0
ME249  Environmental Engineering  10.0

 Application procedure

Refer to pages 54 and 106.

H050  Environmental Health

1997 VTAC course code-34259

This is the accredited qualifying course for environmental health professionals in Victoria. It is unique to Swinburne and is designed to develop the technological, legal and administrative skills needed to carry out the complex tasks of public and occupational health surveillance, and the protection of the environment. The training offered is interdisciplinary and enables graduates to communicate effectively with experts in many relevant specialised fields.

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.
Mathematics and Computer Science

This program combines major studies in computer science with a mathematics major comprising studies in operations research and applied statistics.

Computer Science

This includes the study of software development using object-oriented methods. The C++ language is used. Students also study the core areas of database, networking, human-computer interaction, systems programming and artificial intelligence.

Operations Research

The scientific study of problems arising in commerce and industry. Students examine loosely structured practical problems at an early stage in the program and later work in groups to undertake real projects for external clients.

Applied Statistics

Concerned with the collection and analysis of data, students will study statistical methods for sampling, for making inferences from samples and for modelling data using methods such as regression. Studies in applied statistics will equip students with the ability to plan statistical investigations and to analyse data using specialist statistical computer packages.

Industry Based Learning (IBL)

The optional four year program is taken in the IBL format which includes one year of paid work experience.

Career potential

The mathematics and computer science major sequences provide a valuable preparation for potential operations researchers, management scientists, project leaders, statisticians, economic analysts, quality control scientists, systems analysts, computer 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.

Prerequisites (entrance 1997)

Units 3 and 4 - English, Mathematical Methods. Middle band selection - applicants who have successfully completed Specialist Mathematics will be deemed to have a TER 7.05 percentage points higher; those who have successfully completed Information Technology: Information Systems will be deemed to have a TER 4.70 percentage points higher. Consideration will be given to the full range of an 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.

Course structure

1993 Syllabus

The syllabus for this program changed in 1993. All students enrolled in 1996 at any stage will complete the 1993 syllabus.

Year 2 (1993 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM383</td>
<td>Mathematics 2</td>
</tr>
<tr>
<td>SM388</td>
<td>Forecasting and Regression</td>
</tr>
<tr>
<td>SQ305</td>
<td>Database</td>
</tr>
<tr>
<td>SQ310</td>
<td>Advanced C Programming</td>
</tr>
<tr>
<td>SQ314</td>
<td>Software Engineering/Systems Analysis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM387</td>
<td>Introduction to Optimisation</td>
</tr>
<tr>
<td>SM404</td>
<td>Project Management A</td>
</tr>
<tr>
<td>Year</td>
<td>Semester 1</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>3</td>
<td>SM484: Experimental Design and Multiple Regression 10.0</td>
</tr>
<tr>
<td></td>
<td>SQ407: Data Communications 10.0</td>
</tr>
<tr>
<td></td>
<td>Computer Science elective 10.0</td>
</tr>
<tr>
<td>4</td>
<td>SM487: Queueing Theory and Simulation 10.0</td>
</tr>
<tr>
<td></td>
<td>SM584: Multivariate Statistical Methods 10.0</td>
</tr>
<tr>
<td></td>
<td>Computer Science Elective 2 10.0</td>
</tr>
<tr>
<td></td>
<td>Computer Science Elective 3 10.0</td>
</tr>
<tr>
<td></td>
<td>SM609: Mathematics 10.0</td>
</tr>
<tr>
<td></td>
<td>OR SQ613: Computer Science</td>
</tr>
<tr>
<td>5</td>
<td>Semester 1</td>
</tr>
<tr>
<td>Year</td>
<td>SM608: Industry Based Learning 50.0</td>
</tr>
<tr>
<td>6</td>
<td>Semester 1</td>
</tr>
<tr>
<td>Year</td>
<td>SM708: Industry Based Learning 50.0</td>
</tr>
<tr>
<td></td>
<td>SM588: Industrial Applications of Operations Research 10.0</td>
</tr>
<tr>
<td>7</td>
<td>Semester 1</td>
</tr>
<tr>
<td>Year</td>
<td>SM609: Mathematics 10.0</td>
</tr>
<tr>
<td></td>
<td>OR SQ613: Computer Science</td>
</tr>
<tr>
<td></td>
<td>SM688: Mathematical Programming 10.0</td>
</tr>
<tr>
<td></td>
<td>Computer Science Elective 4 10.0</td>
</tr>
<tr>
<td></td>
<td>Computer Science Elective 5 10.0</td>
</tr>
</tbody>
</table>

Note: From second year onwards the actual subjects taken in mathematics and as computer science electives may vary and will be selected from a range of subjects. Details of these subjects can be obtained at enrolment.

**1997 Syllabus change**

The syllabus for this program will change in 1997. All students who enrol in 1997 will complete the 1997 syllabus. Students who enrolled in 1996 or earlier should refer to the 1993 syllabus listed previously.

**Year 1 (1997 syllabus)**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES100: Object-Oriented Software Development 1 10.0</td>
<td></td>
</tr>
<tr>
<td>ES107: Computer Systems 1 10.0</td>
<td></td>
</tr>
<tr>
<td>SM131: Communication Skills 10.0</td>
<td></td>
</tr>
<tr>
<td>SM180: Mathematics 1 10.0</td>
<td></td>
</tr>
<tr>
<td>SM185: Applied Statistics 1 10.0</td>
<td></td>
</tr>
<tr>
<td>Semester 2</td>
<td></td>
</tr>
<tr>
<td>BS513: Business Studies (Accounting) 10.0</td>
<td></td>
</tr>
<tr>
<td>ES200: Object-Oriented Software Development 2 10.0</td>
<td></td>
</tr>
<tr>
<td>ES204: Software Engineering 1 10.0</td>
<td></td>
</tr>
<tr>
<td>SM180: Mathematics 1 10.0</td>
<td></td>
</tr>
<tr>
<td>SM288: Introduction to Operations Research 10.0</td>
<td></td>
</tr>
</tbody>
</table>

**1997 VTAC Course Code-34237**

This program is unique to Swinburne and combines major studies in medical biophysics with scientific instrumentation. It is designed to produce technology research and development staff for hospitals and industry. Medical biophysics emphasises an understanding of human physiological processes, relevant aspects of pathophysiology, and biomedical instrumentation. It bridges the gap between medicine and the physical sciences.

Medical biophysics includes the study and monitoring of such systems as membranes, nerves, muscles, the heart and circulation, the kidneys, respiration, and the brain. Biomechanics, sports science and the basis of physical therapy are also included.

Medical biophysics is complemented by the study of scientific instrumentation which provides students with a sound basis in measurement and instrumentation principles and their use in the development of instrumentation systems.
for various areas of applied science and technology.

The course includes studies of both computer-based and non-computer-based instruments, used in isolation or as systems, and their applications to imaging, nuclear, optical and general scientific and industrial laboratories. Emphasis is on electronic techniques, analogue and digital signal processing and on the basic interfacing of transducers with microprocessors and computers.

**Career potential**

Graduates may take up careers in industry or as hospital scientists or technologists. In industry, there are opportunities for graduates to take up development and consultancy positions in organisations serving the medical and biological professions. The manufacture of biomedical instrumentation is a growing area of employment opportunity.

In hospitals, duties may involve biomedical research, routine clinical measurement responsibility, the development of specialised electronic equipment and the maintenance of equipment already in operation. Graduates are employed in most hospital departments including cardiology, neurology, thoracic medicine, physical sciences, anaesthesiology and medical electronics.

**Professional recognition**

Graduates are eligible for membership of the Australian Institute of Physics and the Australasian College of Physical Scientists and Engineers in Medicine.

**Prerequisites (entrance 1997)**

Units 3 and 4: Physics, two units of Mathematics chosen from Space and Number, Reasoning and Data, Change and Approximation, Extensions (C & A).

A limited number of places may be offered to students without VCE Physics. These students will undertake a special first semester program.

**Course structure**

**Full-time course (1996 syllabus)**

**Year 1**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Creditpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC127</td>
<td>Chemistry&quot; 10.0</td>
</tr>
<tr>
<td>SC154P</td>
<td>Chemistry&quot; 10.0</td>
</tr>
<tr>
<td>SE112</td>
<td>Introduction to Biophysics A 10.0</td>
</tr>
<tr>
<td>SE110M</td>
<td>Electronics and Measurement 10.0</td>
</tr>
<tr>
<td>SE118M</td>
<td>Physics 1 10.0</td>
</tr>
<tr>
<td>SM1215</td>
<td>Mathematical Methods 10.0</td>
</tr>
</tbody>
</table>

* Students with Year 12 Chemistry do SC154P.

* Students without Year 12 Chemistry do SC127.

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Creditpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE122</td>
<td>Introduction to Biophysics B 10.0</td>
</tr>
<tr>
<td>SE120M</td>
<td>Introduction to Instrumentation 10.0</td>
</tr>
<tr>
<td>SE128M</td>
<td>Physics 2 10.0</td>
</tr>
<tr>
<td>SK290</td>
<td>Introduction to Programming 10.0</td>
</tr>
<tr>
<td>SM1215</td>
<td>Mathematical Methods 10.0</td>
</tr>
</tbody>
</table>

**Year 2**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Creditpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE210M</td>
<td>Electronics 10.0</td>
</tr>
<tr>
<td>SE218M</td>
<td>Physics 3 10.0</td>
</tr>
<tr>
<td>SE230</td>
<td>Cardiovascular Biophysics 10.0</td>
</tr>
<tr>
<td>SE240</td>
<td>Cellular Biophysics 10.0</td>
</tr>
<tr>
<td>SM3415</td>
<td>Mathematical Methods 10.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Creditpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE220M</td>
<td>Sensors, Interfacing and Control 10.0</td>
</tr>
<tr>
<td>SE228M</td>
<td>Physics 4 10.0</td>
</tr>
<tr>
<td>SE250</td>
<td>Biomedical Instrumentation 10.0</td>
</tr>
<tr>
<td>SE260</td>
<td>Respiratory and Renal Biophysics 10.0</td>
</tr>
<tr>
<td>SM3415</td>
<td>Mathematical Methods 8.0</td>
</tr>
</tbody>
</table>

**Year 3**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Creditpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP222</td>
<td>Industry Based Learning 50.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Creditpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP333</td>
<td>Industry Based Learning 50.0</td>
</tr>
</tbody>
</table>

**Year 4**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Creditpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP501</td>
<td>Signals and Systems 8.0</td>
</tr>
<tr>
<td>SP510</td>
<td>Scientific Instrumentation A 10.0</td>
</tr>
<tr>
<td>SP530</td>
<td>Scientific Instrumentation B 10.0</td>
</tr>
<tr>
<td>SP524</td>
<td>Biophysics (Neurosciences A) 8.0</td>
</tr>
<tr>
<td>SP525</td>
<td>Applied Biophysics A 8.0</td>
</tr>
<tr>
<td>SP5609</td>
<td>Physics 5/6 6.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Creditpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP5609</td>
<td>Physics 5/6 4.0</td>
</tr>
<tr>
<td>SP602</td>
<td>Special Project 4.0</td>
</tr>
<tr>
<td>SP610</td>
<td>Instrumentation Systems A 8.0</td>
</tr>
<tr>
<td>SP624</td>
<td>Biophysics (Neuros sciences B) 8.0</td>
</tr>
<tr>
<td>SP625</td>
<td>Applied Biophysics B 8.0</td>
</tr>
<tr>
<td>SP626</td>
<td>Applied Neurosciences 8.0</td>
</tr>
<tr>
<td>SP630</td>
<td>Instrumentation Systems B 10.0</td>
</tr>
</tbody>
</table>

**Application procedure**

Refer to pages 54 and 106.

**2043 Multimedia Technology**

**1997 VTAC Course Code 34534**

This 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 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.

The various ‘threads’ that exist within the course are intended to cover the range of disciplines involved in the multimedia industry, with particular emphasis on the underlying technologies:

- computer hardware, electronics and image and voice processing techniques;
computer software covering programming, interface
design, graphics, etc;
psychology and understanding of the human mind,
covering learning, human interaction, cognition;
creative aspects of multimedia, including graphic design,
production, authoring, instructional design;
telecommunication systems, including local and wide are
networks, protocols, the Internet and the World Wide
Web;
*business, management and professional skills.

Career potential
The growth of this industry both in Australia and overseas
will create a great many career opportunities. Graduates of
this course will be well placed to take advantage of this
growth.

Potential career and market opportunities include:
- being entrepreneurial and starting your own multimedia
  business;
- development of CDROM-based World Wide Web
  multimedia applications;
- management of a company's computing and
  communications infrastructure;
- interacting with teams of specialists, such as designers,
  audio engineers and film producers, in the production of
  sophisticated multimedia applications;
- in collaboration with journalists, copywriters and
  editors, development of mass-communication media,
  such as electronic newspapers and magazines, advertising
  copy, catalogues, etc;
- development of new forms of electronics hardware, such
  as hand-held mobile video phones and intelligent
  personal organisers;
- research into the underlying aspect of computer-
  mediated human communications.

In addition, graduates would be equipped to pursue careers
as computer software developers, electronics designers,
computer systems managers, sales, instructional designers,

Professional recognition
Graduates will be eligible for membership of the Australian
Computer Society and can also practice as computer
professionals in the wider computer industry.

Prerequisites (entrance 1997)
Units 1, 2, 3, 4 English and units 3 and 4 of Mathematical
Methods. A selection interview may be required.

Mature age applicants who do not satisfy the above
requirements may be considered on the basis of factors such
as background, employment and in some cases an interview.

Course structure
Year 1 (1997 syllabus)
Semester 1 Credit Points

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE101</td>
<td>Science for Technology</td>
<td>10</td>
</tr>
<tr>
<td>SE104</td>
<td>Psychological Processes</td>
<td>10</td>
</tr>
<tr>
<td>SE110T</td>
<td>Electronics &amp; Measurement (with year 12 physics)</td>
<td>10</td>
</tr>
<tr>
<td>SM111</td>
<td>Mathematics 1</td>
<td>10</td>
</tr>
<tr>
<td>EE182</td>
<td>Electronics for Measurement (follow on of SE101)</td>
<td>10</td>
</tr>
<tr>
<td>ES200</td>
<td>Object-Oriented S’ware Development</td>
<td>10</td>
</tr>
<tr>
<td>MD102</td>
<td>Principles of Design for Electronic Media 2</td>
<td>10</td>
</tr>
<tr>
<td>SE106</td>
<td>Psychology of Learning</td>
<td>10</td>
</tr>
<tr>
<td>SE120T</td>
<td>Introduction to Instrumentation (follow on of SE110T)</td>
<td>10</td>
</tr>
<tr>
<td>SM119</td>
<td>Mathematics for Technology</td>
<td>10</td>
</tr>
</tbody>
</table>

Year 2 (1997 syllabus)

Semester 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ310*</td>
<td>Data Structures &amp; Algorithms</td>
<td>10</td>
</tr>
<tr>
<td>ES301*</td>
<td>Software Engineering</td>
<td>10</td>
</tr>
<tr>
<td>ES210T</td>
<td>Electronics</td>
<td>10</td>
</tr>
<tr>
<td>MD202</td>
<td>Design for Multimedia 1</td>
<td>10</td>
</tr>
<tr>
<td>SE215</td>
<td>Instructional Design Principles</td>
<td>10</td>
</tr>
<tr>
<td>SE314T</td>
<td>Communication Principles</td>
<td>10</td>
</tr>
</tbody>
</table>

Semester 2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES406</td>
<td>Graphics &amp; User Interacing</td>
<td>10</td>
</tr>
<tr>
<td>SE227</td>
<td>Computer Architecture &amp; Hardware</td>
<td>10</td>
</tr>
<tr>
<td>MD202</td>
<td>Design for Multimedia 2</td>
<td>10</td>
</tr>
<tr>
<td>SE229</td>
<td>Computer Learning and Authoring</td>
<td>10</td>
</tr>
<tr>
<td>SE226</td>
<td>Computer Communications</td>
<td>10</td>
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</tbody>
</table>

Year 2 (1998 syllabus)

Semester 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES306</td>
<td>Intro. to Human Computer Interaction</td>
<td>10</td>
</tr>
<tr>
<td>MD201</td>
<td>Design for Multimedia 1</td>
<td>10</td>
</tr>
<tr>
<td>SE210T</td>
<td>Electronics</td>
<td>10</td>
</tr>
<tr>
<td>SE215</td>
<td>Instructional Design Principles</td>
<td>10</td>
</tr>
<tr>
<td>SE314T</td>
<td>Communication Principles</td>
<td>10</td>
</tr>
</tbody>
</table>

Semester 2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES406</td>
<td>Graphical User Interface Development</td>
<td>10</td>
</tr>
<tr>
<td>MD202</td>
<td>Design for Multimedia 2</td>
<td>10</td>
</tr>
<tr>
<td>SE226</td>
<td>Computer Communications</td>
<td>10</td>
</tr>
<tr>
<td>SE227</td>
<td>Computer Architecture &amp; Hardware</td>
<td>10</td>
</tr>
<tr>
<td>SE229</td>
<td>Computer Learning and Authoring</td>
<td>10</td>
</tr>
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</table>

Year 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry Based Learning 1 &amp; 2</td>
<td>100</td>
<td></td>
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</tbody>
</table>

Year 4 (1990 syllabus)

Semester 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE####</td>
<td>Multimedia Systems 1</td>
<td>10</td>
</tr>
<tr>
<td>SE####</td>
<td>Multimedia Project 1</td>
<td>10</td>
</tr>
<tr>
<td>ES518*</td>
<td>Globalisation: Media &amp; Telecomms</td>
<td>10</td>
</tr>
<tr>
<td>ES305*</td>
<td>Computer Graphics and Virtual Reality</td>
<td>10</td>
</tr>
<tr>
<td>ES300*</td>
<td>Database</td>
<td>10</td>
</tr>
<tr>
<td>ES300*</td>
<td>Object-Oriented S’ware Development</td>
<td>10</td>
</tr>
</tbody>
</table>
Psychology and Neurophysiology

Semester 2
SE### Telecommunications Networks 10

SE### Multimedia Systems 2 10
SE### Multimedia Project 10
ES304* Software Engineering 1 10
ES409* Introduction to Artificial Intelligence 10
ES618* Computer Graphics and Animation 10
SE### Emerging Telecommunication N'works 10
SE### Business Skills 10

*subjects are alternatives. Students select one subject from these, subject to prerequisites.

### Numerical codes yet to be determined

Application procedure
Refer to pages 54 and 106.

Z062 Psychology and Psychophysiology

1997 VTAC Course Code-34145

This program is unique to Swinburne and combines major studies in psychology and psychophysiology. The psychology major emphasises vocational skills and knowledge relevant to applied fields. Later year studies include personality, cognition and human performance, methods and measurement in psychology, and counselling and interviewing.

Psychophysiology emphasises an understanding of the physiological processes relevant to the study of psychology. Cardiorespiratory, endocrinological, neuromuscular and immunological processes are treated in an integrated fashion in examining the physiological responses to stress. Disorders of brain function including schizophrenia, Alzheimer’s disease and brain damage are also considered. Computers and instrumentation are used to record and analyse physiological signals relevant to cognition and behaviour. The analysis of brain electrical activity and its relation to cognitive processes is emphasised.

This course may be undertaken within the Division of Science, Engineering and Design or the Division of Business, Society and will be a suitable introduction to occupations concerned with the physiological effects of emotional and mental states, sports psychology and ergonomics.

Professional recognition
After an additional (fourth) year of study, graduates are eligible for associate membership of the Australian Psychological Society.

Prerequisites (entrance 1996)

Units 3 and 4: either Physics, Chemistry or Biology, and either Reasoning and Data, Space and Number, or Change and Approximation. Applicants who do not satisfy the above requirements may be considered on the basis of factors such as technical background, employment and, in some cases, an interview.

Note: Alternative entry is available through the Division of Business, Humanities and Social Science, but different prerequisites apply.

Course structure

Full-time course — Applied Science only (subject to reaccreditation in 1996)

Year 1
Semester 1
AY100 Psychology 12.5
SC133 Chemistry 7.5
OR
SC133P Chemistry(with Year 12 Chemistry) 7.5
SM106 Mathematics 7.5
SP132 Introductory Psychophysiology 12.5
SP135 Monitoring Instrumentation 10.0

Semester 2
AY101 Psychology 12.5
SP231 Monitoring Technology 10.0
SP233 Psychophysiological Systems 17.5
SK210 Introduction to Computing 10.0

Year 2
Semester 1
AY203 Developmental Psychology 16.5
SM278 Design and Measurement 2A 16.5
SP331 Neurohumoral Bases of Psychophysiology 17.0

Semester 2
AY202 Cognition and Human Performance 16.5
AY204 Social Psychology 16.5
SP431 Psychophysiology of Perception 17.0

Year 3
Semester 1
AY312 The Psychology of Personality 16.5
SM378 Mathematics 16.5
SP527 Neurophysiology of the Normal Brain 7.5

Semester 2
AY319 Psychological Measurement 8.5
AY320 Psychological Foundations of

Community health services, clinics and institutions involved in the assessment and management of persons with neurological and psychophysiological problems. Graduates will also be well prepared for careers in the areas of clinical psychology concerned with the physiological effects of emotional and mental states, sports psychology and ergonomics.

For details of psychology subjects see Psychology Major, Division of Business, Humanities and Social Science chapter.

Career potential

Employment opportunities are available in the areas of

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Honours year

**2073 Honours Year in Applied Chemistry**

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.

For more information please contact the School of Chemical Sciences.

**2072 Honours Year in Biochemistry/Chemistry**

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.

For more information please contact the School of Chemical Sciences.

**2065 Honours Year in Computer Science**

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.

**2069 Honours Year in Environmental Health**

This program provides an opportunity for selected students, who have achieved a high standard during the environmental health course, to graduate with a degree with honours. For more information please contact the School of Chemical Sciences.

**2066 Honours Year in Medical Biophysics Also see Z079**

**Course structure**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE740 Project M'ent &amp; Research Methods</td>
<td>12.5</td>
</tr>
<tr>
<td>SP701 Biosensors and Membranes</td>
<td>12.5</td>
</tr>
<tr>
<td>SP718 Cognitive Neuroscience Methodologies</td>
<td>12.5</td>
</tr>
<tr>
<td>SP722 Minor Project</td>
<td>12.5</td>
</tr>
</tbody>
</table>

**Semester 2**

<table>
<thead>
<tr>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP537 Medical Imaging</td>
</tr>
<tr>
<td># Elective (on approval)</td>
</tr>
<tr>
<td>SP822 Major Project or</td>
</tr>
<tr>
<td>SP802# Minor Project</td>
</tr>
</tbody>
</table>

# students who obtain approval to undertake an elective will do SP802 instead of SP822.

**2068 Honours Year in Medical Biophysics and Scientific Instrumentation See Z079**

**2079 Honours Year in Psychophysiology**

These programs provide opportunities for selected students who have achieved a high standard in the major areas of study, medical biophysics or psychophysiology, to continue their undergraduate studies to an honours level.

Topics in the medical biophysics program include: membrane biophysics, biophysical techniques, information processing within neural systems, clinical, cortical, subcortical, and EEG/scalp surface recording techniques, clinical exercise testing, and ergometry and work and power assessment.

In addition to the two project subjects, students must complete a minimum of four subjects. These are selected from subjects offered by the School in consultation with the postgraduate coordinator. Subject to approval, one subject of equivalent standard from another School may be chosen.

**Course structure**

**Full-time course (1997 syllabus)**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE740 Project M'ent &amp; Research Methods</td>
<td>12.5</td>
</tr>
<tr>
<td>SP704 Psychophysiology</td>
<td>12.5</td>
</tr>
<tr>
<td>SP718# Cognitive Neuroscience Methodologies</td>
<td>12.5</td>
</tr>
<tr>
<td>SP722 Minor Project or</td>
<td>12.5</td>
</tr>
<tr>
<td>SP802 Minor Project</td>
<td>25.0</td>
</tr>
</tbody>
</table>

**Semester 2**

<table>
<thead>
<tr>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP706 Physiological Psychology</td>
</tr>
<tr>
<td>SP532# Clinical Monitoring Techniques or</td>
</tr>
<tr>
<td># Elective (on approval)</td>
</tr>
<tr>
<td>SP812 Minor Project or</td>
</tr>
<tr>
<td>SP822 Major Project</td>
</tr>
</tbody>
</table>

# indicates elective subject

Students will undertake SP722 and SP812 or SP802 and SP812 a total of 50 credit points of project over the year.
Bachelor of Applied Science/Engineering (Medical Biophysics & Instrumentation/Electrical Engineering)

1997 VTAC Course Code 34687

This double degree program covers specialist study of the physical, physiological and anatomical aspects of the human body and its medical care, plus electrical and electronic engineering relevant to biomedical engineering and patient care and monitoring instrumentation.

Career potential

This double degree program provides graduates with a wide range of career options, covering the plethora of electrical engineering careers through to biomedical engineering and medical technology. Graduates will be in an excellent position to further the rapid growth of technology for health care.

Professional recognition

Graduates will be eligible for membership of the Institution of Engineers Australia.

Prerequisites

Applicants should have satisfactorily completed an appropriate Victorian Year 12 or its equivalent such as an interstate or International Year 12 qualification.

VCE prerequisites: Mathematical Methods (Units 3 & 4) and Physics (Units 3 & 4)

Course structure (1997 syllabus)

Year 1

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK180 Computing</td>
<td>10</td>
</tr>
<tr>
<td>SE112 Introduction to Biophysics A</td>
<td>10</td>
</tr>
<tr>
<td>SC154 Chemistry</td>
<td>10</td>
</tr>
<tr>
<td>SM111 Mathematics 1</td>
<td>10</td>
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<tr>
<td>SP124 Physics 1</td>
<td>10</td>
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<tr>
<td>Semester 2</td>
<td></td>
</tr>
<tr>
<td>EE182 Electronics &amp; Instrumentation</td>
<td>10</td>
</tr>
<tr>
<td>SE112 Introduction to Biophysics B</td>
<td>10</td>
</tr>
<tr>
<td>SM112 Mathematics 2</td>
<td>10</td>
</tr>
<tr>
<td>SP125 Physics 2</td>
<td>10</td>
</tr>
<tr>
<td>MM140 Energy Systems</td>
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Year 2

<table>
<thead>
<tr>
<th>Semester 1</th>
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<tbody>
<tr>
<td>SE110 Electronics</td>
<td>10</td>
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<tr>
<td>SE218 Physics 3</td>
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</tr>
<tr>
<td>SE230 Cardiovascular Biophysics</td>
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<tr>
<td>SE240 Cellular Biophysics</td>
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<tr>
<td>SM233 Engineering Mathematics 3</td>
<td>10</td>
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<tr>
<td>Semester 2</td>
<td></td>
</tr>
<tr>
<td>SE227 Computer Architecture &amp; Hardware</td>
<td>10</td>
</tr>
<tr>
<td>SE228 Physics 4</td>
<td>10</td>
</tr>
<tr>
<td>SE250 Biomedical Instrumentation</td>
<td>10</td>
</tr>
<tr>
<td>SE260 Respiratory &amp; Renal Biophysics</td>
<td>10</td>
</tr>
<tr>
<td>SM244 Engineering Mathematics 4</td>
<td>10</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>EE182 Electronics &amp; Instrumentation</td>
<td>10</td>
</tr>
<tr>
<td>SE112 Introduction to Biophysics B</td>
<td>10</td>
</tr>
<tr>
<td>SM112 Mathematics 2</td>
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<tr>
<td>SP125 Physics 2</td>
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Year 3

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>EE182 Electronics &amp; Instrumentation</td>
<td>10</td>
</tr>
<tr>
<td>SE112 Introduction to Biophysics B</td>
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</tr>
<tr>
<td>SM112 Mathematics 2</td>
<td>10</td>
</tr>
<tr>
<td>SP125 Physics 2</td>
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<td>MM140 Energy Systems</td>
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Year 4

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>EE182 Electronics &amp; Instrumentation</td>
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<td>SE112 Introduction to Biophysics B</td>
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<td>SP125 Physics 2</td>
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<tr>
<td>MM140 Energy Systems</td>
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</table>

Semester 2

<table>
<thead>
<tr>
<th>Semester 2</th>
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<tbody>
<tr>
<td>SE227 Computer Architecture &amp; Hardware</td>
<td>10</td>
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<tr>
<td>SE228 Physics 4</td>
<td>10</td>
</tr>
<tr>
<td>SE250 Biomedical Instrumentation</td>
<td>10</td>
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<tr>
<td>SE260 Respiratory &amp; Renal Biophysics</td>
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<td>SM244 Engineering Mathematics 4</td>
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Year 5

<table>
<thead>
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<tr>
<td>SE112 Introduction to Biophysics B</td>
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<td>SM112 Mathematics 2</td>
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<td>SP125 Physics 2</td>
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<tr>
<td>MM140 Energy Systems</td>
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</table>

Semester 2

<table>
<thead>
<tr>
<th>Semester 2</th>
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</thead>
<tbody>
<tr>
<td>SE227 Computer Architecture &amp; Hardware</td>
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<td>SE228 Physics 4</td>
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<td>SE250 Biomedical Instrumentation</td>
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<tr>
<td>SE260 Respiratory &amp; Renal Biophysics</td>
<td>10</td>
</tr>
<tr>
<td>SM244 Engineering Mathematics 4</td>
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</tr>
</tbody>
</table>

Application procedure

Refer to pages 54 and 106.

Further Information

For further information on this new course please contact the School of Biophysical Sciences and Electrical Engineering.
Bachelor of Applied Science/Engineering (Multimedia Technology/Telecommunications & Networks)

1997 VTAC Course Code 34625

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.

Career potential

Potential career and market opportunities include:
- Development and technology managements in interactive multimedia within the instructional, 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 in the Institution of Engineers Australia and the Australian Computer Society.

Prerequisites

Applicants should have satisfactorily completed an appropriate Victorian Year 12 or its equivalent such as an interstate or international Year 12 qualification.

VCE prerequisites: Mathematical Methods (Units 3 & 4), Physics (Units 3 & 4).

Course structure (1997 syllabus)

Year 1

Semester 1
- CE102 Engineering Design
- MD101 Principles of Design for Electronic Media 1
- SE104 Psychological Processes
- SM111 Mathematics 1
- SQ210 Programming in C

Semester 2
- SM112 Mathematics 2
- MD102 Principles of Design for Electronic Media 2
- SE106 Psychology of Learning
- SE108 Global Networks
- EE182 Electronics & Instrumentation

Year 2

Semester 1
- Mathematics 3
- Design for Multimedia 1
- Software Engineering
- Electronics
- Communication Principles

Mathematics 4
- Design for Multimedia 2
- Graphical User Interface Programming
- Computer Architecture & Hardware
- Computer Communications

Year 3

Semester 1
- Engineering Mathematics 5
- Multimedia Systems 1
- Telecommunication Systems
- Globilisation: Media & Telecommunications
- Operating Systems

Semester 2
- Human Computer Interaction
- Multimedia Systems 2
- Emerging Telecommunications Networks
- Computer Graphics & Virtual Reality
- Business Skills

Year 4

Semester 1
- Control and Automation
- Instructional Design Principles
- Analog Electronics Design
- DSP & Image Processing
- Telecommunication Networks: Design & Management

Semester 2
- Computer Learning and Authoring
- Digital Communications
- Digital Electronic Design
- Electromagnetic Waves
- Project

Year 5

Semester 1
- Digital Control
- Broadband Multimedia Networks
- Engineering Principles
- Advanced DSP
- Project

Semester 2
- Engineering Management
- Mobile Communications
- Intelligent Instrumentation
- Optical Instrumentation
- Distributed Computing (Advanced Computer Architectures)
- Project

Application procedure

Refer to pages 54 and 106.

Further Information

For further information on this new course please contact the School of Biophysical Sciences and Electrical Engineering.
**Design courses**

**D020/40 Bachelor of Design (Graphic Design)**

**VTAC Course code 36105**

Design and Industrial Design courses are only available at the Prahran campus. The aim of the degree course is to educate designers to work effectively in areas where information is conveyed by visual means, such as advertising, publishing, publicity, printing, merchandising, education and research projects. The course is devised to produce imaginative designers, who, with specialisation and experience in industry, should achieve positions commensurate with their individual talents. The first two years of the course are common to each of the degree/honours streams but in the final degree year, a number of special bias studies are offered, including photography, illustration and three-dimensional design.

**Duration of the course**

Completion of the Bachelor of Design (Graphic Design) will require three years of full-time study. This program is not available for part-time study.

**Course structure**

<table>
<thead>
<tr>
<th>Year 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
</tr>
<tr>
<td>GD101 Studio Projects 1A</td>
</tr>
<tr>
<td>GD102 Studio Projects 1B</td>
</tr>
<tr>
<td>GD111 History of Arts 1</td>
</tr>
<tr>
<td>GD120 Introduction to Film and Media Studies</td>
</tr>
<tr>
<td>Semester 2</td>
</tr>
<tr>
<td>GD101 Studio Projects 1A</td>
</tr>
<tr>
<td>GD102 Studio Projects 1B</td>
</tr>
<tr>
<td>GD111 History of Arts 1</td>
</tr>
<tr>
<td>GD120 Introduction to Film and Media Studies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
</tr>
<tr>
<td>GD201 Studio Projects 2A</td>
</tr>
<tr>
<td>GD202 Studio Projects 2B</td>
</tr>
<tr>
<td>GD221 Design History and Critical Theory</td>
</tr>
<tr>
<td>Semester 2</td>
</tr>
<tr>
<td>GD201 Studio Projects 2A</td>
</tr>
<tr>
<td>GD202 Studio Projects 2B</td>
</tr>
<tr>
<td>GD221 Design History and Critical Theory</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 3 (D040)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
</tr>
<tr>
<td>GD301 Studio Projects 3</td>
</tr>
<tr>
<td>GD335 Design Culture</td>
</tr>
<tr>
<td>GD332 Print Technology</td>
</tr>
<tr>
<td>Semester 2</td>
</tr>
<tr>
<td>GD301 Studio Projects 3</td>
</tr>
<tr>
<td>GD335 Design Culture</td>
</tr>
</tbody>
</table>

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**DP60 Bachelor of Design (Industrial Design)**

**VTAC Course code 36201**

The course structure as set out below 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 thrust of the course structure is to more fully equip the next generation of Australian industrial design students for the profession by meeting the following objectives:

- ensuring students' thought processes, problem solving abilities and supporting technical skills are developed to an internationally professional standard;
- ensuring that the course content remains relevant to the needs of industry and the professional body;
- enhancing the learning opportunities for students by encouraging interaction with other areas of the University and industry to ensure that the most current and expert knowledge is available.

In the latter stages of the program there is an ‘Independent Study Program’ subject in place that allows students a degree of self-direction in their own career path aspirations by giving them the opportunity to undertake studies in other areas of the University.

**Duration of the course**

Completion of the Bachelor of Design (Industrial Design) will require three years of full-time study. This program is not available for part-time study.

**Course structure**

<table>
<thead>
<tr>
<th>Year 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
</tr>
<tr>
<td>ID101 Industrial Design 1</td>
</tr>
<tr>
<td>ID102 Technology 1</td>
</tr>
<tr>
<td>ID103 Drawing 1</td>
</tr>
<tr>
<td>ID104 Computer Studies 1A</td>
</tr>
<tr>
<td>ID105 Design History 1A</td>
</tr>
<tr>
<td>Semester 2</td>
</tr>
<tr>
<td>ID201 Industrial Design 2</td>
</tr>
<tr>
<td>ID202 Technology 2</td>
</tr>
<tr>
<td>ID203 Visualisation</td>
</tr>
<tr>
<td>ID204 Computer Studies 1B</td>
</tr>
<tr>
<td>ID205 Design History 1B</td>
</tr>
<tr>
<td>Year 2</td>
</tr>
<tr>
<td>Semester 1</td>
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<tr>
<td>ID301 Industrial Design 3</td>
</tr>
<tr>
<td>ID302 Technology 3</td>
</tr>
<tr>
<td>ID303 Professional Studies 1</td>
</tr>
<tr>
<td>ID304 CAD Studies</td>
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<tr>
<td>ID305 Design History 2A</td>
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<tr>
<td>Semester 2</td>
</tr>
<tr>
<td>ID401 Industrial Design 4</td>
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<td>ID402 Technology 4</td>
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</tbody>
</table>
ID403 Professional Studies 2 10.0
ID404 CAD/CAM Studies 7.5
ID405 Design History 2B 7.5

Year 3
Semester 1
ID501 Industrial Design 4 20.0
ID502 Technology 5 12.5
ID503 Professional Studies 3 10.0
ID505 Art and Design Culture 1A 7.5

Semester 2
ID601 Industrial Design 6 20.0
ID605 Art and Design Culture 1B 10.0
ID607 Design Research Skills 12.5
ID608 Independent Study Program (ISP1) 7.5

D050 Bachelor of Design (Honours) (Graphic Design)

Industry Based Learning (IBL)
The aim of this honours year is to meet the present and future needs of industry, and to educate people with a high degree of creative ability for positions of administrative responsibility in the areas of direction and production of printing, publishing, computer-based production techniques, advertising, education and information design.

At the completion of the second year, students with a credit or above in all subjects may be selected for the honours program. They are required to spend the whole of the third year working in an industrial situation organised by Swinburne. This third year enables the student to begin professional practice, supervised by senior staff.

During the year in industry, students are required to attend the University for one day per week for subjects: Print Technology and Art and Design Culture.

In the final year, in addition to Studio Projects 4, Design Management is studied.

This program is not available for part-time study.

Course structure

First and second year (common to degree and degree with honours)

Year 3
Semester 1
GD303 Industrial Year (HECS Exemption) 37.5
GD335 Art and Design Culture 10.0
GD322 Print Technology 5.0

Semester 2
GD303 Industrial Year (HECS Exemption) 37.5
GD335 Art and Design Culture 10.0

Year 4
Semester 1
GD410 Studio Projects 4A 35.0
GD411 Studio Projects 4B (Honours Dissentation) 12.5
GD490 Design Management 5.0

B060 Bachelor of Design (Honours) (Graphic Design)

DP61 Industrial Design

Swinburne Design Centre
Degree students who achieve an overall high standard in their final year qualify to apply for the Swinburne Design Centre Honours program. This Honours program provides an introduction to professional design practice in an educational environment.

Students who are selected for this program undertake a variety of professional consultancy-based design projects under the guidance of lecturing staff and industry mentors.

This program is not available for part-time study.

Course structure

Graphic Design (D060)

Year 4
Semester 1
Credit points
GD410 Studio Projects 4A 35.0
GD411 Studio Projects 4B (Honours Dissentation) 12.5
GD490 Design Management 5.0

Semester 2
GD410 Studio Projects 4A 35.0
GD411 Studio Projects 4B (Honours Dissentation) 12.5

Industrial Design (DP61)

Year 4
Semester 7
Credit points
ID701 Industrial Design 7 25.0
ID708 Independent Study Program 2 (ISP2) 10.0
ID809 Design Research Methods 1 15.0

Semester 2
ID801 Industrial Design 8 25.0
ID808 Independent Study Program 3 (ISP3) 10.0
ID809 Design Research Methods 3 15.0
Engineering courses

CH055 Bachelor of Engineering (Chemical)

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.

Pathways Entry
Successful completion of a relevant Associate Diploma or equivalent.

Persons who have completed a relevant Associate Diploma with good results may be eligible for in excess of 100 credit points of exemptions in the degree program, depending on subjects completed and on results. The "Swinburne Pathways • Credit Transfer Guide" should be consulted for full details.

Some regional TAFE colleges have special articulation arrangements with Swinburne and provide extension units which enhance credit transfer.

Course Structure
Common first year
Semesters 1 and 2: common first year for all engineering degrees.

Intermediate Studies
Semesters 3 to 5: subjects common for all students taking chemical engineering.

(1995 syllabus)

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
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<tbody>
<tr>
<td>CE102</td>
<td>Engineering Design</td>
<td>10</td>
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<tr>
<td>EF101</td>
<td>Professional Skills</td>
<td>10</td>
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<tr>
<td>SC154N</td>
<td>Chemistry</td>
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<td>SM111,112</td>
<td>Mathematics 1, 2</td>
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<td>SP124,125</td>
<td>Physics 1, 2</td>
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<td>EE182</td>
<td>Electronics and Instrumentation</td>
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<td>MM140</td>
<td>Energy Systems</td>
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<td>TOTAL</td>
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<td>50</td>
<td>50</td>
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</table>

Note: To balance resources, the position of subjects may change. Some subjects may be made available in both semesters.

Year 4 (Coursework & IBL)

<table>
<thead>
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<th>Subject</th>
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<th>Semester 2</th>
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</thead>
<tbody>
<tr>
<td>SCE206</td>
<td>Chemical Engineering Laboratory 1</td>
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<table>
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<th>Year 3 (Coursework &amp; IBL)</th>
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</thead>
<tbody>
<tr>
<td>MM385</td>
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<tr>
<td>SCE304</td>
</tr>
<tr>
<td>SCE302</td>
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<tr>
<td>SCE305</td>
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<tr>
<td>SM255A</td>
</tr>
<tr>
<td>SCE306</td>
</tr>
<tr>
<td>SCE406</td>
</tr>
<tr>
<td>SCE402</td>
</tr>
<tr>
<td>SCE400</td>
</tr>
<tr>
<td>SCE401</td>
</tr>
<tr>
<td>SCE405</td>
</tr>
<tr>
<td>SCE407</td>
</tr>
</tbody>
</table>

Year 5

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCE500</td>
<td>Biotechnology</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCE501</td>
<td>Research Project</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCE504</td>
<td>Process Equipment Design</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCE502</td>
<td>Reactor Design</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCE503</td>
<td>Process Control</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCE505</td>
<td>Bioprocess Engineering</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCE506</td>
<td>Process Plant Design &amp; Economic Evaluation</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCE507</td>
<td>Environmental &amp; Safety Assessment</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCE508</td>
<td>Chemical Engineering Management</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

Bioprocess stream

Students undertake the elective studies in bioprocessing as listed below. The first five subjects are shared with other degree programs. In order to accommodate the current common first year as listed above, students entering second year in 1996 will not have studied Cell Biology. Such students will undertake bridging studies as an interim arrangement.

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC208</td>
<td>Cell Biology</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCE204</td>
<td>Biochemistry 1</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCE402</td>
<td>Biochemistry 2</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCE304</td>
<td>Microbiology 1</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCE500</td>
<td>Biotechnology</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCE505</td>
<td>Bioprocess Engineering</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

It is possible that other elective studies (such as polymers) may be developed in the future.

1 Elective Studies: A program of five subjects forming an elective stream in bioprocess engineering will be provided. This will be the only elective stream available initially.

Application procedure
Refer to pages 54 and 106.

Further Information
For further information on this new course please contact the School of Chemical Science.
**Bachelor of Engineering (Civil)**

*1997 VTAC course code 34377*

**1995 syllabus course**

This program commenced in 1995 and extends over eight academic semesters plus two semesters of industry-based learning.

The course is being introduced progressively. Years 1, 2 and 3 will be offered in 1997.

**Part-time study**

The course may be completed by part-time study. A few subjects are available as evening subjects.

**Course structure**

The full-time course totals 500 credit points and consists of two sections:

- **Foundation Studies:** Semesters 1 to 5
- **Professional Studies:** Semesters 6 to 10

The course includes one year of paid industry-based learning. Employment is arranged by Swinburne and students receive a salary approximately two-thirds of that of a graduate engineer. Students benefit greatly from this first-hand industrial experience and liaison is maintained between mentor, employer, and student.

**Year 1 (1995 syllabus)**

**Common first year**

**Semester 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE102</td>
<td>Engineering Design</td>
<td>10.0</td>
</tr>
<tr>
<td>SM111</td>
<td>Mathematics 1</td>
<td>10.0</td>
</tr>
<tr>
<td>SP124</td>
<td>Physics 1</td>
<td>10.0</td>
</tr>
<tr>
<td>And two of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EFl01</td>
<td>Professional Skills</td>
<td>10.0</td>
</tr>
<tr>
<td>MM130</td>
<td>Engineering Materials</td>
<td>10.0</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC154N</td>
<td>Chemistry</td>
<td>10.0</td>
</tr>
<tr>
<td>SK180</td>
<td>Computing</td>
<td>10.0</td>
</tr>
</tbody>
</table>

**Semester 2**

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE182</td>
<td>Electronics and Instrumentation</td>
<td>10.0</td>
</tr>
<tr>
<td>MM140</td>
<td>Energy Systems</td>
<td>10.0</td>
</tr>
<tr>
<td>SM112</td>
<td>Mathematics 2</td>
<td>10.0</td>
</tr>
<tr>
<td>CE103</td>
<td>Civil Engineering</td>
<td>10.0</td>
</tr>
<tr>
<td>And one of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EFl01</td>
<td>Professional Skills</td>
<td>10.0</td>
</tr>
<tr>
<td>MM130</td>
<td>Engineering Materials</td>
<td>10.0</td>
</tr>
<tr>
<td>SK180</td>
<td>Computing</td>
<td>10.0</td>
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</table>

**Year 2**

**Semester 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE206</td>
<td>Data Management</td>
<td>10.0</td>
</tr>
<tr>
<td>CE216</td>
<td>Structural Mechanics 1</td>
<td>10.0</td>
</tr>
<tr>
<td>CE237</td>
<td>Hydraulics</td>
<td>5.0</td>
</tr>
<tr>
<td>CE246</td>
<td>Survey and Road Engineering</td>
<td>10.0</td>
</tr>
<tr>
<td>CE286</td>
<td>Geomechanics 1</td>
<td>5.0</td>
</tr>
<tr>
<td>SM233</td>
<td>Engineering Mathematics</td>
<td>10.0</td>
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</table>

**Semester 2**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE217</td>
<td>Structural Engineering 1</td>
<td>10.0</td>
</tr>
<tr>
<td>CE237</td>
<td>Hydraulics</td>
<td>10.0</td>
</tr>
<tr>
<td>CE246</td>
<td>Survey and Road Engineering</td>
<td>10.0</td>
</tr>
<tr>
<td>CE286</td>
<td>Geomechanics 1</td>
<td>10.0</td>
</tr>
<tr>
<td>SM244</td>
<td>Engineering Mathematics</td>
<td>10.0</td>
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</table>

**Year 3**

**Semester 1**

<table>
<thead>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
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</thead>
<tbody>
<tr>
<td>CE306</td>
<td>Engineering Management</td>
<td>10.0</td>
</tr>
<tr>
<td>CE316</td>
<td>Structural Design 1</td>
<td>10.0</td>
</tr>
<tr>
<td>CE356</td>
<td>Civil Design</td>
<td>10.0</td>
</tr>
<tr>
<td>CE366</td>
<td>Road and Traffic Engineering</td>
<td>10.0</td>
</tr>
<tr>
<td>SM255A</td>
<td>Engineering Mathematics</td>
<td>10.0</td>
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</table>

**Semester 2**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE397</td>
<td>Industry Based Learning</td>
<td>50.0</td>
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**Year 4**

**Semester 1**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE494</td>
<td>Industry Based Learning</td>
<td>50.0</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>CE438</td>
<td>Environment and Services</td>
<td>10.0</td>
</tr>
<tr>
<td>CE488</td>
<td>Geomechanics and Structures</td>
<td>10.0</td>
</tr>
<tr>
<td>Major Studies*</td>
<td></td>
<td>10.0</td>
</tr>
<tr>
<td>Elective Studies**</td>
<td></td>
<td>20.0</td>
</tr>
</tbody>
</table>

**Year 5**

**Semester 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE599</td>
<td>Civil Engineering Management 1</td>
<td>10.0</td>
</tr>
<tr>
<td>Major Studies*</td>
<td></td>
<td>10.0</td>
</tr>
<tr>
<td>Elective Studies**</td>
<td></td>
<td>30.0</td>
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</tbody>
</table>

**Semester 2**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE590</td>
<td>Civil Engineering Management 2</td>
<td>10.0</td>
</tr>
<tr>
<td>Major Studies*</td>
<td></td>
<td>10.0</td>
</tr>
<tr>
<td>Elective Studies**</td>
<td></td>
<td>30.0</td>
</tr>
</tbody>
</table>

*Major studies

A total of 80 credit points. All the subjects in one of the following:

**Civil and Environmental Engineering Major**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE458</td>
<td>Design and Construction 1</td>
<td>10.0</td>
</tr>
<tr>
<td>CE468</td>
<td>Transport Engineering</td>
<td>10.0</td>
</tr>
<tr>
<td>CE509</td>
<td>Investigation Project</td>
<td>10.0</td>
</tr>
<tr>
<td>CE539</td>
<td>Water Engineering</td>
<td>10.0</td>
</tr>
<tr>
<td>CE550</td>
<td>Design and Construction 2</td>
<td>20.0</td>
</tr>
<tr>
<td>CE520</td>
<td>Urban Planning and Environment</td>
<td>10.0</td>
</tr>
<tr>
<td>CE562</td>
<td>Local Engineering Systems</td>
<td>10.0</td>
</tr>
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</table>

**Structural Engineering Major**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE428</td>
<td>Mechanics of Solids</td>
<td>10.0</td>
</tr>
<tr>
<td>CE458</td>
<td>Design and Construction 1</td>
<td>10.0</td>
</tr>
<tr>
<td>CE509</td>
<td>Investigation Project</td>
<td>10.0</td>
</tr>
<tr>
<td>CE519</td>
<td>Structural Mechanics 2</td>
<td>10.0</td>
</tr>
<tr>
<td>CE550</td>
<td>Design and Construction 2</td>
<td>20.0</td>
</tr>
<tr>
<td>CE510</td>
<td>Structural Design 2</td>
<td>10.0</td>
</tr>
<tr>
<td>CE518</td>
<td>Structural Engineering 2</td>
<td>10.0</td>
</tr>
</tbody>
</table>
**Elective** studies

A total of 30 credit points of subjects chosen from:
- For students who choose the Civil and Environmental Engineering major: electives chosen from the Structural Engineering major;
- For students who choose the Structural Engineering major: electives chosen from the Civil and Environmental Engineering major;
- Other approved subjects offered by the School (e.g., approved Building Surveying subjects);
- Other approved subjects offered by other Schools (e.g., Mathematics).

**Course structure (1990 syllabus)**

**Structure of degree course**

The degree course consists of seven academic semesters at Swinburne and two semesters in industry. It is being progressively replaced by the 1995 syllabus.

Students who are enrolled in the 1990 syllabus course and who continue to make satisfactory academic progress should be able to complete under the 1990 syllabus. Where 1990 syllabus subjects have been discontinued it may be necessary to take equivalent subjects from the 1995 course. Contact the school for further information about subject equivalence.

**Year 4** (1990 syllabus)

**Semester 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE494</td>
<td>Industrial Experience</td>
<td>50.0</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>CE415</td>
<td>Structural Engineering</td>
<td>11.0</td>
</tr>
<tr>
<td>CE431</td>
<td>Water Engineering</td>
<td>5.0</td>
</tr>
<tr>
<td>CE461</td>
<td>Transport Engineering</td>
<td>7.0</td>
</tr>
<tr>
<td>CE481</td>
<td>Geomechanics</td>
<td>7.0</td>
</tr>
<tr>
<td>CE495</td>
<td>Engineering Management</td>
<td>7.0</td>
</tr>
<tr>
<td>SM493</td>
<td>Engineering Mathematics</td>
<td>5.0</td>
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</tbody>
</table>

and one of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE406</td>
<td>Water and Transport Engineering</td>
<td>8.0</td>
</tr>
<tr>
<td>CE416</td>
<td>Structural Engineering</td>
<td>8.0</td>
</tr>
<tr>
<td>CE476</td>
<td>Construction Engineering</td>
<td>8.0</td>
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</tbody>
</table>

**Year 5**

**Semester 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE505†</td>
<td>Investigation Project</td>
<td>12.5</td>
</tr>
<tr>
<td>CE555‡</td>
<td>Design</td>
<td>14.5</td>
</tr>
<tr>
<td>CE596</td>
<td>Engineering Management</td>
<td>8.0</td>
</tr>
</tbody>
</table>

Major Elective (one of)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE507</td>
<td>Municipal and Transport Engineering</td>
<td>9.0</td>
</tr>
<tr>
<td>CE516</td>
<td>Structural Engineering</td>
<td></td>
</tr>
<tr>
<td>CE576</td>
<td>Construction Engineering</td>
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</tbody>
</table>

Minor Elective (one of)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE533</td>
<td>Water Engineering</td>
<td></td>
</tr>
<tr>
<td>CE553</td>
<td>Structural Design</td>
<td></td>
</tr>
<tr>
<td>CE582</td>
<td>Geomechanics</td>
<td></td>
</tr>
</tbody>
</table>

OR

Approved alternative from Division of Business, Humanities and Social Science.

†Where approved, part-time students **may** undertake these subjects over two semesters as syllabus content is identical to the corresponding full-time subjects, using the following codes:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE506</td>
<td>Investigation Project</td>
<td>Sem 1: 55</td>
</tr>
<tr>
<td>CE556</td>
<td>Civil Design</td>
<td>Sem 2: 60</td>
</tr>
</tbody>
</table>

**Application procedure**

Refer to pages 54 and 106.

**Further Information**

For further information on this new course please contact the School of Civil Engineering and Building.

**E050 Bachelor of Engineering**

*Communication and Electronic

• Computer Systems

• Electrical Power and Control

1995 syllabus course

This program will extend over eight academic semesters plus two semesters of industry based learning.

**Degree course revision**

Students entering the first year of the electrical engineering program will be enrolled in the common first year, and will follow one of the following streams:

- Computer Systems
- Electrical Power and Control
- Communication and Electronic

**Course structure**

**Year 1 (1995 syllabus)**

**Semester 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE102</td>
<td>Engineering Design</td>
<td>10.0</td>
</tr>
<tr>
<td>SM111</td>
<td>Mathematics 1</td>
<td>10.0</td>
</tr>
<tr>
<td>SP124</td>
<td>Physics 1</td>
<td>10.0</td>
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</table>

and two of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF101*</td>
<td>Professional Skills</td>
<td>10.0</td>
</tr>
<tr>
<td>MM130*</td>
<td>Engineering Materials</td>
<td>10.0</td>
</tr>
<tr>
<td>SK154*</td>
<td>Computing</td>
<td>10.0</td>
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</tbody>
</table>

**Year 2 (1996 syllabus)**

**Semester 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE182</td>
<td>Electronics and Instrumentation</td>
<td>10.0</td>
</tr>
<tr>
<td>MM140</td>
<td>Energy Systems</td>
<td>10.0</td>
</tr>
<tr>
<td>SM112</td>
<td>Mathematics 2</td>
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</tr>
<tr>
<td>SP125</td>
<td>Physics 2</td>
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and one of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF101*</td>
<td>Professional Skills</td>
<td>10.0</td>
</tr>
<tr>
<td>MM130*</td>
<td>Engineering Materials</td>
<td>10.0</td>
</tr>
<tr>
<td>SK180*</td>
<td>Computing</td>
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**Semester 2**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE210</td>
<td>Electronics</td>
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<tr>
<td>SE212</td>
<td>Circuits</td>
<td>10</td>
</tr>
<tr>
<td>SE214</td>
<td>Engineering Physics 3</td>
<td>10</td>
</tr>
</tbody>
</table>
SK280  Software Design  10
SM233  Engineering Mathematics 3  10
Semester 2
SE221  Engineering Business Skills  10
SE223  Linear Systems  10
SE225  Machine & Power Systems  10
SE227  Computer Architecture & Hardware  10
SM244  Engineering Mathematics 4  10

Year 3 (1997 syllabus)
Semester 1
SE310  Analog Electronics Design  10
SE312  Control and Automation  10
SE314  Communication Principles  10
SE316  Digital Electronics Design  10
SM255B  Engineering Mathematics 5  10

Year 4 (1995 Syllabus)
Computer Systems Stream
Semester 1
EE400  Industrial Experience  50.0
EE403  Engineering Project Management  5.0
Semester 2
EE402  Management Fundamentals  5.0
EE459  Electrical Design  7.0
EE465  Engineering Systems Software  6.0
EE467  Computer Communications  6.0
EE474  Computer Systems Engineering  11.0
EE489  Control Systems  6.0
SM494  Engineering Mathematics  4.0

Power and Control Stream
Semester 1
EE400  Industrial Experience  50.0
EE403  Engineering Project Management  5.0
Semester 2
EE402  Management Fundamentals  5.0
EE456  Electrical Design  7.0
EE465  Engineering Systems Software  6.0
EE475  Electrical Power  11.0
EE476  Electronics  6.0
EE489  Control Systems  6.0
SM494  Engineering Mathematics  4.0
SM494  Engineering Mathematics  4.0

Communications and Electronics Stream
Semester 1
EE400  Industrial Experience  50.0
EE403  Engineering Project Management  5.0
Semester 2
EE402  Management Fundamentals  5.0
EE458  Electrical Design  7.0
EE465  Engineering Systems Software  5.0
EE482  Communications  8.0
EE483  Electronics  9.0
EE489  Control Systems  7.0
SM494  Engineering Mathematics  4.0
SM494  Engineering Mathematics  4.0

With the approval of the Head of School, students may be permitted to undertake an additional subject from the Division of Business, Humanities and Social Science as an optional non-technical elective during the course.

Application procedure
Refer to pages 54 and 106.

Further Information
For further information on this new course please contact the School of Biophysical Sciences & Electrical Engineering.

PO50 Bachelor of Engineering (Manufacturing)

1995 syllabus course
Students entering the first year of the manufacturing engineering course will be enrolled in the common first year, and will follow the Bachelor of Engineering (Manufacturing) 1995 syllabus.

Courses are arranged to allow flexibility so that any student may transfer from full-time to part-time studies or vice-versa, at particular points of a course, without loss of credit for subjects passed.

This program will extend over eight academic semesters plus two semesters of industry based learning.

The course is designed to develop student abilities in the fundamental engineering sciences and technologies. It provides management training in a broad range of disciplines related to the planning and operation of manufacturing enterprises.
1990 syllabus course

Students currently enrolled in Years 4 and 5. Streaming in later years of the course currently allows students to specialise in either Production Engineering and Design or Chemical Engineering and Design by selecting the special study subjects denoted below.

Course structure (1995 syllabus)

Year 1

Semester 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE102</td>
<td>Engineering Design</td>
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<tr>
<td>SM111</td>
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<tr>
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<td>and two of</td>
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<tr>
<td>EFlOl</td>
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</tr>
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<tr>
<td>SK180</td>
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<tr>
<td>OR</td>
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semester 2

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<tr>
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<tr>
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<tr>
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<tr>
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Year 2

Semester 1

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<th>Course Title</th>
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<tr>
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<tr>
<td>SM233</td>
<td>Engineering Mathematics 3</td>
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<tr>
<td>MM235</td>
<td>Engineering Materials</td>
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</tr>
<tr>
<td>MM245</td>
<td>Thermodynamics 1</td>
<td>10.0</td>
</tr>
<tr>
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<td>Computer Aided Design</td>
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Semester 2

<table>
<thead>
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<th>Course Title</th>
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<tbody>
<tr>
<td>MM215</td>
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<td>MM246</td>
<td>Fluid Mechanics 1</td>
<td>10.0</td>
</tr>
<tr>
<td>MM273</td>
<td>Manufacturing Technology 1</td>
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<td>Measurement and Control Systems</td>
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Year 3

Semester 1

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<th>Course Title</th>
<th>Credit Points</th>
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</thead>
<tbody>
<tr>
<td>MM355</td>
<td>Mechanical Design</td>
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<tr>
<td>MM365</td>
<td>Design for Manufacture</td>
<td>10.0</td>
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<td>MM386</td>
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Semester 2

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
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Year 4

semester 1

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<tbody>
<tr>
<td>MM405</td>
<td>Industry Based Learning</td>
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Semester 2

Core subjects

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
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<tbody>
<tr>
<td>MM441</td>
<td>Control Systems</td>
<td>4.0</td>
</tr>
<tr>
<td>MM470</td>
<td>Computer Interfacing</td>
<td>5.0</td>
</tr>
<tr>
<td>MM471</td>
<td>Numerical Engineering</td>
<td>4.0</td>
</tr>
<tr>
<td>MM480</td>
<td>Facilities Planning and Design</td>
<td>7.0</td>
</tr>
<tr>
<td>MM481</td>
<td>Decision Analysis</td>
<td>4.0</td>
</tr>
<tr>
<td>MM482</td>
<td>Manufacturing Operations Management</td>
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Chemical Stream

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>MM414</td>
<td>Stagewise Processes</td>
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<tr>
<td>MM415</td>
<td>Mass Transfer</td>
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<tr>
<td>MM450</td>
<td>Design for Manufacture</td>
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<tr>
<td>MM472</td>
<td>Manufacturing Technology</td>
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Year 5

Semester 1

Core subjects

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
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<tbody>
<tr>
<td>MM500</td>
<td>Project</td>
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<tr>
<td>MM502</td>
<td>World Class Manufacturing</td>
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<tr>
<td>MM583</td>
<td>Industrial Management</td>
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Chemical Stream

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<th>Course Title</th>
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<tbody>
<tr>
<td>MM510</td>
<td>Combined Heat and Mass Transfer</td>
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<tr>
<td>MM511</td>
<td>Chemical Engineering Design</td>
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<tr>
<td>MM556</td>
<td>Reactor Design</td>
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<tr>
<td>MM550</td>
<td>Design for Manufacture</td>
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<tr>
<td>MM570</td>
<td>Manufacturing Technology</td>
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<tr>
<td>MM581</td>
<td>Manufacturing Systems Modelling</td>
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</tbody>
</table>

Application procedure

Refer to pages 54 and 106.

Further Information

For further information on this new course please contact the School of Mechanical and Manufacturing Engineering.

M050 Bachelor of Engineering

(Mechanical)

1995 syllabus course

Students entering the first year of the mechanical engineering course will be enrolled in the common first year, and will follow the Bachelor of Engineering (Mechanical) 1995 syllabus.

Courses are arranged to allow flexibility so that any student may transfer from full-time to part-time studies or vice-versa, at particular points of a course, without loss of credit for subjects passed.

This program will extend over eight academic semesters plus two semesters of industry based learning.

The degree course program combines a thorough education in the application of engineering science principles with a broad span of studies important to a professional mechanical engineer.
1990 syllabus (Students currently enrolled in Years 4 & 5)

Streaming in later years of the course is offered through a system of technical elective subjects which allows students to select a particular emphasis for their four and a half years' plus the industry based learning (cooperative) program.

**Course structure (1990 syllabus)**

### Year 1

#### Semester 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE102</td>
<td>Engineering Design</td>
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<tr>
<td>SM111</td>
<td>Mathematics 1</td>
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</tr>
<tr>
<td>SP124</td>
<td>Physics 1</td>
<td>10.0</td>
</tr>
<tr>
<td>and two of</td>
<td>Professional Skills</td>
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<tr>
<td>EF101</td>
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</tr>
<tr>
<td>MM130</td>
<td>OR</td>
<td></td>
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<tr>
<td>SC154N</td>
<td>Chemistry</td>
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</tr>
<tr>
<td>SK180</td>
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#### Semester 2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>EE182</td>
<td>Electronics and Instrumentation</td>
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<td>MM140</td>
<td>Energy Systems</td>
<td>10.0</td>
</tr>
<tr>
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<td>Mathematics 2</td>
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<tr>
<td>SP125</td>
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<td>and one of</td>
<td>Professional Skills</td>
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<tr>
<td>MM130</td>
<td>Engineering Materials</td>
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<tr>
<td>SK180</td>
<td>Computing</td>
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### Year 2

#### Semester 1

<table>
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<th>Course Code</th>
<th>Course Name</th>
<th>Credit Points</th>
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<tbody>
<tr>
<td>MM225</td>
<td>Solid Mechanics 1</td>
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<tr>
<td>SM233</td>
<td>Engineering Mathematics 3</td>
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<tr>
<td>MM235</td>
<td>Engineering Materials</td>
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</tr>
<tr>
<td>MM245</td>
<td>Thermodynamics 1</td>
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</tr>
<tr>
<td>MM276</td>
<td>Computer Aided Design</td>
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#### Semester 2

<table>
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<th>Course Code</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>MM215</td>
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<tr>
<td>SM244</td>
<td>Engineering Mathematics 4</td>
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<tr>
<td>MM246</td>
<td>Fluid Mechanics 1</td>
<td>10.0</td>
</tr>
<tr>
<td>MM273</td>
<td>Manufacturing Technology 1</td>
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</tr>
<tr>
<td>MM295</td>
<td>Measurement and Control Systems</td>
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### Year 3

#### Semester 1

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<th>Course Code</th>
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<tbody>
<tr>
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<td>MM365</td>
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<td>Ergonomics</td>
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#### Semester 2

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### Year 4

#### Semester 1

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#### Semester 2

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<td>MM460</td>
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**Year 5**

#### Semester 1

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<td>MM580</td>
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</table>

**The project is undertaken over an eighteen week semester and involves 148 hours of contact.**

### Application procedure

Refer to pages 54 and 106.

### Further Information

For further information on this new course please contact the School of Mechanical & Manufacturing Engineering.

---

**R050 Bachelor of Engineering (Robotics and Mechatronics)**

The course aims to develop innovative skills in robotics and mechatronic systems, computing, electronics, mechanical and electrical engineering, in national and international contexts.

Courses are arranged to allow flexibility so that any student may transfer from full-time to part-time studies or vise-versa, at particular points of a course without loss of credit for subjects passed.

The degree course program combines a thorough education in the application of engineering science principles with a broad span of studies important to a professional engineer.

### Career potential

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.
Professional recognition
Membership of the Institution of Engineers, Australia.

Entry requirements
For entry to first year in 1997, 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.

Course structure
Five years full-time (four years of academic study and one year of industry based learning). Part time (day release) study is also available.

Year 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit points</th>
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<tbody>
<tr>
<td>CE102 Engineering Design</td>
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<tr>
<td>MM130 Engineering Material</td>
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</tr>
<tr>
<td>SM111 Engineering Mathematics 1</td>
<td>10</td>
</tr>
<tr>
<td>SM112 Engineering Mathematics 2</td>
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<tr>
<td>ES100 Object Oriented Software Development</td>
<td>10</td>
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<td>SP124 Physics</td>
<td>10</td>
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<tr>
<td>SE105 Robotics and Mechatronics Project 1</td>
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<td>ES200 Object Oriented Software Development</td>
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Year 2 onwards

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<th>Major Study</th>
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<tbody>
<tr>
<td>Bionics</td>
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<tr>
<td>Computer Aided Design</td>
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<tr>
<td>Computer Systems Engineering</td>
</tr>
<tr>
<td>Control and Automation</td>
</tr>
<tr>
<td>Digital Signal and Imaging Processing</td>
</tr>
<tr>
<td>Engineering Business Management</td>
</tr>
<tr>
<td>Engineering Economics</td>
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<tr>
<td>Engineering Mathematics</td>
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<tr>
<td>Electronics</td>
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<tr>
<td>Ergonomics</td>
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<tr>
<td>Energy Conversion</td>
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<tr>
<td>Human Computer Interaction</td>
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<td>Industrial Electronics</td>
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<td>Machine and Power Systems</td>
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<td>Machine Dynamics</td>
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<tr>
<td>Mechanical Design</td>
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<td>Micromachines</td>
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<td>Non-Contact Inspection and Measurement</td>
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<tr>
<td>Robot System Design</td>
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<tr>
<td>Software Engineering</td>
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<tr>
<td>Technology, Management and Law</td>
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<tr>
<td>Transducers, Sensors and Control</td>
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</table>

Further information
For further information on this new course please contact the School of Mechanical and Manufacturing Engineering or the School of Biophysical Sciences and Electrical Engineering.

E058 Bachelor of Engineering
(Telecommunications & Networks)

1997 VTAC Course Code 34206
This course provides an in-depth understanding of the international telecommunications industry, including local and global digital networking and mobile communications systems for tomorrow's broadband interactive information highways.

Students normally undertake one year of paid work experience in the telecommunications industry after the fifth semester of academic study. Work experience is a major contributor to the high employment rates of Swinburne graduates.

Major studies include electronic communication techniques, broadband interactive telecommunications networks, gigabit computer networks and internetworking, computer hardware and software systems integration, teletraffic analysis, information theory, mobile and personal communications, multimedia information handling systems, digital signal processing, software engineering, engineering design, professional skills and engineering management, and the role and regulation of telecommunications technology in society.

Career potential
Potential career and market opportunities include the following areas:
- Provision and management of telecommunications systems
- Computer networks
- Broadband interactive on-line networks
- Integrated computer and communication infrastructures for global networking.
- Software development for major engineering systems
- General electrical engineering

Professional recognition
Graduates are eligible for membership of the Institution of Engineers Australia

Prerequisites
Applicants should have satisfactorily completed an appropriate Victorian Year 12 or its equivalent such as an interstate or international Year 12 qualification.

VCE prerequisites: Mathematical Methods (Units 3 & 4), Physics (Units 3 & 4)
**Course structure (proposed)**

1997 Full-time syllabus subject to accreditation in 1996.

### Year 1

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 1</td>
<td>10</td>
</tr>
<tr>
<td>Physics 1</td>
<td>10</td>
</tr>
<tr>
<td>Introduction to Computing</td>
<td>10</td>
</tr>
<tr>
<td>Global Networks</td>
<td>10</td>
</tr>
<tr>
<td>Telecom Project 1</td>
<td>10</td>
</tr>
</tbody>
</table>

### Semester 2

| Mathematics 2 | 10          |
| Physics 2 | 10          |
| C++ Development 1 | 10          |
| Electronics & Instrumentation | 10          |
| Telecom Project 2 | 10          |

### Year 2

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Mathematics 3</td>
<td>10</td>
</tr>
<tr>
<td>Electronics</td>
<td>10</td>
</tr>
<tr>
<td>C++ Development 2</td>
<td>10</td>
</tr>
<tr>
<td>Communication Principles</td>
<td>10</td>
</tr>
<tr>
<td>New Media: The Telecom Revolution</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Mathematics 4</td>
<td>10</td>
</tr>
<tr>
<td>Computer Systems Engineering</td>
<td>10</td>
</tr>
<tr>
<td>Software Engineering</td>
<td>10</td>
</tr>
<tr>
<td>Engineering Business Skills</td>
<td>10</td>
</tr>
<tr>
<td>Computer Communications &amp; LANS</td>
<td>10</td>
</tr>
</tbody>
</table>

### Year 3

| Industry Based Learning 1 & 2 | 100          |

### Year 4

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Mathematics 5</td>
<td>10</td>
</tr>
<tr>
<td>Electromagnetic Waves</td>
<td>10</td>
</tr>
<tr>
<td>Internet Programming</td>
<td>10</td>
</tr>
<tr>
<td>Telecommunication Systems</td>
<td>10</td>
</tr>
<tr>
<td>Comminations Information Theory</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Engineering 2</td>
<td>10</td>
</tr>
<tr>
<td>Protonics</td>
<td>10</td>
</tr>
<tr>
<td>Distributed Computer Systems</td>
<td>10</td>
</tr>
<tr>
<td>Telecommunications Networks</td>
<td>10</td>
</tr>
<tr>
<td>Information Society: A Global Perspective</td>
<td>10</td>
</tr>
</tbody>
</table>

### Year 5

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSP &amp; Image Processing</td>
<td>10</td>
</tr>
<tr>
<td>Database</td>
<td>10</td>
</tr>
<tr>
<td>Telecom Project</td>
<td>10</td>
</tr>
<tr>
<td>Broadband Multimedia Networks</td>
<td>10</td>
</tr>
<tr>
<td>Multimedia Systems 1</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Management</td>
<td>10</td>
</tr>
<tr>
<td>Multimedia Systems 2</td>
<td>10</td>
</tr>
<tr>
<td>Telecom Project</td>
<td>10</td>
</tr>
<tr>
<td>Mobile Communications</td>
<td>10</td>
</tr>
<tr>
<td>Advanced Digital Systems Processes</td>
<td>10</td>
</tr>
</tbody>
</table>

### Application procedure

Refer to pages 54 and 106.

### Further Information

For further information on this new course please contact the School of Biophysical Sciences & Electrical Engineering.

**EA00 Bachelor of Engineering/ Business** (Chemical, Civil, Electrical & Electronic, Manufacturing, Mechanical; and a Business major)

### Course structure

This program will extend over ten academic semesters plus two semesters of optional industry based learning.

Students entering the first year of the Bachelor of Engineering/Business complete the first year of the standard bachelor of engineering degree.

#### Year 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE102 Engineering Design</td>
<td>10</td>
</tr>
<tr>
<td>EF101 Professional Skills</td>
<td>10</td>
</tr>
<tr>
<td>SM111 Mathematics 1</td>
<td>10</td>
</tr>
<tr>
<td>SM112 Mathematics 2</td>
<td>10</td>
</tr>
<tr>
<td>SP124 Physics 1</td>
<td>10</td>
</tr>
<tr>
<td>SP125 Physics 2</td>
<td>10</td>
</tr>
<tr>
<td>EE182 Electronics and Instrumentation</td>
<td>10</td>
</tr>
<tr>
<td>SK180 Computing</td>
<td>10</td>
</tr>
<tr>
<td>MM140 Energy Systems</td>
<td>10</td>
</tr>
</tbody>
</table>

#### Year 2

At the end of first year students elect which stream of engineering they wish to major in from:

- Chemical Engineering
- Civil Engineering
- Electrical Engineering
- Manufacturing Engineering
- Mechanical Engineering

Please refer to individual course entries for specific subject details.

#### Year 3

Business studies commence in Year 3 of the program.

Students must include the following business core subjects in their program:

- Industry Based Learning 1 & 2
- Engineering Management
- Multimedia Systems 2
- Telecom Project
- Mobile Communications
- Advanced Digital Systems Processes

---

*S Students wishing to major in Chemical Engineering must study SC154N Chemistry.*
The availability of business subjects in any given year will depend upon demand and resource constraints at the time of enrolment.

Students undertake:
6 Engineering subjects
4 Business subjects

Year 4
Students undertake
4 Engineering subjects
6 Business subjects

Year 5
Students undertake
4 Engineering subjects
6 Business subjects

Application procedure
Refer to pages 54 and 106.

Further Information
For further information on this new course please contact the Division of Science, Engineering and Design.
Telephone: 9214 8781

1050 Bachelor of Information Technology
1996 VTAC course code-34315

Manager
G.A. Murphy BCom(Melb), CPA
The course is offered only as a full-time program of three years duration. Students are actively engaged in the course for an average of forty-four weeks each year. There are eight segments in the course — four semesters, two summer terms and two twenty-week periods of industry based learning. These provide a course which is essentially a four year course completed in three years.

Swinburne awards a scholarship to each student admitted to the course. Scholarship levels are expected to be an average $9000.

Career potential
The course teaches graduates to apply information technology within business and industry and provides them with appropriate grounding in management education to prepare them for future roles in management.

Prerequisites (entrance 1996)
Units 3 and 4: English, Mathematics (any).
Bachelor of Software Engineering (subject to accreditation)

The Bachelor of Software Engineering (BSE) is an exceptionally innovative and challenging engineering program, consisting of four full-time years of academic study plus either one year of industry based learning (IBL) or at least 12 weeks of relevant industry experience. Successful completion of the BSE is deemed equivalent to the completion of an honours program and generally fulfils entry requirements for postgraduate research study.

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.

Career potential

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 Level 1 (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).

The degree program

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 engineering studies.

Industry based learning

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.

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.

Course structure

To qualify for the award of Bachelor of Software Engineering, students must accumulate a minimum of 400 credit points (100 credit points per full-time academic year) and undertake an IBL placement. Students undertaking an IBL year accumulate 500 credit points and will be presented with an additional testamur indicating their successful completion of the program. Five subjects will generally be taken during each academic semester, with a total of approximately 15-17 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.

Year 1

<table>
<thead>
<tr>
<th>Sem 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES100</td>
<td>Object-Oriented Software Development 1</td>
</tr>
<tr>
<td>ES104</td>
<td>Professional Skills for Software Engineers</td>
</tr>
<tr>
<td>ES107</td>
<td>Computer Systems 1</td>
</tr>
<tr>
<td>SM111</td>
<td>Engineering Mathematics 1</td>
</tr>
<tr>
<td>SP124</td>
<td>Physics 1</td>
</tr>
</tbody>
</table>
Sem 2
ES200  Object-Oriented Software Development 2 10
ES204  Software Engineering 1 10
ES207  Computer Systems 2 10
EE182  Electronics and Instrumentation 10
SM119  Mathematics for Technology 10

Year 2
Sem 1
ES300  Object-Oriented Software Development 3 10
ES304  Software Engineering 2 10
ES305  Database 10
ES306  Introduction to Human-Computer Interaction 10
CE102  Engineering Design 10

Sem 2
ES402  Systems Programming 10
ES403  Software Development Project 10
ES406  Graphical User Interface Development 10
ES407  Data Communications 10
MM140  Energy Systems 10

Year 3
Sem 1
ES301  Concurrent Programming in Ada 10
ES504  Advanced Software Engineering 1 10
ES514  Formal Methods 10
ES515  Domain Elective 10
ES601  Engineering Discipline Stream 10

Sem 2
ES409  Introduction to Artificial Intelligence 10
ES604  Advanced Software Engineering 2 10
ES614  The Personal Software Process 10
ES605  Domain Elective 10
ES602  Engineering Discipline Stream 10

Final Year
Sem 1
ES501  Real-Time Systems 10
ES503  Software Engineering Project 10
ES524  Professional Issues in Software Engineering 10
ES507  Computing Elective 10
ES600  Computing Elective 10
ES506  Engineering Discipline Stream 10

Sem 2
ES503  Software Engineering Project 20
ES601  Concurrent Systems 10
ES604  Computing Elective 10
ES601  Engineering Discipline Stream 10

Computing Electives are two-subject streams as follows:

Computer Graphics
ES518  Computer Graphics and Virtual Reality
ES618  Computer Graphics and Animation

Client-Server Systems
ES507  Local Area Networks
ES605  Advanced Database

Human-Computer Interaction (HCI)
ES506  Advanced Human-Computer Interaction 1
ES606  Advanced Human-Computer Interaction 2
ES509  Knowledge-Based Systems (KBS)
ES509  Knowledge Based Systems Engineering
ES609  Soft Computing

Multimedia Systems
ES508  Multimedia Technology
ES608  Multimedia Development
ES600  Programming Languages
ES500  Compiler Design
ES500  Programming Paradigms

The Engineering Discipline Streams are four-subject streams in the following areas of study: Electrical and Electronics; Manufacturing; Telecommunications.

Domain electives available may include streams in the following areas: Aviation; Business Finance and Accounting Fundamentals; Business Law; Civil Engineering; Control Engineering; Environmental Engineering; Marketing; Mechanical Engineering; Research. The Research elective is recommended for students contemplating proceeding to a research based higher degree in software engineering, or to a career in research and development.

Availability of all electives and elective streams is subject to resources, demand and timetabling constraints.

Application procedure
Refer to pages 54 and 106.

Further information
Further information may be obtained from the School of Computer Science and Software Engineering: telephone (03) 9214 8180, email csseinfo@swin.edu.au, or from our World Wide Web site http://www.csse.swin.edu.au/; the Divisional Office, telephone (03) 9214 5255; or the Information Office, telephone (03) 9214 8444. International Students should, in the first instance, contact the International Student Unit, telephone (03) 9214 8647.

MO55 Bachelor of Technology (Aviation)

VTAC course code-34516
This three year full-time degree course prepares students for careers in the aviation 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 engineering aspects of aviation and flying, and a strong sense of practical problem solving will be engendered in students. Various motivational subjects will be included to maintain a high level of dedication in students.
Course structure (1990 syllabus)

This course is being reaccredited during 1996. The new course will be phased in over a 3 year period, consequently subject details shown for the first year subjects may not be accurate for 1997.

Aviation

Year 1

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF110*</td>
<td>Flight Planning and Procedures 1 7.0</td>
</tr>
<tr>
<td>MF120*</td>
<td>Navigation and Meteorology 1 7.0</td>
</tr>
<tr>
<td>MF131*</td>
<td>Aircraft General Knowledge 1 7.0</td>
</tr>
<tr>
<td>MF150</td>
<td>Occupational Health and Safety 5.0</td>
</tr>
<tr>
<td>MF160</td>
<td>Propulsion and Aircraft Systems 7.0</td>
</tr>
<tr>
<td>MF170</td>
<td>Aviation Mathematics and Computing 10.0</td>
</tr>
<tr>
<td>MF190</td>
<td>Communication Skills 8.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF110*</td>
<td>Flight Planning and Procedures 7.0</td>
</tr>
<tr>
<td>MF120*</td>
<td>Navigation and Meteorology 2 7.0</td>
</tr>
<tr>
<td>MF131*</td>
<td>Aircraft General Knowledge 2 7.0</td>
</tr>
<tr>
<td>MF150</td>
<td>Occupational Health and Safety 5.0</td>
</tr>
<tr>
<td>MF160</td>
<td>Propulsion and Aircraft Systems 7.0</td>
</tr>
<tr>
<td>MF170</td>
<td>Aviation Mathematics and Computing 10.0</td>
</tr>
<tr>
<td>MF180</td>
<td>Aviation Electronics 6.0</td>
</tr>
</tbody>
</table>

Year 2

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF210</td>
<td>Flight Planning and Procedures 5.0</td>
</tr>
<tr>
<td>MF220*</td>
<td>Navigation and Meteorology 2 7.0</td>
</tr>
<tr>
<td>MF231*</td>
<td>Aircraft General Knowledge 2 7.0</td>
</tr>
<tr>
<td>MF241</td>
<td>Theoretical Aerodynamics 5.0</td>
</tr>
<tr>
<td>MF250</td>
<td>Human Factors and Performance 8.0</td>
</tr>
<tr>
<td>MF260</td>
<td>Advanced Propulsion and Aircraft Systems 5.0</td>
</tr>
<tr>
<td>MF270</td>
<td>Aircraft Materials and Structures 7.0</td>
</tr>
<tr>
<td>MF280</td>
<td>Avionics and Electronics 5.0</td>
</tr>
<tr>
<td>MF290</td>
<td>Aviation Business Management 6.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF210*</td>
<td>Flight Planning and Procedures 2 5.0</td>
</tr>
<tr>
<td>MF220*</td>
<td>Navigation and Meteorology 2 7.0</td>
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<tr>
<td>MF231*</td>
<td>Aircraft General Knowledge 2 7.0</td>
</tr>
<tr>
<td>MF241</td>
<td>Theoretical Aerodynamics 5.0</td>
</tr>
<tr>
<td>MF250</td>
<td>Human Factors and Performance 7.0</td>
</tr>
<tr>
<td>MF260</td>
<td>Advanced Propulsion and Aircraft Systems 5.0</td>
</tr>
<tr>
<td>MF270</td>
<td>Aircraft Materials and Structures 7.0</td>
</tr>
<tr>
<td>MF280</td>
<td>Avionics and Electronics 6.0</td>
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</tbody>
</table>

Year 3

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF310*</td>
<td>Instrument Rating Theory (Elective) 4.0</td>
</tr>
<tr>
<td>MF320*</td>
<td>Principles of Instruction (Elective) 4.0</td>
</tr>
<tr>
<td>MF340</td>
<td>Advanced Aerodynamics 6.0</td>
</tr>
<tr>
<td>MF350</td>
<td>Human Factors and Leadership Training 7.0</td>
</tr>
<tr>
<td>MF360</td>
<td>Aviation Project 11.0</td>
</tr>
<tr>
<td>MF370</td>
<td>Aircraft Design 8.0</td>
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<tr>
<td>MF380</td>
<td>Aircraft Navigation Control Systems 4.0</td>
</tr>
<tr>
<td>MF390</td>
<td>Aviation Facilities Management 7.0</td>
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</table>

Semester 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF330* Ground School</td>
<td>7.0</td>
</tr>
<tr>
<td>MF340 Advanced Aerodynamics</td>
<td>6.0</td>
</tr>
<tr>
<td>MF350 Human Factors and Leadership Training</td>
<td>7.0</td>
</tr>
<tr>
<td>MF360 Aviation Project</td>
<td>11.0</td>
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<tr>
<td>MF370 Aircraft Design</td>
<td>8.0</td>
</tr>
<tr>
<td>MF380 Aircraft Navigation Control Systems</td>
<td>4.0</td>
</tr>
<tr>
<td>MF390 Aviation Facilities Management</td>
<td>8.0</td>
</tr>
</tbody>
</table>

*Some or all of the subjects shown with an asterisk will be provided at Moorabbin Airport.

C051 Bachelor of Technology (Building Surveying)

1996 VTAC course code-34350

The 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.

Career potential

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.

**Regulations**

Regulations relating to the course are as for other engineering undergraduate courses and are set out at the beginning of this section.

**Structure of the course**

The Bachelor of Technology in Building Surveying is structured as a cooperative or an 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.

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 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.

**Part-time study**

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.

**Eligibility to apply for entry**

Prerequisite: Mathematical Methods or Specialist Mathematics.

Selection mode: TER and two-stage process with a middle-band of 20%.

Middle-band selection: Applicants who have successfully completed any of Physics (Units 3 & 4), Chemistry (Units 3 & 4), or Specialist Mathematics will be deemed to have a TER up to 5 percentage points higher for each study.

**Victorian Certificate of Education (Tertiary Orientation Program)**

VCE(TOP) courses are considered on the basis of a course of study equivalent to a Year 12 course. Prerequisite and recommended subjects are those equivalent to the Year 12 subjects listed above.

**Admission with advanced standing**

Students who have completed an

- Associate Diploma in Building Surveying will be admitted with substantial exemptions.
- Associate Diploma or certificate of Technology course in a relevant area will be admitted with some exemptions, as appropriate.

**Course structure (1992 syllabus)**

### Year 1

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Creditpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE114</td>
<td>Applied Mechanics 7.0</td>
</tr>
<tr>
<td>CE173</td>
<td>Construction 1 13.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE192A</td>
<td>Statutory Control 1</td>
<td>7.0</td>
</tr>
<tr>
<td>CE192B</td>
<td>Introduction to Law</td>
<td>4.0</td>
</tr>
<tr>
<td>CE196</td>
<td>Communications</td>
<td>5.0</td>
</tr>
<tr>
<td>MM169</td>
<td>Services 1</td>
<td>7.0</td>
</tr>
<tr>
<td>SM193</td>
<td>Mathematics</td>
<td>7.0</td>
</tr>
<tr>
<td>CE114</td>
<td>Applied Mechanics</td>
<td>7.0</td>
</tr>
<tr>
<td>CE173</td>
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Application procedure
Refer to pages 54 and 106.

Further Information
For further information on this new course please contact the School of Civil Engineering and Building.

E030  Bachelor of Technology
(Telecommunications; Computer Systems; Electrical Power & Industrial Engineering; Instrumentation)

The Bachelor of Technology is aimed at providing an upgrade path in engineering technology for senior technical staff, and offer specialist studies in the four areas of Telecommunications, Electrical Power & Industrial Electronics, Computer Systems and Instrumentation. In addition, all programs offer management studies.

While a Bachelor of Technology would normally be of three years, this program provides one and half years advanced standing for holders of suitable post-secondary qualifications, such as relevant TAFE Associate Diploma or a Diploma from one of Thailand's vocational colleges.

Career potential
Graduates of the program will be equipped for senior technical and technology management roles in industry in the respective specialist areas.

Prerequisites
Applicants must hold a suitable diploma-level qualification in a relevant discipline.

Course structure (1997 syllabus)

Semester 1
Communication Principles
Global Networks
Software Design
Engineering Business Skills
Engineering Mathematics 3

Semester 2
Telecommunications Project 1
Computer Communications
Computer Architecture & Hardware
Management Fundamentals
Engineering Mathematics 4

Semester 3
Telecommunications Project 2
Electronic Communications Systems
Telecommunication Networks
DSP and Image Processing
Management Practice

Application procedure
Refer to pages 54 and 106.

Further Information
For further information on this new course please contact the School of Biophysical Sciences & Electrical Engineering.
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Academic staff

Head of Studies
S.E.Weal, BAppSci(RMIT), MA(Lanc)

Course Directors

Bachelor of Business Program
H. M. Paterson, DipEd, BCom(Melb), MEd, PhD(LaT)

Bachelor of Social Science Program
V. Power, BA(SUT), GradDipAppPsych(SIT), MAPsS

Bachelor of Applied Science Program
S. E. Weal, BAppSc(RMIT), MA(Lanc)

Major Discipline Leaders
Accounting
H. M. Paterson, DipEd, BCom(Melb), MEd, PhD(LaT)

Marketing
M. Spark, BCA(VUW), MBA(CranIT), FAICD, AFAIM

Sociology
J. Bryant, BA(Hons)(LaT), DipEd(Melb)

Psychology
G. W. Bates, BCom(Melb), BA(Hons)(Melb)

Media
K. Vigo, BA(Melb)

Computing
P. J. Robb, BA(Melb), MSc(LaT), TSTC(MCAE)

Core Subject Convenors

Information Technology
O. Burmeister, BAppSc(SIT), DipMin(Melb)

Science, Technology and Society
K. Vigo, BA(Melb)

Learning and Communication Behaviour
J. Bryant, BA(Hons)(LaT), DipEd(Melb)

Statistics and Research Methods
K. Lipson, DipEd(HIE), BSc(Melb)
Student computing at Lilydale

For all students of Swinburne at Lilydale a computer is considered to be an essential learning tool, irrespective of the nature of each student's course enrolment. To this end all first year students will be required to take a core subject in information technology. Adequate access to computer laboratory facilities is provided on campus.

All students are strongly encouraged to consider obtaining their own notebook or desktop PC computer with the appropriate modem. Students contemplating the purchase of their own computer and modem should ensure that their retailer guarantees compliance with the technical specifications for student computing at Swinburne at Lilydale. Copies of the technical specification and information about sources of finance are available from the Senior Administrative Officer on 9215 7102. Students are invited to contact the University's Computer Services and Information Technology group on 9214 8574 for further advice.

Students who already have their own computer can continue to use their current machines, but, it is likely that some limitations with off campus computing will occur. The University will not be able to provide technical advice for computers and modems that do not comply with the technical specification for student computing at Swinburne at Lilydale.

Lilydale campus information

Swinburne at Lilydale is a new division of the University which formally commenced operation in 1996.

Core Subjects

All students enrolled in one of the three programs offered by the Division - Business, Applied Science, Social Science - will be required to study a set of core subjects: Information Technology; Science, Technology and Society; Learning and Communication Behaviour; and Statistics and Research Methods. These subjects are to be taken in first year and are offered on the basis of two subjects per semester. Students are strongly advised to carefully consider their choice of major(s) and to ensure that the balance of their first year enrolment is selected with a view to meeting the requirements of these majors.

Students seeking information on course regulations should contact the Divisional office of Swinburne at Lilydale. Enquiries to: 9215 7000.

Student Workload

Standard Enrolment Load

All full-time students are expected to enrol in, and remain enrolled in, four subjects per semester.

All part-time students are expected to enrol in, and remain enrolled in, two subjects per semester.

Variations to the standard enrolment load will only be permitted in exceptional circumstances, and will normally be varied for one semester only.

Overload

Students may be permitted to enrol in one additional subject over the normal semester load if they have passed all enrolled subjects in the previous semester and it is the student's last year of study. Applications must be made in writing to the Senior Administrator before the scheduled re-enrolment period.

Change of enrolment status

Students wishing to change their enrolment status from full-time to part-time may do so at the end of any semester. Change of status from part-time to full-time may be permitted at the end of each year at the time of re-enrolment into the following year. Part-time students will only be considered for a change of enrolment status once they have completed one year of part-time study. Applications for change of enrolment status should be made to the Course Administrator.

Progress Requirements

Completion of first year of undergraduate program

Full-time students are not generally permitted to enrol for second or third year subjects unless they have completed or are concurrently completing all outstanding core subjects (LCT100 - Information Technology; LCL100 - Science, Technology and Society; LCL100 - Learning and Communication Behaviour; and LCR100 - Statistics and Research Methods). Where a student is enrolled for both first and second year subjects and wishes to withdraw from a subject, enrolment in first year subjects must be maintained. Part-time students may be permitted to complete a major sequence of study prior to completing other subjects (excepting LCL100 - Learning and Communication Behaviour) providing permission is granted from the Course Administrator. Students wishing to do this must apply in writing stating their reasons prior to the commencement of each academic year.

Time limit for completion of degree

Full-time undergraduate students 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 and periods of leave of absence).

Leave of absence

Students who have enrolled in a course and wish to take leave of absence with a view to re-enrolling at the end of a specified period should apply on a Leave of Absence form and lodge it with the administrative officer of the appropriate division.

Leave of Absence will be considered within the guidelines of the Leave of Absence procedures outlined in the Higher Education Policies and Procedures handbook.

Students who have been granted Leave of Absence will be notified in writing by the Senior Administrative Officer. Enrolment in all subjects during the period of the leave of absence will be cancelled automatically. Students granted
Leave of Absence will be eligible for a refund of the General Service Fee only if their application is received prior to 31 March 1997 for semester one or 31 August 1997 for semester two.

Students are eligible to apply for the equivalent of two semesters leave.

Requests for variations to the above procedures must be set out in writing to the Senior Administrator for consideration by the Academic Assembly.

**Student assessment and performance**

**Assessment of student performance regulations**

All full-time and part-time students enrolled in the undergraduate courses offered by the Division are expected to maintain a minimum academic standard to be allowed to continue their studies. Assessment of student performance is carried out in accordance with the University’s Assessment Policies and Procedures as set out in the ‘Procedures and Regulations’ chapter of the Handbook.

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

**Special Consideration/Interruption to studies**

Students prevented by illness or other serious cause from satisfying attendance or assessment requirements may apply for Special Consideration. Application form which is available from the Divisional Office.

**Special examinations**

Granting of a special examination is not automatic but a student may apply for a special examination if they are absent from the whole or part of an examination due to illness or other misadventure. Any application must be made on the Special Examination form no later than midday of the third working day after the day of the examination. The form, which is available from the Divisional Office, must be signed by either a medical practitioner, a counsellor from Student Services, Swinburne University; or other person of authority as deemed appropriate. Later receipt of supporting documentation may be negotiated between the student and the Division.

**Students-at risk program**

Students who do not pass at least fifty percent of their enrolled load in any semester will be identified as being ‘at risk’ and will be advised of their status by letter within one week of the publication of results for that semester. Such students may be required to attend a performance review session conducted by the Division or to attend an interview with the Head of Studies (or nominee) or both.

**Unsatisfactory performance**

A student whose performance is unsatisfactory will be required to repeat the failed subject(s) at the earliest opportunity. If a student has completed the necessary prerequisite subjects, they may also be permitted to enrol in additional subjects from the next stage of the program. This additional enrolment is conditional upon the timetable allowing attendance at all classes and no enrolment will be permitted in classes that overlap. If there is a any change in the timetable which results in overlapping classes, it will be the responsibility of the student to notify the Division of the overlap and make the appropriate amendment to their enrolment. The existence of overlapping classes will not be accepted as an excuse for unsatisfactory performance.

**Unsatisfactory academic progress**

The academic progress of a student will be considered to be unsatisfactory if:

- in the two most recent semesters in which the student was enrolled (excluding summer school), the student fails at least fifty per cent of their enrolled workload; or
- a student fails a subject for the second time; or
- the student fails to meet any conditions previously imposed by the Progress Review Committee (refer below).

**Show cause applications**

Students whose progress is considered unsatisfactory will be advised in writing of their status within one week of results being released, and advised that a recommendation has been made that they should be excluded from the course in which they are enrolled. Such students are entitled to make a show cause application to the Student Progress Review Committee (refer below) stating why they should not be excluded. No student will be excluded from the course without first being given the opportunity to show cause to the Student Progress Review Committee. Failure to make contact with the Committee will result in the exclusion of the student before the beginning of the next academic semester. No student will be permitted to re-enrol until the outcome of their show cause application is known.

Show cause applications must be addressed to the Chair of the Student Progress Review Committee and lodged at the Divisional Office by the date specified in the letter to the student advising them of their status.

**Student Progress Review Committee**

**Composition**

The composition of the committee will be:

- a Chair nominated by the Academic Assembly;
- at least two other members, all from academic staff teaching in the relevant courses;
- the Course Administrator (Secretary); and
- where requested by the student, the President of the Student Union or nominee who may be present at the Committee for the consideration of that case only.

**Procedure**

Upon receipt of a show cause application from a student, the Chair and Secretary of the Student Progress Review Committee, will review the case and decide whether it will be necessary to interview the student.

Additional information from appropriate academic staff about the student’s academic work may be sought by the
Student Progress Review Committee before a decision is made.

Students will be advised in writing whether their show cause application has been accepted without interview or whether an interview with the Student Progress Review Committee is required.

Powers
The Student Progress Review Committee may, when considering a show cause application:
- accept the student’s show cause application and allow the student to re-enrol without condition;
- accept the student’s show cause application but place conditions upon the student's enrolment in the following semester;
- require the student to select another major course of study;
- require the student to take leave of absence for a specified period; or
- exclude the student from the course for a minimum of two academic years.

Review of enrolment conditions
The academic record of students placed on condition will be reviewed by the Student Progress Review Committee at the end of the following semester and a decision made to:
- permit the student to continue studying without further condition; or
- impose a further condition on the student for an additional semester; or
- require the student to show cause why they should not be excluded from the course for a minimum of two academic years.

Re-enrolment after a period of exclusion
Students wishing to re-enrol after a period of exclusion must contact the Course Administrator three months before the semester in which they wish to enrol to receive advice about appropriate procedures. Students seeking re-enrolment after a period of exclusion will normally be required to make a written case to the Student Progress Review Committee outlining their activities since they were excluded before they would be permitted to re-enrol. Re-enrolment will be subject to the normal application and selection policies and procedures of the Division.

Appeals against decisions of the Student Progress Review Committee
Students may appeal against any ruling made by the Student Progress Review Committee. This provision is covered within the University's Policies and Procedures relating to Student Assessment and Appeal. These are contained in the Policies and Procedures handbook.

Mobile phones in class
Students are requested, in consideration of others, to turn mobile phones off before entering a class.

UNDERGRADUATE COURSE DESCRIPTIONS

Bachelor of Applied Science
Bachelor of Business
Bachelor of Social Science

L060 Bachelor of Applied Science (Computing)

Swinburne at Lilydale offers a Bachelor of Applied Science course in Computing at the Lilydale campus.

General information
The course combines major studies in computing with a co-major in another discipline or co-minor(s) in another discipline(s).

The Computing major covers 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 studies in the important areas of human-computer interaction and artificial intelligence, as well as a subject which considers the social, legal and ethical implications of computing. There is an emphasis on team project work throughout the major, 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. C++ is the principal programming language used in the major. Other languages are introduced as required.

The Bachelor of Applied Science (Computing) course:
- provides a coherent, broad-based coverage of the discipline of computing;
- provides a coherent coverage of a major or minor complementary study (such as accounting, marketing, media studies, psychology or sociology);
- prepares students for entry into the computing profession and equally, for those who choose, into the postgraduate field of computing;
- provides an environment in which students are exposed to the ethical and societal issues associated with the profession; and
- prepares students to apply their knowledge to specific constrained problems and to produce solutions, especially working in team environments on projects.

These statements accord with the goals set by the IEEE Computer Society.

This course will be offered in multi-modal format. By using computers, students will increasingly undertake parts of their study independently. The computer will be a means of instruction, communication and computation that can be used at home, on campus or at one of the University’s study centres. Students are expected to provide their own desktop or notebook PC-compatible computer, together with a modem for communication to the University’s machines.
and the Internet, from their homes. This will lead to a reduction in the time needed to be spent in formal instruction on campus.

Course duration
The Bachelor of Applied Science course is normally a three year full-time degree. However, students may apply to undertake industry based learning in which case the course will be of four years duration. The 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.

Industry Based Learning (IBL)
The optional four year course is taken in IBL format which includes one year of paid work experience. Students who have successfully completed the first two years of their course will be given the opportunity to apply to undertake IBL.

Career potential
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.

Professional recognition
This course is currently (1996) being considered 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.

Prerequisites
Units 3 and 4 - Mathematical Methods. Consideration will be given to the full range of an applicant’s VCE studies and results, and the level of performance in CAT’s in prerequisite studies, 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, educational background, and in some cases, an interview. As a rule, there is a quota on numbers selected in this category each year.

Advanced standing
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.

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 completion of the Computing major plus one of the following:

- two minors; or
- one minor; or
- one major.

Students may select a major in accounting, marketing, media, psychology or sociology. Minors are offered in accounting, business computing, business law, economics, economics/finance, marketing, media, psychology and sociology.

A major consists of six subjects post Stage 1, with at least two subjects at Stage 3. For professional accreditation in Accounting or Psychology, students must take subjects as specified. A minor comprises four subjects post Stage I with at least one subject at Stage 2, except in the case of Psychology. Students should refer to the Swinburne at Lilydale sections of the Handbook on the Bachelor of Business or the Bachelor of Social Science degrees for further details on the majors and minors that are available.

Students are required to complete four core subjects in first year. These are:

- LCI100 Information Technology
- LCL100 Learning and Communication Behaviour
- LCT100 Science, Technology and Society
- LCG100 Statistics and Research Methods

In addition, students must complete prerequisite subjects for chosen majors and minors.

Details of major

Stage 1
- LCS100 Computer Science 1
- LCS200 Computer Science 2

Stage 2
- LCS300 Data Structures and Algorithms
- LCS314 Software Engineering/Systems
- LCS305 Database
- LCS407 Data Communications

Stage 3
- LCS606 Computing in the Human Context
- LCS613 Computer Science Team Project

Details of minor

Stage 1
- LCS100 Computer Science 1
- LCS200 Computer Science 2

Stage 2
- LCS300 Data Structures and Algorithms
- LCS314 Software Engineering/Systems
Stage 3

Either one of:

LCS606 Computing in the Human Context
LCS613 Computer Science Team Project

Computing elective subjects

Depending upon the combination of majors and minors taken, students will have the opportunity to undertake one or more of the following computing electives:

LCS204 Formal Methods
LCS306 Human-Computer Interaction
LCS412 Systems Programming
LCS419 Artificial Intelligence

These electives will be made available depending upon demand and timetabling constraints.

LO55 Bachelor of Business

The Division of Swinburne at Lilydale offers a Bachelor of Business course at the Lilydale campus.

General information

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 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 Business is planned to enable students to:

- 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.

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.

Entrance 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 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. As a rule, there is a quota on numbers selected in this category each year.

Advanced standing

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.

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 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 computer 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 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.

Some students will undertake accounting studies as an essential adjunct to a career in business. An accounting background is of great benefit to those seeking careers in general management. Other students will wish to pursue a career in accounting, and choosing the appropriate combination of subjects will allow them to become members of the professional accounting bodies: the Australian Society of Certified Practising Accountants and the Institute of Chartered Accountants. Swinburne accounting qualifications are recognised both in Australia and overseas.

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. Accounting at Swinburne is the key to a great career.

**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 major 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 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.

**Economics**

Understanding economic principles is a fundamental requirement for a career in business. An economic approach to important practical social and business problems is the focus of the economics major.

*Stage one* is designed to acquaint students with the economic principles necessary to understand and evaluate economic commentary and reports and to analyse the operations of government and industry in Australia.

In *stage two* students may choose from subjects such as macroeconomics, managerial economics and macroeconomic policy.

The *third* stage provides an added insight into some the specialist practical areas of international finance and financial institutions and monetary policy.

Students completing an economics minor find employment in a wide range of challenging fields. These include administration in both public and private sectors, management consulting, economic policy evaluation and financial analysis and economic research.

**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. It is taught under the auspices of economics and accounting.

Understanding economic principles is a fundamental requirement for a career in business. An economic approach to important practical social and business problems is the focus of the economics major.

In *stage two* students may choose from subjects such as macroeconomics, managerial economics and macroeconomic policy.

The *third* stage provides an added insight into some the specialist practical areas of international finance and financial institutions and monetary policy.

Students completing an economics minor find employment in a wide range of challenging fields. These include administration in both public and private sectors, management consulting, economic policy evaluation and financial analysis and economic research.

**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 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, product and services management, tourism, retail, advertising and promotion, international marketing and cultures.

Students are encouraged to think through problems and to find their own answers. They are introduced to understanding 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 all part of the marketing curriculum.

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 accounting or marketing. In addition, students may select majors in media, psychology, computing or sociology. Some combinations, for example both psychology and accounting with professional recognition, will not be possible within the twenty-four subject structure.

Minors are offered in accounting, business computing, economics, economics/finance, business law, marketing, media, psychology and sociology. 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.

Students are required to complete four core subjects in first year. These are:

- LCI100 Information Technology
- 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*
- LBH300 Organisations and Management#

* To be taken in second year
# To be taken in second year or Stage 3 of the program

In addition students must complete prerequisite subjects for chosen majors and minors.

Details of majors and minors
Accounting for Professional Recognition
Stage 1
- LBC100 Accounting 1
Stage 2
- 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

In addition the following subjects are required
- LCR100 Statistics and Research Methods
- LCI100 Information Technology
- LBE100 Microeconomics
- LBE200 Macroeconomics
-LBL100 Introduction to Commercial Law
-LBL200 Company Law

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:
- LBC300 Accounting Theory
- LBC301 Taxation
- LBC302 Auditing
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
Stage 1
LCI100 Information Technology
Stage 2
LBT200 Data Analysis and Design
LBT201 Business Computing
LBT202 Business Computing Applications
Stage 3
LBT300 Information Technology Strategies
Economics
Stage 1
LBE300 Microeconomics
Stage 2
LBE200 Macroeconomics
LBE201 Managerial Economics
LBE202 Macroeconomic Policy
Stage 3
One of:
LBE300 Financial Institutions and Monetary Policy
LBE301 International Finance
Economics/Finance
Stage 1
LBC100 Accounting 1
LBE300 Microeconomics
Stage 2
LBE200 Macroeconomics
LBC204 Financial Management 1
Stage 3
LBC304 Financial Management 2
LBE301 International Finance
Law
Stage 1
LBL100 Introduction to Commercial Law
Stage 2
LBL200 Company Law
LBL201 Marketing Law
Stage 3
LBC301 Taxation
LBC305 Advanced Taxation
Marketing
(for students who do not major in Marketing)
Stage 1
LBM100 The Marketing Concept
Stage 2
LBM200 Market Behaviour
LBM201 Marketing Planning
Stage 3
LBM300 Product Management
LBM301 Services Marketing and Management

LO50 Bachelor of Social Science
The Division of Swinburne at Lilydale offers the Bachelor of Social Science course at the Lilydale campus.
Students currently enrolled in N050 Bachelor of Arts or A055 Bachelor of Business are not eligible to enrol in subjects in the new courses LO50 Bachelor of Social Science or LO55 Bachelor of Business (subjects with codes beginning 'L').

General information
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.

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.

Entrance 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. As a rule, there is a quota on numbers selected in this category each year.

Advanced standing
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.

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 BA 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 and LSY101 Psychology 101. Each of these subjects comprises lectures, practical work and instruction in statistical analysis.

In stage two, LSY200 Cognition and Human Performance, LSY201 Development Psychology and LSY202 Social Psychology are offered and for students wishing to major in psychology LSY203 Design and Measurement 2 must be taken.

In stage three, subjects offered are LSY300 The Psychology of Personality, LSY301 Psychological Measurement and LSY302 Psychological Foundations of Counselling. In addition, students majoring in psychology must take LSY303 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 available from the School of Psychology.
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 social 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, deviance, 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.

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**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 be offered majors in accounting, computing and marketing. 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.

A major consists of six subjects post first stage, 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 first stage with at least one subject at stage 3, except in the case of Psychology.

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:

- LCI100 Information Technology
- LCL100 Learning and Communication Behaviour
- LCT100 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
- LSY203 Design and Measurement 2

**Stage 3**

- LSY300 The Psychology of Personality
- LSY301 Psychological Measurement
- LSY302 Psychological Foundations of Counselling
- LSY303 Design and Measurement 3
Details of majors

Media
Stage 1
LSM100  An Introduction to Media, Literature and Film
Stage 2
LSM200  Popular Culture
LSM201  Writing for the Media
LSM202  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
LSY203  Design and Measurement 2
Stage 3
LSY300  The Psychology of Personality
LSY301  Psychological Measurement
LSY302  Psychological Foundations of Counselling
LSY303  Design and Measurement 3

Sociology
Stage 1
LSS100  Introduction to Sociology
Stage 2
LSS200  Sociology of Deviance and Social Control
LSS201  Sex and Gender in Society
Stage 3
LSS300  Sociology of Organisations
LSS301  Current Issues in Sociology: Environment and Population
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
LSM202  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
LSY201  Developmental Psychology
LSY202  Social Psychology
LSY203  Design and Measurement 2
Stage 3
LSY300  The Psychology of Personality
LSY301  Psychological Measurement
LSY302  Psychological Foundations of Counselling
LSY303  Design and Measurement 3

Sociology
Stage 1
LSS100  Introduction to Sociology
Stage 2
LSS200  Sociology of Deviance and Social Control
LSS201  Sex and Gender in Society
Stage 3
LSS300  Sociology of Organisations
LSS301  Current Issues in Sociology: Environment and Population
LSS302  Methodology of Social Research
LSS303  Sociology and Social Policy
## Contents

**Postgraduate Courses: General Information**

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## Postgraduate courses

**Division of Business, Humanities and Social Science**

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<th>Duration</th>
<th>Entry Requirements</th>
<th>Special Comments</th>
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</tr>
</thead>
<tbody>
<tr>
<td>A070</td>
<td>Graduate Certificate in Business Administration</td>
<td>H</td>
<td>Fulltime</td>
<td>1 yr</td>
<td>Refer to course entry</td>
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<td>171</td>
</tr>
<tr>
<td>Y072</td>
<td>Graduate Certificate in Enterprise Management</td>
<td>C</td>
<td>Fulltime</td>
<td>1 yr</td>
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<td>172</td>
</tr>
<tr>
<td>Y075</td>
<td>Graduate Certificate in Enterprise Management (Family Business)</td>
<td>C</td>
<td>Fulltime</td>
<td>1 yr</td>
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<td>172</td>
</tr>
<tr>
<td>N079</td>
<td>Graduate Certificate in Housing Management and Policy</td>
<td>H</td>
<td>Fulltime 1 sem</td>
<td>1 yr</td>
<td></td>
<td></td>
<td>173</td>
</tr>
<tr>
<td>A075</td>
<td>Graduate Certificate of Information Systems</td>
<td>H</td>
<td>Fulltime</td>
<td>1 yr</td>
<td></td>
<td></td>
<td>173</td>
</tr>
<tr>
<td>Y074</td>
<td>Graduate Certificate in Management (Manufacturing)</td>
<td>C</td>
<td>Fulltime</td>
<td>1 yr</td>
<td></td>
<td></td>
<td>174</td>
</tr>
<tr>
<td>A074</td>
<td>Graduate Certificate in Taxation and Finance</td>
<td>H</td>
<td>Fulltime</td>
<td>1 yr</td>
<td></td>
<td></td>
<td>174</td>
</tr>
<tr>
<td>Y073</td>
<td>Graduate Certificate in Training Management</td>
<td>H</td>
<td>Fulltime</td>
<td>1 yr</td>
<td></td>
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</tr>
</tbody>
</table>

### Graduate Diplomas

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Campus</th>
<th>Course Mode &amp; Length</th>
<th>Duration</th>
<th>Entry Requirements</th>
<th>Special Comments</th>
<th>Refer Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>N084</td>
<td>Graduate Diploma in Applied Psychology</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td>An appropriate tertiary degree or diploma...</td>
<td>For all graduate diplomas, a limited number of places are available for applicants with no formal qualifications but considerable work experience.</td>
<td>175</td>
</tr>
<tr>
<td>A083</td>
<td>Graduate Diploma in Business Administration</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td></td>
<td></td>
<td>176</td>
</tr>
<tr>
<td>Y082</td>
<td>Graduate Diploma in Entrepreneurship and Innovation</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td></td>
<td>Refer to course entry</td>
<td>177</td>
</tr>
<tr>
<td>***</td>
<td>Graduate Diploma in Family Therapy</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td>An appropriate tertiary degree or diploma.</td>
<td></td>
<td>178</td>
</tr>
<tr>
<td>A082</td>
<td>Graduate Diploma in Information Systems</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td></td>
<td></td>
<td>178</td>
</tr>
<tr>
<td>N083</td>
<td>Graduate Diploma in Japanese</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td></td>
<td></td>
<td>179</td>
</tr>
<tr>
<td>N087</td>
<td>Graduate Diploma in Japanese for Professionals</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td></td>
<td></td>
<td>180</td>
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<tr>
<td>N088</td>
<td>Graduate Diploma in Korean</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td></td>
<td></td>
<td>180</td>
</tr>
<tr>
<td>N081</td>
<td>Graduate Diploma in Korean for Professionals</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td></td>
<td></td>
<td>181</td>
</tr>
<tr>
<td>Y081</td>
<td>Graduate Diploma in Management</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
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<td>181</td>
</tr>
<tr>
<td>Y084</td>
<td>Graduate Diploma in Management (Manufacturing)</td>
<td>C</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td></td>
<td></td>
<td>182</td>
</tr>
<tr>
<td>A089</td>
<td>Graduate Diploma in Market Modelling</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td></td>
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</tr>
<tr>
<td>A085</td>
<td>Graduate Diploma in Organisation Behaviour</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td></td>
<td></td>
<td>184</td>
</tr>
<tr>
<td>***</td>
<td>Graduate Diploma in Social Planning &amp; Research</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td>No information available</td>
<td>See course provider</td>
<td>185</td>
</tr>
<tr>
<td>N089</td>
<td>Graduate Diploma in Urban Research &amp; Policy</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td></td>
<td></td>
<td>185</td>
</tr>
<tr>
<td>N089</td>
<td>Graduate Diploma in Writing</td>
<td>H</td>
<td>Fulltime</td>
<td>2 yrs</td>
<td></td>
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</table>
# Postgraduate courses

## Division of Business, Humanities and Social Science

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Campus</th>
<th>Fulltime</th>
<th>Part-time</th>
<th>Entry requirements</th>
<th>Special comments</th>
<th>Ref Page</th>
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<tr>
<td>NO90</td>
<td>Master of Arts (by research)</td>
<td>H</td>
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<td>Refer to course entry</td>
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<td>193</td>
</tr>
<tr>
<td>NO91</td>
<td>Master of Arts in Counselling Psychology</td>
<td>H</td>
<td>2 yrs</td>
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<tr>
<td>NO92</td>
<td>Master of Arts in Japanese</td>
<td>H</td>
<td>2 yrs</td>
<td></td>
<td></td>
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<td>187</td>
</tr>
<tr>
<td>NO94</td>
<td>Master of Arts in Korean</td>
<td>H</td>
<td>2 yrs</td>
<td></td>
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<td>187</td>
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<tr>
<td>NO93</td>
<td>Master of Arts in Urban Research and Policy</td>
<td>H</td>
<td>2 yrs</td>
<td></td>
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<td></td>
<td>188</td>
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<tr>
<td>A090</td>
<td>Master of Business (by research)</td>
<td>H</td>
<td>2 yrs</td>
<td></td>
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<td>194</td>
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<tr>
<td>A091</td>
<td>Master of Business (Organisation Behaviour) (by coursework)</td>
<td>H</td>
<td>2 yrs</td>
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<tr>
<td>A093/4/5</td>
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<td>H</td>
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<td>NO95</td>
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<td>Y091</td>
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</tr>
<tr>
<td>A097</td>
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<td>4 yrs</td>
<td></td>
<td></td>
<td>192</td>
</tr>
<tr>
<td>Y095</td>
<td>Master in Innovation and Enterprise (by research)</td>
<td>H</td>
<td>3 yrs</td>
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<td>A096</td>
<td>Master of International Business</td>
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<td>A002</td>
<td>Professional Doctorate in Organisational Dynamics</td>
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<td>Please see the course provider.</td>
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<td>N002</td>
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<td>A001</td>
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<tr>
<td>N001</td>
<td>Doctor of Philosophy (Business)</td>
<td>H</td>
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</tr>
<tr>
<td>Y001</td>
<td>Doctor of Philosophy (Innovation and Enterprise)</td>
<td>H</td>
<td></td>
<td></td>
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</tr>
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</table>

Further information on the Centre for Innovation & Enterprise courses exists on page 195.

For regulations concerning higher degrees by research and professional doctorates please see the separate publication: *Higher Education Policies and Procedures*.
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Duration</th>
<th>Entry Requirements</th>
<th>Special Comments</th>
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<td>E077</td>
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<td>M084</td>
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<td>E075</td>
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<tr>
<td>2170</td>
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<tr>
<td>***</td>
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<td>Refer to course entry</td>
<td>Mid year intake</td>
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<tr>
<td>***</td>
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</tr>
<tr>
<td>Z189</td>
<td>Graduate Diploma in Applied Science (Health Statistics)</td>
<td>H 2 yrs</td>
<td>2 yrs</td>
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<td>2085</td>
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<tr>
<td>P085</td>
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<tr>
<td>E085</td>
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<td>C082</td>
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<tr>
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<td>M081</td>
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<td>2180</td>
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<td>M083</td>
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<td>H 2 yrs</td>
<td>2 yrs</td>
<td>Refer to course entry</td>
<td>Mid year intake</td>
<td>205</td>
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<tr>
<td>***</td>
<td>Robotics and Automation*</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>E086</td>
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<td>2 yrs</td>
<td>Refer to course entry</td>
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<td>206</td>
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* Subject to accreditation
### Postgraduate courses

**Division of Science, Engineering and Design**

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<th>Course Code</th>
<th>Course Title</th>
<th>Compl.</th>
<th>Handbook</th>
<th>Course Mode &amp; Length</th>
<th>Entry Requirements</th>
<th>Special Comments</th>
<th>Ref/Page</th>
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<tbody>
<tr>
<td>Z090</td>
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<td>H</td>
<td>2 yrs</td>
<td>4 yrs</td>
<td>Refer to course entry</td>
<td>Intake any time</td>
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</tr>
<tr>
<td>Z091</td>
<td>Master of Applied Science (Applied Colloid Science - by coursework)</td>
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<td>1.5 yr</td>
<td>3 yrs</td>
<td>Refer to course entry</td>
<td>206</td>
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<tr>
<td>Z093</td>
<td>Master of Applied Science (Biomedical Instrumentation coursework)</td>
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<td>1.5 yr</td>
<td>3 yrs</td>
<td>Refer to course entry</td>
<td>Mid year intake</td>
<td>207</td>
</tr>
<tr>
<td>Z096</td>
<td>Master of Applied Science (Social Statistics - by coursework)</td>
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<td>3.5 yrs</td>
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<td>Refer to course entry</td>
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**Master of Engineering (by coursework)**

<table>
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<tr>
<th>Code</th>
<th>Course Title</th>
<th>Compl.</th>
<th>Handbook</th>
<th>Course Mode &amp; Length</th>
<th>Entry Requirements</th>
<th>Special Comments</th>
<th>Ref/Page</th>
</tr>
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<tbody>
<tr>
<td>E097</td>
<td>Master of Engineering (Biomedical Engineering)</td>
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<td>3 yrs</td>
<td>Refer course entry</td>
<td>Mid yr intake available</td>
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<td>3 yrs</td>
<td>Refer course entry</td>
<td>Mid yr intake available</td>
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<tr>
<td>E095</td>
<td>Master of Engineering (Computer Systems Engineering)</td>
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<td>1.5 yr</td>
<td>3 yrs</td>
<td>Refer course entry</td>
<td>Mid yr intake available</td>
<td>209</td>
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<tr>
<td>C092</td>
<td>Master of Engineering (Construction Management)</td>
<td>H</td>
<td>1.5 yr</td>
<td>3 yrs</td>
<td>Refer course entry</td>
<td>Mid yr intake available</td>
<td>209</td>
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<tr>
<td>***</td>
<td>Master of Engineering* (Industrial Engineering)</td>
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<td>Refer course entry</td>
<td>210</td>
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<tr>
<td>Z190</td>
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<tr>
<td>***</td>
<td>Master of Engineering* (Risk Management)</td>
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<td>Refer course entry</td>
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<tr>
<td>***</td>
<td>Master of Engineering* (Robotics and Automation)</td>
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<td>Refer course entry</td>
<td>211</td>
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<tr>
<td>E096</td>
<td>Master of Engineering (Telecommunications)</td>
<td>H</td>
<td>1.5 yr</td>
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<td>Refer course entry</td>
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<td>1090</td>
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<td>H</td>
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**Master of Engineering (by research)**

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<tr>
<td>Y096</td>
<td>Master of Engineering (Civil Engineering)</td>
<td>H</td>
<td>2 yrs</td>
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<td>Refer course entry</td>
<td>Intake any time</td>
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<tr>
<td>Y097</td>
<td>Master of Engineering (Electrical Engineering)</td>
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<td>4 yrs</td>
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<td>Y098</td>
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<td>4 yrs</td>
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**MD90** Master of Design (by research) | No information available. Please consult course provider. | |

**Doctor of Philosophy**

<table>
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<td>Y006</td>
<td>Civil Engineering</td>
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<td>3 yrs</td>
<td>6 yrs</td>
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<tr>
<td>Y007</td>
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<td>Y008</td>
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</table>

**DD90** Design | No information available. Please consult course provider. | |
Abbreviations of postgraduate awards

Division of Business, Humanities and Social Science

Humanities
Graduate Diploma of:
Applied Philosophy Grad DipAppPhil
Applied Psychology Grad DipAppPsych
Asian Studies Grad DipAsStuds
Equal Opportunity Administration Grad DipEOAdmin
Family Therapy Grad DipFamTher
Japanese Grad DipJapanese
Japanese for Professionals Grad DipJapanese(Prof)
Korean Grad DipKorean
Korean for Professionals Grad DipKorean(Prof)
Social Planning and Management Grad DipSocPlanMgt
Philosophy and Cultural Inquiry Grad DipPhil&CultInq
Urban Research and Policy Grad DipUrbResPol
Writing Grad DipWriting

Degree of Master
Master of Applied Philosophy MA
Master of Arts (by research) MA
Counselling Psychology MA(CounsPsych)
Japanese MA(Japanese)
Korean MA(Korean)
Urban Research and Policy MA(UrbResPol)
Master of Asian Studies MAAsStuds
Master of Communication MAComms
Master of Philosophy and Cultural Inquiry MPhil&CultInq

Graduate Diploma
Accounting Grad DipAcc
Business Administration Grad DipBusAdmin
Corporate Finance Grad DipCorpFin
Enterprise and Innovation Grad DipEnt&Innov
Information Systems Grad DipInfoSys
Management Grad DipMgt
Management (Manufacturing) Grad DipMgt(Manuf)
Market Modelling Grad DipMktMod
Organisation Behaviour Grad DipOrgBeh

Degree of Master
Master of Business (by research) MBus
Information Systems MBus(InfTech)
Organisation Behaviour MBus(OrgBeh)
Master of Business Administration MBA
Master of Enterprise Innovation MEI
Master of Information Systems MInfSys
Master of Information Technology MInfTech
Master of International Business MIntBus
*Jointly with the Division of Science, Engineering and Design.

Division of Science, Engineering and Design

Science
Graduate Certificate
Graduate Certificate of Applied Science
Computer Science Grad CertAppSc
Health Statistics Grad CertAppSc
Social Statistics Grad CertAppSc
Graduate Certificate in Cleaner Production Grad CertClePro
Graduate Certificate in Disaster Management Grad CertDisMgt

Graduate Diploma
Graduate Diploma of Applied Science
Applied Colloid Science Grad DipAppSc
Biomedical Instrumentation Grad DipAppSc
Computer Science Grad DipAppSc
Health Statistics Grad DipAppSc
Industrial Chemistry Grad DipAppSc
Industrial Biochemistry Grad DipAppSc
Social Statistics Grad DipAppSc
Graduate Diploma in Disaster Management Grad DipDisMgt
Nested suite of programs

Several disciplines offer suites of programs (Graduate Certificate, Graduate Diploma and Masters) which enable students the flexibility of entry points. Suites are available in a number of disciplines including information systems, business administration, innovation, telecommunications and risk management.

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.

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 advance 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.

Entrance requirements

Applicants for admission to postgraduate courses normally are 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 indicates an ability to benefit from the course.

Requirements for specified courses are set out in the relevant divisional sections.

Requirements for admission to higher degrees by research are set out in a separate Policies and Procedures handbook.
Application procedure
All applications for enrolment in postgraduate courses other than Master degree by research and by publication or PhD and Professional Doctorates must be made to the Admissions Officer from whom application forms are available, 9214 8386.

Applications for admission to postgraduate courses should be received by:

Division of Business, Humanities & Social Science
Telephone: 9214 5332/5335 or 24 hour Hot-line 9214 8512
Fax: 9214 5336
Email: pgradoffice@swin.edu.au
Closing dates for 1997 entry:

Round 1 (timely applications)
Closing date: 8 November 1996

Round 2 (later applications)
Closing date: 20 January 1997

Division of Science, Education & Design
Telephone: 9214 8263
Fax: 9818 3645
Closing dates for 1997 entry:

Round 1 (timely applications)
Closing date: 15 November 1996

Round 2 (later applications)
Closing date: 17 January 1997

Higher Degrees by research
All initial enquiries regarding higher degrees by research (Masters, PhD or professional doctorates) should be made to the School or discipline area in which the applicant is interested in undertaking the degree, or to the Swinburne Graduate Research School, on 9214 5224, for more general enquiries on the fields in which supervision may be available.

Enquiries about the Professional Doctorate in Organisation Dynamics (by coursework and research) can be made to the School of Management in the Division of Business, Humanities and Social Science. Enquiries about the Professional Doctorate in Psychology can be made to the School of Social and Behavioural Sciences also in the Division of Business, Humanities and Social Science.

Enrolment and admission to candidature are two separate processes, both of which must be completed in accordance with University regulations. Applicants may be accepted for provisional enrolment by the Head of School, subject to their being admitted to candidature for the degree.

Alternatively, persons may apply for admission to candidature and then enrol. The initial steps in approval for admission to candidature, and in enrolment, are undertaken within Schools. Admission to candidature then requires approval of the relevant University committee at Divisional or University level. Further information on the steps involved in candidature is available from Divisional Research and Graduate Studies Officers or the Swinburne Graduate Research School.

Fees

Postgraduate Course Fee Refund Policy and Procedures
This policy applies to students who are Australian permanent residents and enrol in any fee paying postgraduate course offered by the University.

Procedures
- Students who withdraw from their course by the due date for payment will be refunded their fees without penalty.
- Students who withdraw from their course between the day after due date for payment and the HECS census date (31 March or 31 August) will be charged a $100 administrative fee.
- Students who withdraw from their course after the HECS census date will not be refunded fees for the current semester. A student seeking exemption from this procedure may appeal on the grounds of exceptional or unforeseen circumstances, within the Division of Business, Humanities and Social Science, to the Deputy Head of Division or the Manager, Student and Course Administration and within the Division of Science, Engineering and Design, to the Head of the relevant School or Division.
- Students who withdraw from a subject or subjects before the HECS census date will be refunded the applicable subject fee for the current semester, provided they remain enrolled in at least one other subject in that semester.
- A student who withdraws from a subject or subjects after the HECS census date will not be refunded fees for the current semester. A student seeking exemption from this procedure may appeal on the grounds of exceptional or unforeseen circumstances, within the Division of Business, Humanities and Social Science, to the Deputy Head of Division or the Manager, Student and Course Administration and within the Division of Science, Engineering and Design to the Head of the relevant School or Division.
- A student who resumes study after an approved leave of absence will be charged the postgraduate course fee applicable at the time of rejoining the course.

Scholarships
A number of different scholarships are available. Contact the Swinburne Graduate Research School for details.
Telephone 9214 5224.
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**Business, Humanities & Social Science**

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<td>Family Therapy</td>
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<td>Information Systems</td>
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<td>Japanese</td>
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<td>Japanese for Professionals</td>
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<td>Korean</td>
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<td>Korean for Professionals</td>
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<tr>
<td>Management</td>
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<td>Management (Manufacturing)</td>
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<td>Market Modelling</td>
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<td>Organisation Behaviour</td>
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<td>Urban Research and Policy</td>
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<td>Writing</td>
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<td>Counselling Psychology</td>
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<td>Japanese</td>
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<td>Korean</td>
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<td>Urban Research and Policy</td>
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<tr>
<td>Master of Business (by coursework and thesis)</td>
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<tr>
<td>Organisation Behaviour</td>
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<td>Master of Business Administration (MBA)</td>
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<tr>
<td>Master of Communications</td>
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<td>Master of Enterprise Innovation (MEI)</td>
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<td>Master of Information Systems</td>
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<td>Master of International Business</td>
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<td>Master of Arts (by research)</td>
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<td>Master of Business (by research)</td>
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<tr>
<td>Master in Innovation and Enterprise (by research)</td>
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<tr>
<td>Doctor of Philosophy (Arts)</td>
<td>194</td>
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<tr>
<td>Doctor of Philosophy (Business)</td>
<td>194</td>
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<tr>
<td>Doctor of Philosophy (Innovation &amp; Enterprise)</td>
<td>195</td>
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<tr>
<td>Professional Doctorate in Psychology</td>
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**Centre for Innovation & Enterprise** | 196 |
Applications for all postgraduate courses in the Division of Business, Humanities and Social Science should be made on the Postgraduate Application form, available from either the:
Postgraduate Office
Ground Floor, 9 Frederick Street, Hawthorn Campus
Telephone: 9214 5332/5335
Hotline Information: 9214 8512
Fax: 9214 5336
EMail: pgradoff@swin.edu.au
Or
Information Office
Ground Floor, Administration Building
John Street, Hawthorn Campus
Telephone: 9214 8444.
Deadlines apply, see previous chapter.

Standards of progress
All full-time and part-time students enrolled in postgraduate courses in the Division are expected to maintain a minimum academic standard to be allowed to continue their studies.

Time limit for completion of degree
This section does not apply to higher degree by research students.

Except where specified otherwise in specific course rules, full-time students are normally expected to complete their postgraduate program within 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 postgraduate program within a period equal to twice the full-time completion time plus one year (excluding leave of absence).

Students who do not complete their courses within the specified time will be advised in writing of their status, and required to apply to Divisional Board for an extension of time to complete the course. Application must detail the reasons for the delay in completing the course within the specified period.

Higher degree students
Students enrolled for a Master by research or publication or Doctor of Philosophy are governed by progress rules detailed in University statutes.

Graduate Certificates

A070 Graduate Certificate in Business Administration

This program is a two semester course intended to provide entry to management studies for managers with excellent business experience. Special provision is made for non-graduate entrants who are excluded from similar graduate diploma programs through lack of an acceptable undergraduate qualification.

Course objectives
At the completion of the course, it is expected that candidates:
- will have completed a business course containing a body of knowledge and technology which is relevant to immediate and potential business opportunities;
- will have a recognised qualification which will assist them in developing their careers in business, and;
- will be equipped with suitable skills necessary to continue with further postgraduate study in business administration.

As candidates will already be established in business careers, it is expected that the key vocational outcomes will arise from better current job performance as well as new opportunities opening in the broader fields of management and administration within their current organisations.

Entrance requirements
In order to be accepted into this course, applicants must have:
- a recognised undergraduate or postgraduate degree in a discipline other than business and a minimum of four years practical business experience; or
- at least six years practical business experience at middle management level and a good track record as judged by the selection panel.

Course structure

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC401</td>
<td>Accounting for Management</td>
</tr>
<tr>
<td>BE401</td>
<td>Economics for Businesses</td>
</tr>
<tr>
<td>BH403</td>
<td>Managing People and Organisations</td>
</tr>
<tr>
<td>BM401</td>
<td>Marketing Management</td>
</tr>
<tr>
<td>BT411</td>
<td>Computing for Management</td>
</tr>
</tbody>
</table>

The course is based on two sixteen-week semesters. Classes will be conducted either on Friday afternoons from 1.00pm to 6.00pm or on Saturdays from 8.00am to 1.00pm.
The course may be run 'in-house' for organisations where a significant number of candidates are available. In such cases, organisations may choose an alternative course comprising:

BC401  Accounting for Management  
BE401  Economics  
BH403  Managing People and Organisations  
BM401  Marketing Management

**Progression to graduate diploma**

Students who perform very well in the graduate certificate may be eligible for entry into the Graduate Diploma in Business Administration. However, success in the graduate certificate does not guarantee entry to the graduate diploma.

**Fees**

The Graduate Certificate in Business Administration is a full-fee paying course.

**Course convener**

Garry Watts on 9214 8443.

**Y072  Graduate Certificate in Enterprise Management**

**Course objectives**

The Graduate Certificate provides the basic entry level for people seeking careers and qualifications in the management of innovation, 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 behaviour, marketing and quantitative assessment skills including basic accountancy - into a multidisciplinary 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 four first subjects of both the Graduate Diploma in Entrepreneurship and Innovation and the Master of Enterprise Innovation programs.

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.

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.

**Entrance 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.

**Duration**

This course is one year part-time.

**Course structure**

**Year 1 • The Graduate Certificate year**
Also year one of the Graduate Diploma in Entrepreneurship and Innovation and the Master of Enterprise Innovation.

**Semester 1**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Title</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF 713</td>
<td>The Entrepreneurial Organisation</td>
<td>39</td>
</tr>
<tr>
<td>EF 936</td>
<td>Opportunity Evaluation Techniques</td>
<td>39</td>
</tr>
</tbody>
</table>

**Semester 2**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Title</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF 810</td>
<td>New Venture Marketing</td>
<td>39</td>
</tr>
<tr>
<td>EF 938</td>
<td>Commercialising Innovation</td>
<td>39</td>
</tr>
</tbody>
</table>

**Further information**

Course convener  
Dr Bruce Johnson on 9818 3417.

Enquiries  
Alison Dew on 9288 8276

**Y075  Graduate Certificate in Enterprise Management (Family Business)**

**Career potential**

This program is interdisciplinary in content and in expected outcomes, combining the strengths of 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.

Entrance 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.

Duration
Normally one year part-time

Course structure
Code Title
EF713 The Entrepreneurial Organisation
EF936 Opportunity Evaluation Techniques
EF721 Operating the Family Business Internationally
EF722 Strategic Management of the Family Business

Further information
Course convener
Dr Bruce Johnson on 9818 3417.
Enquiries
Alison Dew on 9288 8276

Graduate Certificate in Housing Management and Policy

This course 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.

Course objectives
The objective of the course 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 course is thus split between knowledge of housing issues and skills in administration, management, research and policy.

The formal objects of the course 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.

Entrance requirements
Applicants 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. 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.

Course structure
The course consists of four subjects taken over two years part-time (one subject per semester). Five subjects are offered, three of which are compulsory (AS485, AS486, AS487) and two of which are electives (AS488, AS489).

First Year
AS485 The Australian Housing System (Semester 1)
AS487 Housing Management and Administration (Semester 2)

Second Year
AS486 Housing Policy and Research (Semester 1)
AS488 Housing Economics (Semester 2)
OR
AS489 Issues in Housing Provision (Semester 2)

Fees
The Graduate Certificate in Housing Management and Policy is a full-fee paying course.

Course convener
Assoc. Professor Terry Burke on 9214 8109

Graduate Certificate of Information Systems

This course is equivalent to one semester of full-time study or two semesters part-time. There are options which are relevant to people without any computing experience and to those with substantial computing experience.

Course objectives
To widen the opportunities for access and participation in the tertiary education system of those currently employed in the business sector;
- to provide a re-entry to tertiary study for graduates who, for whatever reason, would benefit from a more supportive learning environment;
to provide an entry to postgraduate study for those people with excellent business experience but no formal undergraduate qualifications and who, by virtue of their age, experience, work responsibilities and other commitments, are in practical terms excluded from undergraduate and TAFE certificate courses; and to prepare candidates for further postgraduate studies in business information technology.

Entrance requirements
In order to be accepted into this course, applicants should have:

- a recognised undergraduate or postgraduate degree in a discipline other than computing; and/or
- at least five years significant and relevant industry experience; and/or
- professional experience in a computing environment.

Course structure
To cater for the diverse needs of a range of experienced applicants, the course consists of four subjects from the Graduate Diploma of Information Systems. Students will be able to select subjects appropriate to their needs provided the prerequisite requirements of the subject are met.

Progression to the graduate diploma or masters program
On completion of the Graduate Certificate of Information Systems, students gaining entry to the Graduate Diploma of Information Systems, or Masters of Information Systems will be admitted with advanced standing. Entry is not automatic and is subject to academic performance and selection quotas.

Fees
The Graduate Certificate of Information Systems is a full-fee paying course.

Course convener
Pamela Simmons on 9214 8308.

Y074 Graduate Certificate in Management (Manufacturing)

Career potential
This program prepares graduates to undertake the role of managers in an industrial/making setting through the acquisition of skills and knowledge in many of the areas of work in which they will be employed. The program is interdisciplinary in content and in expected outcomes, thereby capitalising on the strengths and opportunities which the Division’s existing subjects can provide. It allows students to explore relevant and contemporary issues by offering a combination of existing subjects from programs in management, innovation and entrepreneurship, as well as new opportunities opening in the broader fields of

Entrance 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 Manufacturing Management may be admitted to the program at the considered discretion of the Selection Committee.

Duration
Normally one year part-time.

Course structure

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF664</td>
<td>Manufacturing Management</td>
</tr>
<tr>
<td>EF662</td>
<td>TQM</td>
</tr>
<tr>
<td>EF616</td>
<td>Management Fundamentals</td>
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<tr>
<td></td>
<td>Plus two of</td>
</tr>
<tr>
<td></td>
<td>EF618 Management Practices</td>
</tr>
<tr>
<td></td>
<td>EF615 Introduction to Accounting and Finance</td>
</tr>
<tr>
<td></td>
<td>EF661 Leadership &amp; Team Building</td>
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<td></td>
<td>OR EF940 Innovation, Creativity &amp; Leadership</td>
</tr>
</tbody>
</table>

Students who have completed the Graduate Certificate in Management (Manufacturing) may receive full credit towards the Graduate Diploma in Management (Manufacturing) for subjects already undertaken in the Graduate Certificate.

Location
Normally, classes will be held at Ernst & Young premises. This program may also be offered as an in-house training program.

Course convener
Dr John Miller on 9214 5340.

A074 Graduate Certificate in Taxation and Finance

This program is a two semester, part-time course. Offered for the first time in Australia, this unique course will open access to tertiary education to a large number of practising accountants and managers who, until now, have been effectively excluded from tertiary education or have had no involvement in it for some time.

Course objectives
It is expected that, at the completion of the course, candidates:

- will be provided with an intensive practical course of study in taxation and finance to better equip them to deal with taxation and finance issues in practice as professional taxation, financial and accounting advisers;
- will have a recognised qualification which will assist them in developing their careers in business; and
- will be equipped with suitable skills necessary to continue with further postgraduate study in taxation and finance.

As candidates will already be established in business careers, it is expected that the key vocational outcomes will arise from better current job performance as well as new opportunities opening in the broader fields of
management, accounting, taxation and finance within their current organisations.

Entrance requirements
In order to be accepted into this course, applicants must have at least two years practical business experience at middle management level and a good track record as judged by the selection panel.

Course structure
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>BC410</td>
<td>Introduction to Taxation</td>
</tr>
<tr>
<td>BC411</td>
<td>Taxation Entities, Issues and Planning</td>
</tr>
<tr>
<td>BC412</td>
<td>Introduction to Finance</td>
</tr>
<tr>
<td>BC413</td>
<td>Investment Analysis</td>
</tr>
</tbody>
</table>

Fees
The Graduate Certificate in Taxation and Finance is a full-fee paying course.

Course convener
Denis Vinen on 9214 8474

YO73   Graduate Certificate in Training Management
This program is offered by the Centre for Innovation and Enterprise Pty Ltd in association with the Australian Institute of Management (AIM) with classes conducted at the AIM Management Centre, 181 Fitzroy Street, St Kilda.

Career potential
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 training;
- administration and evaluation of training.

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.

Entrance 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 considered discretion of the Head of the Division.

Duration
The program is designed to be completed within one calendar year of commencement of the first subject.

Location
Normally classes will be held at Ernst & Young premises. This program may also be offered as an in-house training program.

Course structure
Subjects are block taught in a modular structure and the course is as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF820</td>
<td>Planning of Training Programs</td>
<td>36</td>
</tr>
<tr>
<td>EF821</td>
<td>Program Design</td>
<td>36</td>
</tr>
<tr>
<td>EF822</td>
<td>Training Innovation and Evaluation</td>
<td>36</td>
</tr>
<tr>
<td>EF823</td>
<td>Administration of Training</td>
<td>36</td>
</tr>
</tbody>
</table>

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.

Course convener
Dr Bruce Johnson on 9214 8381

Graduate Diplomas

N084  Graduate Diploma in Applied 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 Associate Membership of the Australian Psychological Society.

The course has the following objectives:
- to enable students to understand and apply the principles of social science which underlie the discipline of psychology;
- 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, moral, legal and social responsibilities of the psychologist, and the role of the Australian Psychological Society;
Entrance requirements
Applicants with good undergraduate grades in psychology are interviewed by the Graduate Diploma Program Coordinator. The Coordinator prepares an order-of-merit list for entry to the course. The order-of-merit list is based primarily on the applicant's level of performance in his/her undergraduate psychology course. Where appropriate this is supplemented by taking into account reports of academic and professional referees, applicant's work background, and the stated reasons for wishing to undertake the course.

In order to be accepted into the course, an applicant must:

- be qualified for the award of a degree at an Australian university;
- have completed a three-year major sequence of studies in psychology in a course, or courses, approved by the Australian Psychological Society;
- have equivalent overseas qualifications.

In those cases where an applicant has qualified for a degree award at an Australian university, but has not completed a three-year sequence in psychology, he or she may apply to complete all or part of the undergraduate psychology program at Swinburne University of Technology in order to become eligible to make application for entry to the graduate diploma.

Course structure
The course offers a 'fixed menu' of eight subjects. These subjects vary in the amount of time which they demand from students and also in their academic requirements.

The course ensures that all students develop basic competencies in research design and analysis, and an understanding of the ethical, moral, 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 applied psychology.

It will be expected that all students will have basic competence in computer and keyboard skills including familiarity with SPSS-PC+.

Students without this competence will be offered a preliminary short course (fee charging) in order to acquire the requisite skills.

There is scope for students to exercise their preferences for particular topics in choosing among options within subjects.

The subjects offered are as follows:

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Title</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY400</td>
<td>Applied Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>AY401</td>
<td>Research Design and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>AY403</td>
<td>Quantitative Methods</td>
<td>3</td>
</tr>
<tr>
<td>AY411</td>
<td>Counselling in the Human Services</td>
<td>3</td>
</tr>
<tr>
<td>AY420</td>
<td>Assessing Persons and Environments</td>
<td>2</td>
</tr>
<tr>
<td>AY422</td>
<td>Ethics and Professional Issues</td>
<td>2</td>
</tr>
<tr>
<td>AY430</td>
<td>Organisational Psychology</td>
<td>2</td>
</tr>
</tbody>
</table>

Full-time
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 twelve hours of class contact time per week. In the second semester students will be involved in five hours of weekly class time and will also be consulting regularly with an academic supervisor about data analysis for the research project and the writing of the report. Typically, time will also be spent undertaking work placement during the second semester.

Part-time
The course can also be completed in two years of part-time study extending over four semesters. Part-time students usually have weekly class contact hours as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Semester 1</td>
<td>6</td>
</tr>
<tr>
<td>Semester 2</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Semester 1</td>
<td>6</td>
</tr>
<tr>
<td>Semester 2</td>
<td>0</td>
</tr>
</tbody>
</table>

Students will also be involved in weekly consultations with an academic supervisor about data analysis for the research project and the writing of the report. Typically, time will also be spent undertaking a work placement during the final semester.

Course convener
Jack Gebart-Eaglemont on 9214 8413

A083 Graduate Diploma in Business Administration
This program is offered for qualified executives or potential executives, who have not undertaken significant studies in the administration/management fields, but in the course of their employment feel the need for a broader knowledge of this area.

The program gives candidates:

- a working knowledge of the factors affecting the task of the manager and methods of analysing these factors. Particular emphasis is placed on the needs of middle-management in both private and public enterprise, to manage in a changing 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 program, candidates will have improved their analytical skills and their effectiveness in dealing with managerial responsibilities. Moreover, participants will have a broader outlook, extending beyond their immediate specialist areas.
Entrance requirements
Entrance is open to graduates who hold a degree or diploma or its equivalent. The program is available also to a restricted number of candidates whose position or experience in employment is sufficient indication of their capacity to complete the course.

Admission is determined by a selection committee. In addition to academic achievements, selection depends upon maturity, work experience and executive potential. Accordingly, each applicant is invited to attach to the application form a detailed curriculum vitae.

It is expected that most people who gain direct entry to the course should complete the qualification with two years of part-time study, but, in order to continue in the course, students must maintain a satisfactory standard of progress.

Course structure
Year 1
BC503 Introduction to Financial Management
BE501 Economics
BH508 Organisational Psychology 1
BM501 Marketing Management 1
BQ509 Business Modelling

Year 2
BC604 Financial Structures and Policy
BH609 Organisational Psychology 2
BM601 Marketing Management 2
BM603 Business Policy

The program is an intensive two year part-time course. All subjects are compulsory. In the first year, candidates are introduced to current thought in the areas of marketing, economics, finance, organisational psychology and quantitative methods. Candidates must complete all first year subjects before commencing second year. Second year covers the important areas of marketing strategy (local and international), financial management, human relations and organisational change. These aspects are viewed in the overall light of the final subject, Corporate Strategy (Business Policy). Thus the emphasis in the second year is on the effective application of knowledge acquired in the first year.

Preclusions
Depending on previous training, candidates may be precluded from some of the first year subjects and assigned alternative subjects in their place.

Alternative subjects
Candidates who are precluded from more than one first-year subject must choose, in consultation with the course convener, an alternative postgraduate subject.

Standards of progress
A sub-committee reviews the results of any candidate who fails to reach a satisfactory standard of progress. The decision rests with this committee as to whether the candidate is to be allowed to continue the course.

Methods of study and instruction
More than one method of instruction is used, so active participation is essential. Participants work in groups or syndicates to encourage cooperative thought. In addition to classroom time, formal syndicate studies are programmed for each week. During these formal sessions ample opportunity arises for questions and discussion centred on case studies or short papers prepared by staff members for analysis.

The nature of the work schedule usually requires participants to engage in further syndicate work of a less formal nature. A residential weekend seminar is held in the second year of the course.

Timetable
Sessions for both first and second year subjects have been organised on a block system. All subject sessions will be offered on Monday mornings between 8.00 am and 10.00 am and between 10.30 am and 12.30 pm. In addition, special seminars and subject seminars may be scheduled for one evening (normally Wednesday) between 6.00 pm and 9.00 pm.

Progression to the Master of Business Administration (MBA)
On successful completion of the Graduate Diploma in Business Administration graduates may be eligible to convert to the Master of Business Administration (MBA) degree with further study.

Fees
The Graduate Diploma in Business Administration is a full-fee paying course.

Course convener
Barbara Evans on 9214 8389

Y082 Graduate Diploma in Entrepreneurship and Innovation

Program objectives
The first four subjects of this program have already been outlined under the Graduate Certificate of Enterprise Management. The next four subjects, required for the award of a Graduate Diploma in Entrepreneurship and Innovation, extend the capability of commercial feasibility assessment to encompass the further skills required for production of a full-scale, multi-disciplinary, new venture business plan.

This program 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. 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.

**Entrance requirements**

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.

In selecting students for this program, the Selection Committee takes into consideration the balance of skills required for team participation, hence attendance at an interview may be required.

Entrance to the Graduate Diploma with advanced standing

Students who have completed Swinburne's Graduate Certificate in Enterprise Management with at least two grades of credit or above, will be given full credit for the first year of the program. However, there is no automatic guarantee that a holder of a Graduate Certificate will be admitted to the Graduate Diploma Program.

**Course structure**

Year 2 (the Graduate Diploma Year)

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**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Total hours</th>
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<tbody>
<tr>
<td>EF940</td>
<td>Innovation Creativity And Leadership</td>
<td>39</td>
</tr>
<tr>
<td>EF920</td>
<td>Managing The Growing Business</td>
<td>39</td>
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**Semester 2**

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<th>Course Code</th>
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<tr>
<td>EF811</td>
<td>New Venture Financial Planning</td>
<td>39</td>
</tr>
<tr>
<td>EF814</td>
<td>The Business Plan</td>
<td>39</td>
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**Location**

Normally the classes will be held at Ernst & Young premises.

**Further information**

Course convener: Kevin Hindle on 9214 8732
Enquiries: Alison Dew on 9288 8276

- **Graduate Diploma In Family Therapy**

Awarded by Swinburne University and Williams Road Family Therapy Centre.

**Course Content**

Family Therapy and Family Therapy Applications; Live Clinical Supervision. The Course involves 38 contact hours and satisfactory completion of 100 credit points over two years part-time.

**Admission requirements**

Completion of a first degree in the health or social sciences from a recognised Australian University, or equivalent qualifications.

Training or experience in counselling or psychotherapy for a minimum of one year.

Working in a therapeutic setting by the beginning of the second year of the course.

**Staff**

Director of training: Moshe Lang. Course coordinators: Sophie Holmes and Peter Cantwell. Additional staff from Williams Road Family Therapy Centre and invited lecturers.

- **A082 Graduate Diploma of Information Systems**

**Course objectives**

This course is designed as an entry level course for graduates in any discipline who wish to utilise computing skills in their existing profession or who may be contemplating a change in career direction. No prior knowledge of computing will be assumed.

The course aims to assist students whose career aspirations depend on obtaining specific skills and knowledge of computing as applied to business.

Specifically the course is aimed at giving students:

- Practical skills in:
  - common business software packages;
  - computer programming;
  - structured analysis;
  - data base management systems;
  - data communication;
  - expert system tools.

- Conceptual knowledge about:
  - evaluating systems development tools;
  - choosing appropriate methods of systems development and appropriate processing facilities;
  - solving problems associated with implementing computer and office automation systems;
  - the role of information technology in meeting an organisation's business objectives.
Career potential
The type of work that graduates may be involved in includes:
- liaising between user areas and the computer department (business analyst)
- analysing and designing information systems;
- programming;
- evaluating software and hardware;
- coordinating computer projects;
- administering a computer function within an organisation;
- marketing support for software and hardware suppliers;
- education and training in information technology in schools, the computer industry or the public sector.

Course structure
The course structure will require successful completion of eight subjects which may be selected (subject to prerequisite requirements) from the list below, provided at least four are of level three status.

The subjects are delivered at three levels:

**Level 1**
- BT550 Introduction to Information Systems
- BT551 Business Programming 1

**Level 2**
- BT560 Information Analysis
- BT561 Data Analysis and Design
- BT562 Business Computing
- BT563 Information Systems 1
- BT564 Business Programming 2A
- BT565 Business Programming 2B

**Level 3**
- BT570 System Architecture 1
- BT571 System Architecture 2
- BT572 Information Systems 2
- BT573 Information Technology Strategies
- BT574 Business Software Engineering
- BT575 Information Systems Project
- BT576 Database Management Systems 1
- BT577 Business Computing Applications
- BT578 Knowledge Based Systems
- BT579 Database Management Systems 2
- BT580 Database Management Systems 3

Entrance requirements
Entry is open to graduates who have a degree, diploma or equivalent in any discipline from a recognised university or other institution.

Standards of progress
A sub-committee reviews the results of any candidate who fails to reach a satisfactory standard of progress. The decision rests with this committee as to whether the candidate is to be allowed to continue the course.

Preclusions
Candidates may be precluded from attempting a subject if they have recently passed an equivalent subject elsewhere. In such instances candidates may select another subject after consultation with appropriate staff members.

Progression to the Master of Information Systems
Students who have completed the Graduate Diploma of Information Systems may apply for admission with advanced standing, to the Master of Information Systems program. Progression is not automatic and students would normally be expected to have attained an average of at least credit throughout their studies.

Fees
Full-time is a HECS paying course. Part-time is a full-fee paying course.

Course conveners
Gilbert Ravalli on 9214 8440.
Nancy Olson on 9214 8974.

**N083 Graduate Diploma in Japanese**

The Graduate Diploma in Japanese is an intensive language course based on an examination of Japanese current affairs. It is designed to enable students to develop their language skills through reading recent Japanese newspaper articles and listening to media broadcasts and to extend their knowledge of contemporary Japan. 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 Japanese can further their knowledge of the Japanese language to a stage where they are competent to deal with a wide variety of topics in the written and spoken language.

Development of expertise in grammar is essential, particularly in the understanding of long and complex sentence structures. The acquisition of a wider vocabulary and the inclusion of a large number of characters. Students become familiar with a wide variety of journalistic and written styles found in newspapers. Training in precis writing, and in the various styles and speech levels which characterise modern spoken Japanese, is also a part of the course.

Language development is focused on four major areas of Japanese studies: social, cultural, business and political. Students consider:
- general problems and trends as they are analysed by Japanese writers within the framework of the society as a whole; and
- the validity of assertions and generalisations which are made by Japanese, as well as foreign writers.

Entrance requirements
Applicants 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.

Course structure
The course may be completed part-time in the evening over two years. 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.

Reading material and tapes will be available at the Swinburne Bookshop approximately one week before the commencement of the semester. In all assignments, students are required to complete four minor tests, weekly assignments, one research essay and one major test per subject. All classes are conducted in Japanese.

The subjects offered are:

**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  

Preliminary reading

References

Course conveners
Tsunahiko Nawano on 9214 8057  
Takako Machida on 9214 8045

**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.

**Entrance requirements**
Applicants must have a degree or equivalent, from a recognised university, college or institute.

**Course structure**
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.

**Year 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** Graduate Diploma in Japanese for Professionals 1A  
**Semester 2**
**AJ421** Graduate Diploma in Japanese for Professionals 1B  

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** Graduate Diploma in Japanese for Professionals 2A  
**Semester 2**
**AJ423** Graduate Diploma in Japanese for Professionals 2B  

**Supporting components**
Equivalent to two hours per week over four semesters.

The four supporting components are culture, society, communication and economy.

These components take the form of five three-hour seminars per semester, at times to be arranged.

**Course convener**
Alina Skoutarides on 9214 8051

**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.

Entrance requirements
Applicants must have a degree with a major in Korean 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.

Course structure
The course may be completed part-time in the evening over two years. 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.

The subjects offered are:

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>AK400</td>
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<td>AK401</td>
<td>Korean Society B</td>
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<tr>
<td>AK402</td>
<td>Korean Culture A</td>
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<td>AK403</td>
<td>Korean Culture B</td>
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<td>AK404</td>
<td>Korean Business and Industry A</td>
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<td>AK406</td>
<td>Korean Politics A</td>
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<td>AK407</td>
<td>Korean Politics B</td>
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</tbody>
</table>

Course convener
Dr Wol-Young Seo on 9214 8042.

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.

Entrance requirements
Applicants must have a degree, or equivalent, from a recognised university, college or institute.

Course structure
This is offered as a part-time evening course.

The language component is six hours per week over four semesters.

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 Graduate Diploma in Korean for Professionals 1A

Semester 2
AK421 Graduate Diploma in Korean for Professionals 1B

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 Graduate Diploma in Korean for Professionals 2A

Semester 2
AK423 Graduate Diploma in 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.

Course convener
Dr Wol-Young Seo on 9214 8042.

Y081 Graduate Diploma in Management

Career potential
This program addresses wide areas of management concern with courses designed for people in careers which demand knowledge of a broad range of innovative management skills. It is recommended for anyone with current or future responsibilities who needs to acquire innovative management skills which their prior functional specialist training has not provided.

Entrance requirements
Applicants should comply with one of the following:

- the completion of a degree or diploma together with at least two years' industrial experience and with a suitable level of responsibility within their chosen field;
- students enrolled in either the Bachelor of Engineering or the Bachelor of Technology programs at Swinburne may be admitted to a combined program;
- the completion of the Graduate Certificate in Enterprise Management or Graduate Certificate in Training Management at distinction level or above;
- a limited number of applicants not meeting the above criteria may be admitted after interview on the basis of...
considerable relevant experience and level of responsibility in industry or business.

**Duration**

The program can be undertaken by one year of full-time study or two years of part-time study.

The program can also be combined with the Swinburne Bachelor of Engineering and requires only a further six months of full-time study or one year of part-time study after completion of the four and a half year degree program. In its combined mode, the program offers a fast-track to management education for graduates of Swinburne Engineering degrees. The coursework and case studies at the graduate level relate management principles and practice particularly to technologies learnt during the undergraduate course.

Studies include the environmental and social impacts of successful professional practice, business planning, personal skills such as speaking, negotiating, communicating, teamwork and leadership, as well as the more conventional business studies. Students are expected to spend at least the equivalent class contact hours per week in private study.

**Course structure**

The program comprises ten course subjects delivered over two years. The program introduces students to fundamental concepts of management, extends knowledge of the theory and practice of management within an enterprise and integrates theoretical knowledge with the capacity to apply such knowledge in practice.

Integration of theory and practice is an overriding philosophy for all courses. Where possible session presentations maximise application of 'Pracademia' where courses are team taught by academics and practitioners to ensure focus is squarely fixed on current management practice.

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<thead>
<tr>
<th>Year</th>
<th>Course Title</th>
<th>Hours per week</th>
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<tr>
<td>1</td>
<td>EF615 Introduction to Accounting and Finance</td>
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<td>EF661 Leadership and Team Building</td>
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<td>EF616 Management Fundamentals</td>
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<td>EF662 Total Quality Management</td>
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<td>EF617 Project and Asset Management</td>
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<td>EF663 Service Management</td>
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<td>EF618 Management Practices</td>
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<td>EF664 Manufacturing Management</td>
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<td>EF644 Introduction to The Business Plan</td>
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<td>Year 2</td>
<td>EF667 Project and Asset Management</td>
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<td>EF667 Information Management</td>
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<td>EF648 Management Practices</td>
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**Or other approved subjects**

**EF938# Commercialising Innovation**

Other suitable management electives may be chosen where applicable and subject to availability, to meet the specific needs of candidates. The purpose of the management electives is to permit candidates to study two specific management areas of interest to them.

Persons wishing to consider undertaking studies in the Innovation and Enterprise stream subsequent to completing their course in the Management stream should undertake these electives to maximise the acquisition of advanced standing in the Innovation and Enterprise program.

**Location**

Normally, classes will be held at Ernst & Young premises.

**Course Convener**

Brian Irons on 9214 8508

**Y084 Graduate Diploma in Management (Manufacturing)**

**Career potential**

This program prepares graduates to undertake the role of managers in an industrial/manufacturing setting through the acquisition of skills and knowledge in many of the areas of work in which they will be employed.

The program is interdisciplinary in content and in expected outcomes, thereby capitalising on the strengths and opportunities which the Division's existing subjects can provide. It allows students to explore relevant and contemporary issues by offering a combination of existing subjects from programs in management, innovation and entrepreneurship or other postgraduate programs offered by the Higher Education Division.

**Entrance requirements**

Applicants should comply with one of the following:

a) the completion of a degree or diploma, with experience in manufacturing management; or

b) the completion of the Graduate Certificate in Manufacturing Management (Manufacturing) with no grade less than a credit and at least two grades of distinction or above; or

c) 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.

**Duration**

Normally two years part-time or one year full-time.

**Course structure**

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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>EF664</td>
<td>Manufacturing Management</td>
</tr>
<tr>
<td>EF662</td>
<td>TQM</td>
</tr>
<tr>
<td>EF661</td>
<td>Management Fundamentals</td>
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</tbody>
</table>
EF618  Management Practices
EF615  Introduction to Accounting and Finance
EF661  Leadership & Team Building
OR
EF940  Innovation, Creativity & Leadership
EF623  Marketing

Plus a minimum of two subjects from *:
EF617  Project and Asset Management
EF645  New Venture Accounting and Finance
EF663  Service Management
EF665  Risk Management
EF666  Engineering Management
EF667  Information Management
EF620  Human Aspects (Personnel Management)
EF940**  Innovation, Creativity & Leadership
OR
EF661**  Leadership & Team Building

* Or other suitable subject from those offered at the postgraduate level within the Centre for Innovation and Enterprise Pty Ltd or the Higher Education Division of the University, by negotiation.

** Whenever was not completed as a core unit

Students who have completed the Graduate Certificate in Management (Manufacturing) may receive full credit towards the Graduate Diploma in Management (Manufacturing) for subjects already undertaken in the Graduate Certificate.

Location
Normally, classes will be held at Ernst & Young premises. This program may also be offered as an in-house training program.

Course convener
Dr John Miller on 9214 5340.

A089  Graduate Diploma in Market Modelling

The Graduate Diploma in Market Modelling is an important offering to business and government in order to improve workplace performance by:

- increasing the level of skills and knowledge deemed necessary to generate efficient and appropriate information and forecasts;
- providing a basis for developing alternative models that can test the impact of decisions or proposed courses of action;
- improving the ability of graduates to conceptualise market problems and market dynamics;
- to utilise the evaluation of the market and together with the necessary tools and knowledge to develop a market model. The model will then be used to obtain appropriately based forecasts for the market parameters considered important by business or government for the short, medium and long term horizons;
- to be able to take the results obtained in the above aims, and prepare necessary management and technical reports that will allow efficient and effective use of the information obtained.

Entrance requirements
Program participants will normally be selected from those applicants who possess an undergraduate degree (or its equivalent) from a recognised university or tertiary institution. It is expected that participants will have a minimum of two years relevant work experience subsequent to initially graduating.

In addition, a limited number of places (up to ten per cent) will be made available to persons who do not hold a formal tertiary qualification but who meet minimum standards as may be laid down from time to time by the Division of Business, Humanities and Social Science. A limited number of places (up to ten per cent) will also be offered to recent graduates who wish to embark on higher degree studies. Candidates may receive recognition by way of credits for subjects of structured education and training completed at either tertiary education establishments or in the workplace. Recognition of prior learning will have a maximum credit transfer of twenty-five per cent of the course.

Course structure & student workload

The program structure consists of enabling subjects in information technology and statistics, a division generic core subject in Research Methodology, six core subjects and one elective subject.

It is anticipated that students wishing to undertake this program will have some background in information technology and statistics at undergraduate level or through appropriate industry based training. Students who cannot demonstrate introductory knowledge in these areas may be required to undertake formal coursework.

The subject in Research Methodology has been designed to meet the needs of all students proceeding to postgraduate studies. The subject aims to provide students with the basics for pursuing self-directed learning.

The core subjects are designed to provide students with the basic knowledge and skills necessary for developing and applying market models.

The elective subjects may be chosen from a subset of accredited subjects from within existing graduate diplomas at Swinburne, graduate studies from other educational institutions or appropriate industry based structured education and training. In general, it will be expected that program participants will choose subjects from within existing Division of Business, Humanities and Social Science graduate diplomas.
The program includes the following subjects:

Enabling subjects (where appropriate)
Information Technology (e.g. BT504 Introduction to Information Technology).
Quantitative Methods (e.g. BQ221 Marketing Data Management or BQ222 Quantitative Management Techniques).

The first year introduces candidates to the areas of

- solving and decision-making when handling people in the organisational context;
- a knowledg e of the human factors that affect the task of management, together with a study of available methods for an analysis of these factors;
- an opportunity to examine and to practise problem-solving and decision-making when handling people in the organisational context;
- a broadened outlook beyond their immediate area of specialisation.

Course structure

The program is an intensive two year, part-time course. The subjects (all of which are compulsory) are listed below. The first year introduces candidates to the areas of psychology and interpersonal skills, together with a study of organisation theory.

The second year deals with organisation culture, change, and leadership. These aspects are examined and applied in the overall pattern of organisational strategy. Because of the integrated nature of the course, students are required to complete all their first year studies before attempting second year.

Year 1
BH505 The Social Psychology of Organising
BH506 Group and Interpersonal Psychology

Both these subjects run for the whole academic year and have a total class time commitment of five hours per week.

Year 2
BH606 Culture and Conflict in Organisations
BH607 Leadership and Change in Organisations

Each subject runs for four hours per week. The first is conducted in first semester only and the second in second semester.

Entrance requirements

Entry is open to university or other graduates who hold a degree or diploma, or its equivalent. The program is also available to a restricted number of candidates whose position or experience is sufficient to undertake the course. Admission is determined by a selection committee. In addition to academic achievements, selection depends upon experience and development potential. Accordingly, each applicant is asked to attach to the application form a detailed curriculum vitae. A letter of support from the employer is required at the selection interview.

Progress during the course

In order to continue in the course, students must maintain a satisfactory standard of progress. It is expected that most candidates will complete the course within two years of part-time study.

Methods of learning

A wide variety of teaching methods are employed ranging from structured lectures or discussion to unstructured experiential type activities. Skills relating to work in groups are stressed and these should be developed by active participation in syndicates.

Professional institutes

Graduates of this course are eligible to apply to the Institute of Personnel Management, Australia, for membership of this professional society.

Timetable

First year subjects are taught concurrently over the whole year. Second year subjects are taken successively on a semester basis. The course is offered on either Wednesday or Friday between 8.00 am and 1.00 pm. Special syndicate sessions may be scheduled where appropriate. A residential or seminar program in addition to the usual five hours per week is scheduled each year as an integral part of the course.
Note: A considerable out-of-class time commitment is a necessary element in this learning experience.

**Progression to the Master of Business (Organisation Behaviour)**

The Graduate Diploma in Organisation Behaviour forms the first two years of the Master of Business (Organisation Behaviour) program. Upon completion of the Graduate Diploma in Organisation Behaviour students who have performed at an above average standard may apply for admission into the Master program. Places at masters level are limited.

Please check for current details with the Divisional office, telephone: 9214 8512.

**Fees**

The Graduate Diploma in Organisation Behaviour is a full-fee paying course.

**Course conveners**

John Newton on 9214 8591.
Susan Long on 9214 8145.

**NO85 Graduate Diploma in Urban Research and Policy**

This course provides students with the practical and conceptual skills necessary to work more effectively or secure employment in the fields of urban and social planning, urban administration, community development and research. More specifically the course is designed to provide knowledge of and experience in:

- the analysis of Australian urban development and the social and economic problems that derive from this development;
- the formation and characteristics of national, state, and metropolitan policies affecting the urban environment;
- the use of techniques and skills relevant to urban research and planning, policy formulation and evaluation.

**Entrance requirements**

Applicants must hold a degree or diploma from an approved tertiary institution, including major studies in at least one of sociology, politics, economics, geography, planning or contemporary history. Students with majors in discipline other than those listed may also be considered.

**Course structure**

The course entails one year of full-time study or two years part-time study, involving six semester subjects and a research report. Each subject usually involves three hours of class meetings per week for one semester.

The following subjects are offered:

- AS400 Urban Social Theory
- AS402 Urban Policy
- AS403 Research Report
- AS404 Advanced Urban Research
- AS411 Urban Research
- AS413 Applied Social Planning
- AS465 Urban and Regional Economics

Each student is expected to complete a research report relating to either policy issues or some aspect of urban policy and planning or community development. Where possible, research is developed in cooperation with government departments, consultancy firms, community groups and research institutes.

**Course convener**

Assoc. Professor Terry Burke on 9214 8109

**NO89 Graduate Diploma in Writing**

The Graduate Diploma in Writing is designed to introduce students to the range of skills required of a professional writer.

The course is designed for those who intend to work (or are already working) in fields which require a high competence in written communication, e.g. writers in commerce, industry and community groups, or freelance writers. Specifically, the course is designed to provide both a theoretical base and a range of skills adaptable to a wide range of writing activities; to provide knowledge of and experience in the analysis of writing; to provide experience in presentation and marketing of manuscripts; to provide students with the practical and theoretical ability to undertake a substantial piece of independent writing.

**Entrance requirements**

Applicants should hold a degree from a recognised tertiary institution, or a qualification approved as equivalent, or equivalent experience.

**Course structure**

The course entails two semesters of full-time study or four semesters part-time. The graduate diploma consists of six subjects: two core subjects (AL400 and AL401) and four elective subjects. The two core subjects involve two hours per fortnight over two semesters. Each elective subject involves three hours of coursework per week per semester.

**Core subjects**

- AL400 Reading and Writing Seminar
- AL401 Writing Project

**Elective subjects**

- AL403 Narrative Writing
- AL405 From Book to Film: Textuality and Discourse
- AL407 Open Subject
- AM404 Writing for the Media
- AM408 Scriptwriting
- AM410 Electronic Writing

**Course convener**

Josie Arnold on 9214 8877.


Master degrees

M091 Master of Arts in Counselling Psychology

This course is offered as a four year, part-time evening program. It 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.

The course has been granted full accreditation as a fifth and sixth year course in psychology by the Australian Psychological Society.

Course objectives

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, marriage, 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 psychosocial development and adaptation.

Entrance requirements

Commencing in 1997 the course will run each year. The intake for 1997 will be limited to ten places. In subsequent years the intake will rise to twenty. In the event of course vacancies occurring, it may be possible for individual students to be admitted to the program before a scheduled intake. Applicants with good results in their fourth year studies and/or relevant human services work experience will be interviewed by a selection panel and an order-of-merit for entry will be prepared taking into account (a) academic preparation, (b) previous work and training experience, (c) academic and professional referees' reports.

In order to be accepted into the course, an applicant must (a) be qualified for the award of a degree from an Australian university, and (b) have completed a four-year sequence of studies in psychology in a course, or courses, approved by the Australian Psychological Society OR hold overseas qualifications recognised as equivalent for the purpose of Associate Membership by the Australian Psychological Society.

Satisfactory progress

Students' progress will be monitored by the School's Graduate Studies Committee. A student who is given an N or NA grade for a subject twice may not be permitted to re-enrol in the course. Students will be required to complete the course in not more than six years.

Course structure

Counselling psychology is very 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%).

The overall structure of the course will be as follows:

Year 1

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<th>Semester 1</th>
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<td>AY510</td>
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Year 2

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Year 3

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<th>Semester 1</th>
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Year 4

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<th>Semester 1</th>
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<td>AY517</td>
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<td>AY610</td>
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<tr>
<th>Semester 2</th>
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<td>AY611</td>
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<td>AY612</td>
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<th>Semester 2</th>
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<td>AY614</td>
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Three of the coursework subjects comprise advanced study in areas central to the practice of counselling psychology:

- Development and Adaptation
- Psychology of Work and Health Psychology
- Psychology of Marriage and the Family

Five of the coursework subjects comprise professional skill development training:

- Human Services Research and Evaluation
- Psychological Assessment
- Counselling Theory and Skills
Counselling Applications
Group Counselling Skills
There is also a coursework subject examining professional and ethical issues in Counselling Psychology Practice.

Students also participate in supervised work placements (AY517 and AY612) in at least 3 separate practice settings. Initially students are placed at the Centre for Psychological Services and following this choose often placements suitable in terms of their clientele and mode of service delivery.

Course convener
Roger Cook on 9214 8105

N092 Master of Arts in 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.

Entrance 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.

Course structure
Bachelor of Arts graduates
Part I
- 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.
- The 'Philosophy of Inquiry' component of the honours cultural studies seminar. 
- Thesis: 15 000–20 000 words. The above program is the same as the Japanese honours year program.

Part II
- Six hours per week of advanced language coursework over two semesters. (The remaining four subjects of the Graduate Diploma in Japanese.)
- Minimum of one linguistics subject relevant to the topic of the thesis to be taken on a complementary study basis at another tertiary institution (for students undertaking research in linguistic aspects of the language).
- Minor thesis to be written in English with a substantial summary in Japanese.
- Thesis length: 15 000–20 000 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.
- Minimum of one linguistics subject relevant to the topic of the thesis to be taken on a complementary study basis at another tertiary institution. (For students undertaking research in linguistic aspects of the language.)
- Minor thesis to be written in English with a substantial summary in Japanese.
- Thesis length: 15 000–20 000 words.

Graduate Diploma in Japanese graduates
- At least one linguistics subject relevant to the thesis to be taken on a complementary study basis at another tertiary institution. (For students undertaking research in linguistic aspects of the language.)
- The 'Philosophy of Inquiry' component of the honours cultural studies seminar. (Only students with no previous background in research methodology.)
- Further language study to an extent agreed by the supervisor and the Division.
- Minor thesis to be written in English with a substantial summary in Japanese.
- Thesis length: 15 000–20 000 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.

Duration
Full-time
Bachelor of Arts entry — two years.
Honours/Graduate Diploma in Japanese entry — one year.

Part-time
Bachelor of Arts entry — no longer than five years.
Honours/Graduate Diploma in Japanese entry — no longer than three years.

Course convener
Alina Skoutarides on 9214 8051

N094 Master of Arts in 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.

Entrance 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.

**Course structure**

**Bachelor of Arts graduates**

Part I

- 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.
- The 'Philosophy of Inquiry' component of the honours cultural studies seminar.
- Thesis: 15,000–20,000 words.

The above program is the same as the Korean honours year program.

Part II

- Six hours per week of advanced language coursework over two semesters. (The remaining four subjects of the Graduate Diploma in Korean.)
- Minimum one linguistics subject relevant to the topic of the thesis to be taken on a complementary study basis at another tertiary institution (for students undertaking research in linguistic aspects of the language).
- Minor thesis to be written in English with a substantial summary in Korean.
- Thesis length: 15,000–20,000 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.
- Minimum one linguistics subject relevant to the topic of the thesis to be taken on a complementary study basis at another tertiary institution. (For students undertaking research in linguistic aspects of the language.)
- Minor thesis to be written in English with a substantial summary in Korean.
- Thesis length: 15,000–20,000 words.

**Graduate Diploma in Korean graduates**

- At least one linguistics subject relevant to the thesis to be taken on a complementary study basis at another tertiary institution. (For students undertaking research in linguistic aspects of the language.)
- The 'Philosophy of Inquiry' component of the honours cultural studies seminar. (Only students with no previous background in research methodology.)
- Further language study to an extent agreed by the supervisor and the Division.
- Minor thesis to be written in English with a substantial summary in Korean.
- Thesis length: 15,000–20,000 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.

**Duration**

- Full-time Bachelor of Arts entry — two years.
- Honours/Graduate Diploma in Korean entry — one year.
- Part-time Bachelor of Arts entry — no longer than five years.
- Honours/Graduate Diploma in Korean entry — no longer than three years.

**Course convener**

Dr Wol-Young Seo on 9214 8042

**N093 Master of Arts in Urban Research and Policy**

This course is offered as a three semester full-time program or six semester part-time program. The course content is the same as the Graduate Diploma in Urban Research and Policy, but masters students are also required to undertake a 25,000 word thesis.

**Entrance requirements**

Applications for the Master in Urban Research and Policy may be made by persons with an honours degree or equivalent fourth year course, for example, a Graduate Diploma. In certain circumstances relevant industrial experience may be considered instead of a fourth year of study.

**Course convener**

Terry Burke on 9214 8109

**A091 Master of Business (Organisation Behaviour)**

This is a four year part-time degree by coursework and minor thesis. The first two years are the same as for the Graduate Diploma in Organisation Behaviour; year three comprises a further four coursework subjects and the final year is devoted to the preparation, under supervision, of a minor thesis.

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.
Entrance requirements
Entry is open to those who have satisfied to an appropriate standard the requirements of the Graduate Diploma in Organisation Behaviour (or its equivalent). Admission is determined by a selection committee and places are limited. The potential for and interest in doing applied research is an important selection criterion. Accordingly, each applicant is asked to attach to the application form a detailed curriculum vitae and a personal statement.

Course structure
Years 1 & 2
Graduate Diploma in Organisational Behaviour

Year 3
BH708 Processes of Inquiry and Research in Organisation Behaviour 1
BH709 Processes of Inquiry and Research in Organisation Behaviour 2
BH710 Processes of Inquiry and Research in Organisation Behaviour 3
BH711 Processes of Inquiry and Research in Organisation Behaviour 4

These subjects have a generic structure and the content may vary from year to year. The general aim is to develop mastery in the research aspects of the manager's role that concern organisation behaviour.

Year 4
BH802 Organisation Research Project and Thesis (under supervision)

Course Convener
John Newton on 9214 8591

Master of Business Administration (MBA)

This is a general management program which meets the career needs of organisational leaders now and towards the year 2000.

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 export, and the skills of people management. In addition they will develop an integrated knowledge of the practical applications of the key business disciplines such as financial management, economics, information technology, marketing and strategic planning.

Graduates of this course will be equipped to move rapidly into positions of responsible organisational leadership. They will provide the professional management needed by all types of organisations in this time of change.

An organisation based strategic project
During the course it is necessary for participants to obtain access and support from the management of an organisation, preferably medium to large, with the course requirement to research and develop a strategic plan. Where this is not possible Swinburne will assist in finding a suitable organisation.

It is expected that organisations in which MBA candidates carry out their projects will gain significant benefits from the analysis of their problems and the development of strategic solutions.

Choice
In the full-time MBA an elective subject makes it possible to explore a chosen area in greater depth or to expand into new areas. Together with the strategic project and the elective subject this course offers the combination of a carefully designed learning experience which will enhance performance in the task of general management, and an opportunity for the student to design part of the program to meet particular individual needs.

The degree is taught in two modes:
- A complete MBA course in one year full-time.
- A conversion program for holders of the Swinburne Graduate Diploma in Business Administration or its equivalent (in standard and content). This program may be completed in seven months full-time or twelve to eighteen months part-time.

A093 Master of Business Administration (MBA)
One year full-time

Course structure
Four days in residence
A residential program is organised for students to get to know other course members and the teaching staff, clarify expectations about the course and its themes, establish working teams, and consider the key behavioural aspects of organisational life.

In addition BT703 Introduction to Business Software, a five day computer skills program, is held before the start of the main semester.

Term 1 (15 weeks)
BB802 Technology and Management
BB809* Strategic Project Planning (the project equals 4 subjects and continues throughout the year)
BC701 Accounting for Management
BE701 Economics for Management
BH706 Managing People and Organisations
BM701 Marketing for Management

Term 2 (15 weeks)
BB701 Management of Resources
BB702 Management of Ideas
BB801 International Business
BB803 Elective
BB809* Strategic Project (continues)
BT704 Computing for Management
Term 3 (10 weeks)
BB804 Management and Society
BB809* Strategic Project (concludes)
BM801 Business Planning and Policy

Note: Applicants who have qualified for the Swinburne Graduate Certificate in Business Administration may be credited with up to four subjects towards the full-time MBA.

A094 Master of Business Administration (MBA)
Conversion to MBA from Graduate Diploma — full time

Term 1 (15 weeks)
BB702 Management of Ideas
BB801 International Business
BB809* Strategic Project (Value 4 subjects. To be completed in seven months.)
BT704 Computing for Management

Term 2 (10 weeks)
BB804 Management and Society
BB809* Strategic Project (concludes)

A094 Master of Business Administration (MBA)
Conversion to MBA from Graduate Diploma — part-time

Term 1 (15 weeks)
BB802 Technology and Management
BB809* Strategic Project (Preparation for project which continues throughout the year and up to 18 months — value 4 subjects.)

Term 2 (15 weeks)
BB702 Management of Ideas
BB801 International Business
BB809* Strategic Project (continues)

Term 3 (10 weeks)
BB804 Management and Society
BB809* Strategic Project (continues)

A further period of approximately six months
BB809* Strategic Project (completion and report)

* No subject details exist for this subject. Please contact the course provider for details.

Part-time participation in the MBA is only available by way of this conversion program.

There may be variations to this course structure according to the time of year the program is started and according to the student's academic background.

Electives
As part of the full-time one-year MBA, students are required to complete an elective subject.

The program of electives will be designed for each candidate's needs through consultation between the student and staff.

Entrance requirements
A degree, or its equivalent from a recognised institution, and normally a minimum of three years appropriate work experience.

Admission is determined by a selection committee who will take into account academic achievements, work history and executive potential. Letters of recommendation from employers and others who have specific knowledge of the candidate's academic or managerial skills are helpful.

Methods of learning
Generally each subject requires classes or seminars totalling thirty hours plus individual work or assignments in small groups. There are additional seminars when needed, dealing with topics which enhance the subject studies, e.g., research methodology and planning methods, special guest speakers, visits to companies.

In all aspects of the program the key themes of innovation, technology and internationalism are integrated.

Fees
The MBA program is a full-fee paying course.

Of this, half is due on acceptance into the course, and the remainder at the end of June.

Course convener
Max Brown on 9214 8071

NO95 Master of 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.
**Entrance requirements**

Applicants should hold a fourth year or equivalent degree from a tertiary institution, or an approved equivalent qualification, or equivalent experience.

**Course structure**

The program is a one and a half year full-time course, or a four semester part-time course.

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 N089 Graduate Diploma in Writing.

The subjects are as follows:

- **Core subject**
  - AM500 Globalisation: Media and Telecommunications
  - **AM501 Communication Environments**
  - **AM502 Asian Communications (not offered in 1997)**

- **Core subject**
  - AM508 From Book to Film: Textuality and Discourse
  - **AM507 Writing for the Media (Graduate Diploma in Writing)**
  - **AM503 Interrogating Texts: Cultural Dreaming**
  - **AM504 Professional Production**
  - **AM505 Workplace Practice**
  - **AM509 Scriptwriting**
  - **AM510 Narrative Writing**

Also
- **AM506 Thesis (1-2 semesters Compulsory)**

**Course convener**

Trevor Barr on 9214 8106

**Y091 Master of Enterprise Innovation (MEI)**

**Course objective**

The first eight subjects of the Master of Enterprise Innovation program are those already outlined for 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.

Each subject may be taught in the traditional mode of one (three or four 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.

**Entrance requirements**

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.

**Course structure**

The Masters Year

**Year 3** of the Master of Enterprise Innovation

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.

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Total hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF 923</td>
<td>Growth Venture Evaluation</td>
</tr>
<tr>
<td>EF 924*</td>
<td>Advanced Business Plan</td>
</tr>
<tr>
<td>EF 934*</td>
<td>Entrepreneurial Research Project</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Total hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF 943</td>
<td>Strategic Intent And Corporations</td>
</tr>
<tr>
<td>EF 924*</td>
<td>Advanced Business Plan</td>
</tr>
<tr>
<td>EF 934*</td>
<td>Entrepreneurial Research Project</td>
</tr>
</tbody>
</table>

* These subjects extend over both semesters.
Location
Normally these classes will be held at Ernst & Young premises.

Course convener
Dr Bruce Johnson on 9214 3417.

AO97 Master of Information Systems

Course objectives
The objective of this program is to provide advanced study in the discipline of information systems. This includes:

- an examination of the issues and directions in information technology
- the development of analytical and managerial skills to manage these issues and directions of IT
- the provision of a contextual framework which facilitates appropriate selection and effective use of advanced techniques.
- acquisition of advanced skills in the application of systems development tools and methods

Two streams address the demand for advanced skills:

- IT Management • the effective management of information technology for strategic advantage
- IS Development • the awareness of and ability to utilise advanced technologies and methodologies for the implementation of information technology.

This course will meet the needs of applicants who wish to pursue advanced studies in IS with the aim of enhancing their career opportunities through the development of managerial or technical skills.

Duration
The course takes two years full-time or four years part-time study.

Course structure

Stage 1
An approved sequence of subjects from the Graduate Diploma of IS may be taken at Stage 1 to meet the prerequisite requirements for either the IS Development stream or the IT Management stream in Stage 2.

Progression to Stage 2 will be dependent on students achieving a satisfactory standard (normally a credit average) in Stage 1 of the course.

Stage 2
Stage 2 comprises eight subjects which may be primarily technical or management in nature. Students will nominate to take either the IS Development Stream or the IT Management Stream. Six subjects will be taken from the nominated stream with the two remaining elective subjects taken from either stream or other approved subjects. Alternatively, students who meet suitable criteria may take a minor thesis, equivalent to four subjects, in either stream. Note that the IT Management Stream is unsuitable for students who do not have some relevant business experience.

IS Development Stream

Stage 1
Graduate Diploma of Information Systems including specific subjects determined by the prerequisites for the Stage 2 subjects. Currently the Graduate Diploma in Information Systems would have to include the following subjects:

BT560 Information Analysis
OR
BT576 Database Management Systems 1

Equivalent knowledge gained through previous education and experience. An additional bridging program of study will be prescribed that ensures students have the necessary knowledge, equivalent to the above, to proceed to Stage 2.

Stage 2
The structure of Stage 2 is as follows:

Stage 2A
BT711 Information System Requirements
BT712 System Strategies
BT713 Automated Development Methods
BT714 Information Systems Dynamics

Stage 2B
BT715 Automated Systems Development Project (50 credit points)
AND
2 IS Development subjects + 2 electives
OR
BT732 Project 2 + 2 electives
OR
BT733 Minor thesis

IT Management Stream

Note that the IT Management Stream is unsuitable for students who do not have some relevant business experience.

Stage 1
Graduate Diploma of Information Systems including specific subjects determined by the prerequisites for the Stage 2 subjects. Currently the GradDipInfSys would have to include the following subjects:

BT560 Information Analysis
BT573 Information Technology Strategies
OR

Equivalent knowledge gained through previous education and experience. An additional program of study will be prescribed that ensures students have the necessary knowledge, equivalent to the above, to proceed to Stage 2.

Stage 2
The structure of Stage 2 is as follows:

Stage 2A
BT601 System Project Management
BH604 Management, Organisations and People
BT706 IT Effectiveness
BT602 Information Systems Management
Stage 2B
BT502 Current Issues in Information Systems
BM602 Strategic Management
BT727 Technology Forecasting and Innovation
BH707 Strategic Change
OR
2 of above + 2 electives
OR
BT732 Project 2 + 2 electives
OR
BT733 Minor thesis

**Entrance requirements**
Entry is open to applicants who have a degree, diploma or equivalent in any discipline from a recognised university or other institution.

Advanced standing allowing some exemptions in Stage 1 of the Master of Information Systems will be given to applicants who, either through formal study at the appropriate level or through relevant work experience, have gained knowledge equivalent to that acquired in the Stage 1 subjects. An admissions panel will be responsible for enforcing academic standards, assessing the prior learning and experience of applicants and determining appropriate bridging programs of study for Stage 1. The type of degree, when it was obtained and the relevance and extent of work experience will be taken into consideration.

Course convener
Pamela Simmons on 9214 8308

**A096 Master of International Business**

**Course structure**
The program consists of sixteen subjects, twelve by coursework and a four-subject equivalent business project of 20,000 words. The subjects are organised into four 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 and Vietnamese.

Students who wish to study a language and cultural program other than these four (e.g. overseas students seeking to take English language and Australian Cultural Studies) may be allowed to do so if a suitable program at Swinburne or another accredited institution can be identified.

In 1996 this course will be offered both on a full-time and part-time basis.

Stage 1
BI711 Foundations of International Business
BI712 International Marketing
BI713 Business Language and Cultural Context A
BI715 International Business Project - Research Methodology

Stage 2
BI721 International Trade and Finance
BI722 International Marketing Research
BI723 Business Language and Cultural Context B
BI825 International Business Project (Minor Thesis)

Stage 3
BI811 International Financial Management
BI812 Legal Aspects of International Business
BI813 International Management
BI825 International Business Project (Minor Thesis continued)

Stage 4
BI821 Global Information Strategies
BI822 International Logistics Management
BI823 International Business Policy
BI825 International Business Project (Minor Thesis continued)

Course convener
Richard Donkin on 9214 8430

**Research degrees**

**N090 Master of Arts (by research)**
The Division 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.

Intending applicants should approach the Research Coordinator of the School of International and Political Studies or the School of Social and Behavioural Science, as appropriate. 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.

A candidate may be required to undertake preliminary coursework as part of the candidature. The culmination of the candidature is a thesis of between 20,000 and 50,000 words. The Statute for the degree of Master (by research) sets out the regulations governing this qualification.
**A090 Master of Business (by research)**

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 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 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.

**Course structure (1994 syllabus)**

<table>
<thead>
<tr>
<th>Clusters</th>
<th>Subject title</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software</td>
<td>IT904 The Software Process</td>
<td>12.5</td>
</tr>
<tr>
<td>Engineering</td>
<td>IT914 Systems Analysis</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>IT924 Object Oriented Design and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Programming</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>IT934 Real Time Systems</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>IT944 Advanced Database Technology</td>
<td>12.5</td>
</tr>
<tr>
<td>Automated Systems</td>
<td>IT954 Information System</td>
<td>12.5</td>
</tr>
<tr>
<td>Developm't</td>
<td>IT964 Requirements</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>IT974 System Strategies 4</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>IT984 Automated Development Methods</td>
<td>12.5</td>
</tr>
<tr>
<td>Human-Computer</td>
<td>IT906 Human-Computer Interaction</td>
<td>12.5</td>
</tr>
<tr>
<td>Interaction</td>
<td>IT916 Programming the User Interface</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>IT926 Interactive Systems Development</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>IT966 HCI Project</td>
<td>12.5</td>
</tr>
<tr>
<td>Intelligent</td>
<td>IT909 Foundations of Intelligent</td>
<td>12.5</td>
</tr>
<tr>
<td>Systems Engineering</td>
<td>IT919 Intelligent Systems Applications</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>IT929 Adaptive Intelligent Systems</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>IT999 ISE Project</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>IT903 Software Engineering Project (for 2 semesters)</td>
<td>25.0</td>
</tr>
<tr>
<td></td>
<td>IT913 Automated Systems Development Project (for 2 semesters)</td>
<td>25.0</td>
</tr>
<tr>
<td></td>
<td>IT993 Research Project (for 2 semesters)</td>
<td>25.0</td>
</tr>
</tbody>
</table>

(ITT904 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.

**Application procedure**

See entry under 'General Student Information'

**Y095 Master in Innovation & Enterprise (by research)**

See entry under Doctor of Philosophy in Innovation and Enterprise (by Research).

**A001 Doctor of Philosophy (Arts)**

See below

**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 (page 567) sets out the regulations governing this qualification.

**Scholarships**

**Higher Education Contribution Scheme (HECS) exemption**

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.

**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.
Application procedure
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 31 October in order to have the candidature finalised by the closing date for these awards.

Prospective candidates in the first instance should contact the Higher Degrees and Research Officer, Division of Business, Humanities and Social Science on 9214 8744 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 publication Policies and Procedures.

Y001 Doctor of Philosophy in Innovation and Enterprise (by research)

The Centre for Innovation and Enterprise has a strong commitment to research in entrepreneurship, management and associated disciplines. There are currently many PhD theses in progress including research into the commercialisation of Australian research, government policy on the development and performance of small manufacturing businesses, factors influencing strategic alliances in high-tech industries and evaluating the value of training investment. There are also a small number of students undertaking Master degrees by research.

N002 Professional Doctorate in Psychology

This is a higher degree by research taken over three years. The course gives candidates the opportunity to develop professional skills in Counselling Psychology. The major component of the program (67%) involves the student undertaking a substantial research project, and reporting this research in the form of a thesis. Normally the thesis would be expected to be 40-60,000 words in length, not including appendices and references. A research topic must be mutually agreed upon by the candidate and a member of staff in the Psychology Discipline who is qualified to supervise the research.

There will normally be an intake of up to five new entrants each year. The School may vary the frequency of intake and the number of new entrants depending on the availability of staff to provide suitable research supervision. 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 equivalent class contact hours per week in pre-service education in all aspects required to manage small, medium or large scale enterprises operating in volatile growth markets. Along the way, innovation management competencies are obtained. The holder of the graduate certificate has the skills required to assess the commercial feasibility of proposed new ventures. The holder of the graduate diploma can go beyond this to produce a detailed, integrated business plan capable of postulating a credible future for the new venture and attracting equity investment in it.

The integrated Innovation and Enterprise programs place key emphases on:
- management of change and creating the new, rather than administration of the established;
- concentration on the planning and control of rapid business growth;
- constant attention to integrating knowledge through interdisciplinary approaches rather than separating knowledge into functional specialities;
- commitment to the notion of 'theory for practice's sake': a focus on applying leading edge theory to practical solutions of complex real-world problems.

Several subjects are offered in the evening but some are 'block taught'. Students are expected to spend at least the equivalent class contact hours per week in private study and/or team project work.

All subjects in the programs take a problem based approach, the learning being 'end' rather than 'means' driven. Case studies form a major part of the teaching and learning techniques, as does preparation of real-world projects which progressively integrate the knowledge acquired in all subjects. The Graduate Certificate year culminates in the production of a detailed commercial feasibility assessment. The Graduate Diploma year culminates in the production of a comprehensive business plan for a new venture. The Master year involves production of both a compact research thesis (demonstrating mastery of selected aspects of
entrepreneurial theory) and a second business plan, this
time of sufficient standard to pass the due diligence
requirements of international best practice in the venture
capital industry. From second year onwards, subjects are
conducted on an interdisciplinary, team teaching basis with
heavy input from industry and business personnel.

The structure of the suite of program is as follows (further
information is set out in individual program entries
following):

**Year 1 - The Graduate Certificate Year**
The Graduate Certificate in Enterprise Management and
also the first year of the Graduate Diploma in
Entrepreneurship and Innovation and the Master of
Enterprise Innovation programs.

*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 - The Graduate Diploma Year**
The second year of the Graduate Diploma in
Entrepreneurship and Innovation and the Master of
Enterprise Innovation program.

*Semester 1*
- EF 920 Managing the Growing Business
- EF 940 Innovation, Creativity & Leadership

*Semester 2*
- EF 811 New Venture Financial Planning
- EF 814 The Business Plan

**Year 3 - The Masters Year**
The third year of the Master of Enterprise Innovation
program.

*Semester 1*
- EF 923 Growth Venture Evaluation
- EF 924 Advanced Business Plan *(whole year subject)*
- EF 934 Entrepreneurial Research Project *(whole year subject)*

*Semester 2*
- EF 924 Advanced Business Plan *(whole year subject)*
- EF 934 Entrepreneurial Research Project *(whole year subject)*
- EF 943 Strategic Intent & Corporations
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Graduate Certificates

2078 Graduate Certificate of Applied Science (Health Statistics)

A one year part-time program aimed at training people who may not have a specialist mathematical or statistical background who wish to work in, or are already employed in, health related areas which require data analysis skills. The emphasis will be on skill development giving the participants the opportunity to become proficient with a variety of statistical tools used in the health sciences. It will concentrate on descriptive methods but includes an introduction to statistical inference.

Applicants for the Graduate Certificate should have 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.

Course structure

The course is made up of four subjects. The class contact hours will normally be four hours per night, two nights per week for two semesters, consisting of a combination of lectures and practical work as applicable to the topic.

Credit points

SM751 Introduction to Data Analysis 12.5
SM750 Basic Statistical Computing 12.5
SM753 Survey Methods 12.5
SM754 Introduction to Health Statistics 12.5

Application procedure

Refer to page 168.

2076 Graduate Certificate of Applied Science (Social Statistics)

This course is 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 current 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.

The course is open to graduates in any discipline. Non-graduates with a suitable background may be admitted to the program.

The Graduate Certificate in Social Statistics is offered as a part-time program over one year. The class contact hours will normally be four hours per week, two nights per week consisting of a combination of lectures and practical work as applicable to the topic.

Course structure

Credit points

SM732 Survey Research Methods 12.5
SM742 Elementary Statistical Modelling 12.5
SM750 Basic Statistical Computing 12.5
SM751 Introduction to Data Analysis 12.5

Application procedure

Refer to page 168.

E077 Graduate Certificate in Biomedical Engineering (subject to accreditation)

See entry under Master of Biomedical Engineering.

M084 Graduate Certificate of Engineering (CAD/CAM)

The aim of this course 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) 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.

Entry requirements

Candidates for the Graduate Certificate of Engineering (CAD/CAM) should have completed a degree or diploma in engineering or science at a recognised university or college or have other qualifications which, in the opinion of the Divisional Board, are of a satisfactory standard, and are suitable preparation for the Graduate Certificate program.

Continuing students

Candidates continuing to the Graduate Diploma (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.

Duration of course
The Graduate Certificate of Engineering (CAD/CAM) is a one semester full-time course. It can be completed part-time over two semesters.

Course structure

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM641</td>
<td>Computer Aided Design 15.0</td>
</tr>
<tr>
<td>MM642</td>
<td>Manufacturing Management Systems 20.0</td>
</tr>
<tr>
<td>MM643</td>
<td>Robotics and Automation 7.5</td>
</tr>
<tr>
<td>MM644</td>
<td>Numerical Control 7.5</td>
</tr>
</tbody>
</table>

**E075 Graduate Certificate in Computer Systems Engineering**  
(subject to accreditation)

See entry under Master of Engineering in Computer Systems.

*** Graduate Certificate of Engineering (Industrial Engineering)  
(subject to accreditation)

See entry under Master of Engineering (Industrial Engineering).

**Z170 Graduate Certificate in Engineering in Open Systems**  
(subject to accreditation)

See entry under Z190 Master of Engineering in Open Systems.

*** Graduate Certificate of Risk Management  
(subject to accreditation)

This course may lead to the Graduate Diploma and Master of Engineering (Risk Management). This is a one year part-time course commencing in March.

The degree program
This program addresses needs of industry to improve the management of resources associated with short and long term risk to people, assets and production. The program provides further studies for graduates from all branches of engineering, applied science and business who wish to gain more specialist knowledge in Risk Management.

Entrance requirements
A degree or diploma in any branch of Engineering, Applied Science or Business.

Course structure

Introduction to Risk
Quantitative Risk
Risk Management Principles
Financial Risk Management
Risk Analysis

Further information
Contact the School of Mechanical and Manufacturing Engineering on 9214 8004.

Internet: http://www.mm.swin.edu.au

*** Graduate Certificate of Engineering (Robotics & Automation)  
(subject to accreditation)

This course may lead to the Graduate Diploma and Master of Engineering (Robotics & Automation). This is a six month full-time or one year part-time course commencing in March.

The degree program
Graduates from this program will be able to work on the implementation of Robotic and Non-contact inspection systems in manufacturing.

Entrance requirements
A degree or diploma in any branch of Engineering, Applied Science or Business.

Course structure

Advanced Robotics
Non-Contact Inspection
Object Oriented Programming
Computer Control & Sensing

Further Information
Contact the Industrial Research Institute Swinburne (IRIS) on 9214 8280.

Internet: http://www.swin.edu.au.iris

*** Graduate Certificate in Telecommunications  
(subject to accreditation)

See entry under Master of Engineering in Telecommunications.
Graduate Diplomas

Z084 Graduate Diploma of Applied Science (Biomedical Instrumentation)
For information on this course please refer to Z093 Master of Applied Science (Biomedical Instrumentation).

Z088 Graduate Diploma of Applied Science (Computer Science)

Career potential
The Graduate Diploma of Applied Science (Computer Science) is aimed at professionals who will use the knowledge it provides to complement their previous qualifications, and also at people who are seeking a change in career direction.

As computers play a crucial role in business and industry, there is a constant need for personnel with an in-depth understanding of computers and computer systems. Graduates will have extensive skills in software development and systems programming, and will be equipped with the knowledge and skills to make them valuable members or leaders of teams developing software. The employability of graduates is high.

The Graduate Diploma of Applied Science (Computer Science) provides a practical education in the related areas of computer programming and software engineering.

Professional recognition
The degree provides credit at Level 1 (the highest level) towards professional membership of the Australian Computer Society.

The degree program
The Graduate Diploma of Applied Science (Computer Science) provides an extensive education in the analysis, design and implementation of computer systems, along with a sound understanding of the traditional aspects of computer science such as hardware and operating systems. There is a strong emphasis on the object-oriented approach to systems development, which is now accepted by industry as a major approach to software development. The course focuses on C++ as the central programming language, recognising the primacy of C++ in industry. The acquired skills and knowledge are consolidated in a major project.

Entry requirements
Applicants for the Graduate Diploma of Applied Science (Computer Science) normally must have an undergraduate degree in a non-computing discipline. Preference may be given to applicants whose degree is in a scientific or engineering discipline. Applicants without a degree, but with substantial appropriate industry experience, may also be eligible for entry.

Credit transfer
Students admitted to the Graduate Diploma may be granted advanced standing for previous studies on a case-by-case basis.

Fees
The course is offered on a fee-paying basis. The tuition fee may be allowable as a self-education deduction for income tax purposes. Full-time students may apply to convert to HECS on the basis of financial need. A General Service Fee is also payable to Swinburne annually.

Course structure
The duration of the course will be one year full-time or two years part-time. To qualify for the award of Graduate Diploma of Applied Science (Computer Science), students must accumulate a minimum of 100 credit points (100 credit points per full-time and 50 credit points per part-time academic year).

In the full-time course, five subjects will be taken during each semester, with approximately 16 contact hours per week (lectures, classes, tutorials and laboratory sessions). The typical full-time student's average weekly workload during semester, including private study, is expected to be 50 hours. Part-time students should expect to make a commitment of approximately 25 hours per week, with formal class contact time of 8 hours per week.

Full-time program

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>sem 1</strong></td>
<td></td>
</tr>
<tr>
<td>ES700 Object-Oriented Software Development 1</td>
<td>10</td>
</tr>
<tr>
<td>ES703 Software Development Project</td>
<td>10</td>
</tr>
<tr>
<td>ES704 Professional Issues in Software Engineering</td>
<td>10</td>
</tr>
<tr>
<td>ES705 Database</td>
<td>10</td>
</tr>
<tr>
<td>ES707 Computer Systems 1</td>
<td>10</td>
</tr>
<tr>
<td><strong>sem 2</strong></td>
<td></td>
</tr>
<tr>
<td>ES703 Software Development Project</td>
<td>10</td>
</tr>
<tr>
<td>ES750 Object-Oriented Software Development 2</td>
<td>10</td>
</tr>
<tr>
<td>ES752 Systems Programming</td>
<td>10</td>
</tr>
<tr>
<td>ES754 Software Engineering 1</td>
<td>10</td>
</tr>
<tr>
<td>ES757 Data Communications</td>
<td>10</td>
</tr>
</tbody>
</table>

Part-time program

Preliminary subject (February)
ES707 Computer Systems 1

Credit points

<table>
<thead>
<tr>
<th>First Year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>sem 1</strong></td>
<td></td>
</tr>
<tr>
<td>ES700 Object-Oriented Software Development 1</td>
<td>10</td>
</tr>
<tr>
<td>ES705 Database</td>
<td>10</td>
</tr>
<tr>
<td><strong>sem 2</strong></td>
<td></td>
</tr>
<tr>
<td>ES750 Object-Oriented Software Development 2</td>
<td>10</td>
</tr>
<tr>
<td>ES754 Software Engineering 1</td>
<td>10</td>
</tr>
</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>sem 1</strong></td>
</tr>
<tr>
<td>ES703 Software Development Project</td>
</tr>
<tr>
<td>ES757 Data Communications</td>
</tr>
<tr>
<td><strong>sem 2</strong></td>
</tr>
<tr>
<td>ES703 Software Development Project</td>
</tr>
<tr>
<td>ES704 Professional Issues in Software Engineering</td>
</tr>
<tr>
<td>ES752 Systems Programming</td>
</tr>
</tbody>
</table>
Pan-time students take \textit{ES707, Computer Systems 1}, an intensive course offered in the month prior to the beginning of the academic year. \textit{ES704, Professional Issues in Software Engineering}, is studied throughout the second year using flexible learning materials.

**Application procedure**
Applications for places in the Graduate Diploma of Applied Science (Computer Science) must be made on the official application form, available from the School of Computer Science and Software Engineering, telephone (03) 9214 8180, fax (03) 9819 0823. Certified copies of academic transcripts must accompany the application form.

**Further information**
Further information may be obtained from the School of Computer Science and Software Engineering: telephone (03) 9214 8180, email csseinfo@swin.edu.au, or from our World Wide Web site http://www.csse.swin.edu.au/; the Divisional Office, telephone (03) 9214 5255; or the Information Office, telephone (03) 9214 8444. International Students should, in the first instance, contact the International Student Unit, telephone (03) 9214 8647.

**Z189 Graduate Diploma of Applied Science (Health Statistics)**
This course aims to extend the work done in the Graduate Certificate of Applied Science (Health Statistics). This will include using a wider variety of statistical techniques, providing a deeper and broader understanding of the relevant software; developing critical skills in the statistical evaluation of health literature and gaining personal contact with the work of statistical practitioners in the health sciences.

The Graduate Diploma will qualify graduates to take up research assistant positions involving both the management and application of research in the health sciences that requires statistical methods for its design and analysis.

**Course structure**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Chemistry stream</td>
<td></td>
</tr>
<tr>
<td>SC720</td>
<td>Applied Chemistry Techniques</td>
</tr>
<tr>
<td>SC721</td>
<td>Properties of Colloids and Interfaces</td>
</tr>
<tr>
<td>SC723</td>
<td>Industrial Chemistry</td>
</tr>
<tr>
<td>SC725</td>
<td>Practical Chemistry</td>
</tr>
<tr>
<td>SC732</td>
<td>Practical Work</td>
</tr>
</tbody>
</table>

| Biochemistry stream | |
| 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 |

**Application procedure**
Refer to page 168.

**Z085 Graduate Diploma of Applied Science (Industrial Chemistry1 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.

This course will be offered on the basis of one year of full-time study, covering a full twelve months. It will comprise seventeen weeks of coursework related to industrial chemistry and twenty-two weeks of industry based learning including paid employment experience in an appropriate industrial laboratory. The program will include a small research project.

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.

Entry to industrial chemistry is open to applicants with a first tertiary qualification in science, medicine, engineering and biological sciences. An applicant whose position or experience indicates an ability to succeed in the course may be accepted with other qualifications or with less than the usual entry qualifications.

**Course structure (1998 syllabus)**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES709</td>
<td>Employment Experience</td>
</tr>
<tr>
<td>BS721</td>
<td>Business and Management</td>
</tr>
</tbody>
</table>

**Application procedure**
Refer to page 168.

**Z086 Graduate Diploma of Applied Science (Social Statistics)**
This course is for people with similar backgrounds to those undertaking the Graduate Certificate of Applied Science (Social Statistics), but who want to progress further and cover a wider range of topics at a greater depth.

Normal entry is by successful completion of the subjects for
the Graduate Certificate in Social Statistics. Other applicants with suitable backgrounds may be admitted to the program.

The class contact hours will normally be four hours per night, two nights per week for four semesters, which includes the two semesters of the graduate certificate. Classes will consist of a combination of lecture and practical work as applicable to the topic.

The Graduate Diploma will qualify graduates to take up research assistant positions involving both the management and application of research in the social sciences that require statistical methods for their design and analysis.

### Course structure

The four subjects from the graduate certificate plus four subjects from:

<table>
<thead>
<tr>
<th>Credit points</th>
<th>SM733*</th>
<th>Demographic Techniques</th>
<th>12.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM735</td>
<td>Survey Sampling</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>SM743*</td>
<td>Multivariate Statistics 1</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>SM744</td>
<td>Statistical Modelling</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>SM746</td>
<td>Multivariate Statistics 2</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>SM752</td>
<td>Advanced Statistical Computing</td>
<td>12.5</td>
<td></td>
</tr>
</tbody>
</table>

*Compulsory subjects.

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.

### Application procedure

Refer to page 168.

E087 **Graduate Diploma of Engineering in Biomedical Engineering**

For information on this course please refer to Z097 Master of Engineering (Biomedical Engineering).

P083 **Graduate Diploma in Chemical Engineering**

(1996 Syllabus)

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.

### Entrance 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.

### Course structure

The program is planned to be completed in two years (four semesters) of part-time study although timetable restrictions may mean, on occasions, that five semesters will be required. It is also possible that the program could be completed in one year of full-time study. Some day-time classes are involved and these are timetabled as blocks to cause as little inconvenience as possible to students in full-time employment. Some subjects are available as evening subjects.

Subjects involved in this course are classified as either Schedule A or Schedule B subjects. Schedule A subjects provide the basic chemical engineering information; Schedule B subjects offer topics more peripheral to the chemical engineering aspects of the course. To obtain the qualification, a minimum of 100 credit points must be completed. Choice of subjects is restricted so that at least 60 credit points of Schedule A subjects are included. The remaining credit points can be taken from either Schedule A or Schedule B.

**Schedule A subjects**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCP201</td>
<td>Basic Process Analysis and Calculations</td>
</tr>
<tr>
<td>SCP305</td>
<td>Separation Processes</td>
</tr>
<tr>
<td>SCP503</td>
<td>Reactor Design</td>
</tr>
<tr>
<td>SCP504</td>
<td>Process Equipment Design</td>
</tr>
</tbody>
</table>

**Semester 2**

<table>
<thead>
<tr>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCP206</td>
</tr>
<tr>
<td>SCP400</td>
</tr>
<tr>
<td>SCP401</td>
</tr>
<tr>
<td>SCP402</td>
</tr>
<tr>
<td>SCP506</td>
</tr>
</tbody>
</table>

**Schedule B subjects**

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

Note:
1. MM714 and MM715 are prerequisites for MM811 and M814
2. These subjects are currently under review by the School of Mechanical and Manufacturing Engineering

| MM 714 | Risk Analysis | 6 |
| MM 715 | Risk Engineering | 6 |
| MM 811 | Risk Management Practices (H&S) | 6 |
| MM 814 | Risk Technology (H&S) | 6 |

**Group 2:** Environmental Studies Group

| SCP4190 | Environmental and Safety Assessment | 10 |
| SCP4190 | Occupational Health and Safety | 9 |

**Group 3:** Bioprocess Engineering Group

| SCP501 | Biotechnology | 10 |
| SCP555 | Bioprocess Engineering | 10 |

**Group 4:** Instrumentation and Control Group

| SCP295 | Measurement and Control Systems | 10 |
| SCP505 | Process Control | 10 |
P085 Graduate Diploma of Engineering (Computer Integrated Manufacture) (CIM)

The aim of the program is to prepare graduates from engineering and the physical sciences for future roles in the development and application of computer integrated manufacturing in Australian manufacturing industry. Such graduates must have proved academic ability. 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.

**Entrance requirements**
Candidates for the Graduate Diploma (CIM) shall have completed an approved degree in Engineering for normal entry. Other applicants may be considered on their individual merits, but must have qualifications and experience which, in the opinion of the Divisional Board, are of satisfactory standard to qualify for entry.

**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.

**Duration of course**
The Graduate Diploma in Computer Integrated Manufacture (CIM) is a one year full-time program, but may be taken over two years part-time.

**Course structure**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM641</td>
<td>Computer Aided Design</td>
</tr>
<tr>
<td>MM642</td>
<td>Manufacturing Management Systems</td>
</tr>
<tr>
<td>MM643</td>
<td>Robotics and Automation</td>
</tr>
<tr>
<td>MM644</td>
<td>Numerical Control</td>
</tr>
<tr>
<td>MM651</td>
<td>Intelligent Manufacturing Systems</td>
</tr>
<tr>
<td>MM652</td>
<td>Computer Control and Sensing</td>
</tr>
<tr>
<td>MM653</td>
<td>Expert Systems Simulation and Modelling</td>
</tr>
<tr>
<td>MM654</td>
<td>Computer Modelling and FEA</td>
</tr>
</tbody>
</table>

E085 Graduate Diploma of Engineering (Computer Systems Engineering)

For information on this course please refer to Z095 Master of Engineering (Computer Systems Engineering).

C082 Graduate Diploma of Engineering (Construction Management)

This course can be undertaken by attending components of the Master of Technology (Construction). See information on that course.

**Intake**
The major intake is in Semester I each year. However, a small intake takes place in Semester 2.

**Course structure**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE670</td>
<td>Construction Technology</td>
</tr>
<tr>
<td>CE690</td>
<td>Civil Project Control</td>
</tr>
<tr>
<td>CE790</td>
<td>Financial Project Control</td>
</tr>
<tr>
<td>CE696</td>
<td>Offered in Semester 2</td>
</tr>
</tbody>
</table>

**Minor strand (Construction)**

<table>
<thead>
<tr>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE770</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>CE677</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>CE697</td>
</tr>
<tr>
<td>Semester 2</td>
</tr>
<tr>
<td>CE691</td>
</tr>
<tr>
<td>CE695</td>
</tr>
<tr>
<td>CE692</td>
</tr>
<tr>
<td>CE696</td>
</tr>
</tbody>
</table>

**Minor strand (Construction)**

<table>
<thead>
<tr>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE770</td>
</tr>
<tr>
<td>CE771</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>CE777</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>CE795</td>
</tr>
<tr>
<td>CE771</td>
</tr>
</tbody>
</table>

*CE691 can be taken at night by attending CE693 and CE792 as an alternative, equivalent program.

(1) In Semester 1, Graduate Diploma students undertake directed reports; in Semester 2, they attend CE772 Construction Technology.

(2) Attend CE794 Financial Management

(3) This is a major research paper on a topic agreed by the staff and the student. It is a one semester subject which can be taken in either sequence.

*** Graduate Diploma of Engineering (Industrial Engineering)

For information about this course please refer to the Master of Engineering (Industrial Engineering).
M081 Graduate Diploma in Maintenance Engineering

NB This course is currently under review.

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 subset of business risk management activity, complemented by specialist subjects relating to the practice of maintenance engineering. The course will usually spread over two years.

Course structure (1989 syllabus)

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Hours per week</th>
<th>Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MM710</td>
<td>Introduction to Risk</td>
<td>2</td>
<td>Sem 1</td>
</tr>
<tr>
<td>MM711</td>
<td>Quantitative Risk</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MM712</td>
<td>Risk Law</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MM713</td>
<td>Risk Management Practices</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MM714</td>
<td>Risk Analysis</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MM715</td>
<td>Risk Engineering</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MM716</td>
<td>Risk Evaluation Principles</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MM718</td>
<td>Financial Risk Management</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Year 2

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credit points</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MM810</td>
<td>Risk Engineering Science</td>
<td>2</td>
</tr>
<tr>
<td>MM813</td>
<td>Risk Management Practices</td>
<td>2</td>
</tr>
<tr>
<td>MM816</td>
<td>Risk Technology</td>
<td>2</td>
</tr>
<tr>
<td>MM817</td>
<td>Risk Research</td>
<td>2</td>
</tr>
<tr>
<td>MM820</td>
<td>Risk Engineering Science</td>
<td>2</td>
</tr>
<tr>
<td>MM823</td>
<td>Risk Management Practices</td>
<td>2</td>
</tr>
<tr>
<td>MM826</td>
<td>Risk Technology</td>
<td>2</td>
</tr>
<tr>
<td>MM827</td>
<td>Risk Project</td>
<td>2</td>
</tr>
</tbody>
</table>

People who have experience in the maintenance field but not the prerequisite qualifications may be enrolled if they have an adequate background and are able to cope with the course. Assessment is continuous throughout the course.

Z180 Graduate Diploma of Engineering in Open Systems (subject to accreditation)

For information on this course please refer to Z190 Master of Engineering in Open Systems.

M083 Graduate Diploma in Risk Management

NB This course is currently under review.

This course provides further studies for graduates in all branches of engineering, applied science, business, technology, gain more specialised knowledge in risk has application in many areas of technical and business decision-making where proper consideration of risks is essential to minimise human discomfort and injury as well as potential physical and financial losses.

Subject material is arranged to enable studies to be undertaken in one of three specialised streams, in addition to a common core of studies. The streams are:

- health and safety risks
- plant and property risks
- maintenance (production) risks

This arrangement allows groups with specific interests within the broad risk management field to specialise.

Core material comprises subjects directed at developing an understanding of the broad risk management discipline from the management, insurance, statistical, engineering, psychological, social and legal aspects.

Streamed material includes expansion of core material in relevant directions as well as more specialised subjects. Full subject details are available from the School of Mechanical and Manufacturing Engineering.

The course will usually be spread over two years.

Course structure (1992 syllabus)

Year 1

Core subjects

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credit points</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MM710</td>
<td>Introduction to Risk</td>
<td>7.0</td>
</tr>
<tr>
<td>MM711</td>
<td>Quantitative Risk</td>
<td>6.0</td>
</tr>
<tr>
<td>MM712</td>
<td>Risk Law</td>
<td>6.0</td>
</tr>
<tr>
<td>MM713</td>
<td>Risk Management Principles</td>
<td>6.0</td>
</tr>
<tr>
<td>MM714</td>
<td>Risk Analysis</td>
<td>6.0</td>
</tr>
<tr>
<td>MM715</td>
<td>Risk Engineering</td>
<td>7.0</td>
</tr>
<tr>
<td>MM716</td>
<td>Risk Evaluation Principles</td>
<td>6.0</td>
</tr>
<tr>
<td>MM718</td>
<td>Financial Risk Management</td>
<td>6.0</td>
</tr>
</tbody>
</table>

Year 2 (complete stream of choice)

Health and Safety stream

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credit points</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MM810</td>
<td>Risk Engineering Science</td>
<td>6.0</td>
</tr>
<tr>
<td>MM811</td>
<td>Risk Management Practices</td>
<td>6.0</td>
</tr>
<tr>
<td>MM814</td>
<td>Risk Technology</td>
<td>6.0</td>
</tr>
<tr>
<td>MM817</td>
<td>Risk Research</td>
<td>7.0</td>
</tr>
<tr>
<td>MM818</td>
<td>Risk Engineering Science</td>
<td>6.0</td>
</tr>
<tr>
<td>MM821</td>
<td>Risk Management Practices</td>
<td>6.0</td>
</tr>
<tr>
<td>MM824</td>
<td>Risk Technology</td>
<td>6.0</td>
</tr>
<tr>
<td>MM827</td>
<td>Risk Project</td>
<td>7.0</td>
</tr>
</tbody>
</table>

Plant and Property stream

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credit points</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MM810</td>
<td>Risk Engineering Science</td>
<td>6.0</td>
</tr>
<tr>
<td>MM812</td>
<td>Risk Management Practices</td>
<td>6.0</td>
</tr>
<tr>
<td>MM815</td>
<td>Risk Technology</td>
<td>6.0</td>
</tr>
<tr>
<td>MM817</td>
<td>Risk Research</td>
<td>7.0</td>
</tr>
</tbody>
</table>
Master degrees

Z091 Master of Applied Science (Applied Colloid Science) — by coursework

The aims of this course are to provide students with an understanding of modern colloid science at an advanced level, to develop research capabilities and to introduce the latest technology to industry.

The course includes a research project which is normally undertaken throughout the second and third years of the course, and for which a minor thesis is submitted. This project may be carried out at the student's workplace or within the Swinburne Colloid laboratory or at a similar institution.

The program is an eighteen-month full-time, or a three-year part-time course involving up to eight hours per week (two evenings). Each topic runs for five weeks (one evening per week), except the research project, which is designed to occupy roughly one-third of the student's total work load and is to be carried out at the student's discretion.

Students who successfully complete, with good results, the first year of the Graduate Diploma in Applied Colloid Science may progress to the second year of the Master course. Direct entry into the first year of the Master course is available to applicants having a Swinburne degree with distinction in computer-aided chemistry or biochemistry or an honours degree in a related discipline. Equivalent experience will be considered.

Course structure

Year 1
Semester 1
SC716 Basic Colloid Science 7.5
SC717 Basic Surface Science 7.5
SC733 Practical Techniques in Colloid Science 7.5
SC734 Practical Techniques in Surface Science 7.5
Semester 2
SC736 Research Skills, Pan 1 5.0
Elective Unit (One) 7.5
Elective Unit (Two) 7.5

Year 2
Semester 1
SC718 Surface Characterisation 7.5
SC719 Chemistry of Inorganic Colloids 7.5
Semester 2
Elective Unit (Three) 7.5
Elective Unit (Four) 7.5
SC757 Research Project 10.0

Year 3
Semester 1
Elective Unit (Five) 7.5
SC757 Research Project 15.0
**Semester 2**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC737</td>
<td>Research Skills, Part 2</td>
<td>5.0</td>
</tr>
<tr>
<td>SC757</td>
<td>Research Project</td>
<td>15.0</td>
</tr>
</tbody>
</table>

**Electives**

The elective subjects are to be chosen from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC739</td>
<td>Colloid Rheology</td>
<td>7.5</td>
</tr>
<tr>
<td>SC740</td>
<td>Chemistry of Surface Coatings</td>
<td>7.5</td>
</tr>
<tr>
<td>SC741</td>
<td>Physical Properties of Surface Coatings</td>
<td>7.5</td>
</tr>
<tr>
<td>SC742</td>
<td>Corrosion and Protection of Metals</td>
<td>7.5</td>
</tr>
<tr>
<td>SC743</td>
<td>Food Colloids</td>
<td>7.5</td>
</tr>
<tr>
<td>SC744</td>
<td>Chemistry of Surfactants</td>
<td>7.5</td>
</tr>
<tr>
<td>SC745</td>
<td>Solution Behaviour of Surfactants</td>
<td>7.5</td>
</tr>
<tr>
<td>SC746</td>
<td>Advanced DLVO Theory</td>
<td>7.5</td>
</tr>
<tr>
<td>SC747</td>
<td>Adsorption from Solution</td>
<td>7.5</td>
</tr>
<tr>
<td>SC748</td>
<td>Water Treatment Technology</td>
<td>7.5</td>
</tr>
<tr>
<td>SC749</td>
<td>Polymer Flocculation</td>
<td>7.5</td>
</tr>
<tr>
<td>SC750</td>
<td>Detergency</td>
<td>7.5</td>
</tr>
<tr>
<td>SC751</td>
<td>Emulsion Technology</td>
<td>7.5</td>
</tr>
<tr>
<td>SC752</td>
<td>Polymer Stabilisation Technology</td>
<td>7.5</td>
</tr>
<tr>
<td>SC753</td>
<td>Thin Films and Foams</td>
<td>7.5</td>
</tr>
<tr>
<td>SC754</td>
<td>Light Scattering and Concentrated Dispersions</td>
<td>7.5</td>
</tr>
<tr>
<td>SC755</td>
<td>Surface Chemistry of Clays and Coal</td>
<td>7.5</td>
</tr>
<tr>
<td>SC756</td>
<td>Mineral Processing</td>
<td>7.5</td>
</tr>
</tbody>
</table>

These subjects will not all be offered in any one year. Their availability will be determined by student demand and the list may be augmented to meet students’ requirements.

Students will be expected to complete six of the above electives.

Application procedure

Refer to page 168.

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**Z093 Master of Applied Science**

**(Biomedical Instrumentation)**

The Graduate Diploma/Master of Engineering (Biomedical Instrumentation) normally involves two years of part-time or one year of full-time study.

The course offers training in instrumentation and quantitative techniques coupled with a study of the physiological processes being monitored. It provides a detailed study of the design, construction, operation and commercial production of a wide range of biomedical and general laboratory instrumentation.

The course also emphasises innovative techniques of instrumentation and the skills required for the commercial development of these techniques.

**Entry requirements**

Entry to the Graduate Diploma/Master of Engineering is open to applicants with a first tertiary qualification in medicine, engineering or science or to those with lesser qualifications but substantial and relevant experience.

**Course structure**

Students must complete 100 credit points for the Graduate Diploma and 150 credit points to complete the Masters, including relevant project work.

- **Semester 1**: EE740 Project Management & Research Methods plus 3 core subjects (50 credit points)
- **Semester 2**: EE760 Research Project A plus 2 core subjects; (50 credit points)
- **Semester 3**: EE761 Research Project B plus 2 core subjects (50 credit points).

**Alternative structure**:

- **Semester 1**: EE740 Project Management & Research Methods plus 3 core subjects (50 credit points)
- Semester 2: four core subjects (50 credit points);
- **Semester 3**: EE762 Major Research Project (50 credit points)

**Course 1 Credit Points**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE740</td>
<td>Project M’ment &amp; Research Methods</td>
<td>12.5</td>
</tr>
<tr>
<td>SP532</td>
<td>Clinical Monitoring Techniques</td>
<td>12.5</td>
</tr>
<tr>
<td>SP534</td>
<td>Neurophysiological Monitoring Techniques</td>
<td>12.5</td>
</tr>
<tr>
<td>SP553</td>
<td>Introduction to Instrumental Electronics</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>EE760</td>
<td>Research Project A</td>
<td>25.0</td>
</tr>
<tr>
<td>SP531</td>
<td>Biophysical Systems &amp; Techniques (Biosensors)</td>
<td>12.5</td>
</tr>
<tr>
<td>SP535</td>
<td>Biomedical Project (GDip only)</td>
<td>12.5</td>
</tr>
<tr>
<td>SP537</td>
<td>Medical Imaging</td>
<td>12.5</td>
</tr>
<tr>
<td>SP541</td>
<td>Signal &amp; Image Processing</td>
<td>12.5</td>
</tr>
<tr>
<td>SP555</td>
<td>Introduction to Biophysical Systems</td>
<td>12.5</td>
</tr>
<tr>
<td>SP731</td>
<td>Technology Transfer</td>
<td>12.5</td>
</tr>
</tbody>
</table>

**Semester 3**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE761</td>
<td>Research Project B</td>
<td>25.0</td>
</tr>
<tr>
<td>EE762</td>
<td>Major Research Project</td>
<td>50.0</td>
</tr>
</tbody>
</table>

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**Z096 Master of Applied Science**

**(Social Statistics)**

This is a seven semester part-time program consisting of twelve subjects and a minor thesis. This course is for people with similar backgrounds to those undertaking the Graduate Diploma (Social Statistics), but who want to make an in-depth study of the area and gain research skills.

Normal entry is by an approved degree plus successful completion of the graduate diploma in social or health statistics with at least two distinctions in the second year. Other applicants with suitable backgrounds (such as relevant academic and work experience) may be considered for admission to the masters program.

**Course structure**

Ten subjects from those offered in the Graduate Diploma of Applied Science (Social Statistics), 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.

Application procedure
Refer to page 168.

EO97 Master of Engineering (Biomedical Engineering)
EO87 Graduate Diploma of Engineering in Biomedical Engineering
EO77 Graduate Certificate in Biomedical Engineering

The Graduate Diploma/Master of Engineering (Biomedical Engineering) normally involves three years of part-time or one and a half years of full-time study. This course is intended for those interested in designing and developing biomedical equipment and/or practising the skills related to clinical biomedical engineering. The program includes both engineering and biomedical content to suit a variety of backgrounds.

Entry requirements
Entry to the Graduate Certificate, Graduate Diploma and Master of Engineering is open to applicants with a four year engineering or science qualification or to those with lesser qualifications but substantial and relevant experience.

Course structure
Students must complete 100 credit points for the Graduate Diploma and 150 credit points to complete the Masters, including relevant project work.

Semester 1: EE740 Project Management & Research Methods plus 3 core subjects (50 credit points)
Semester 2: EE760 Research Project A plus 2 core subjects; (50 credit points)
Semester 3: EE761 Research Project B plus 2 core subjects (50 credit points).

Alternative structure:
Semester 1: EE740 Project Management & Research Methods plus 3 core subjects (50 credit points)
Semester 2: four core subjects (50 credit points);
Semester 3: EE762 Major Research Project (50 credit points)

Credit points
SM745 Project Planning 12.5
SM748 Research Methodology 12.5
SM749 Minor Thesis 25.0

EO77

Semester 2
EE760 Research Project A 25.0
SP531 Biophysical Systems & Techniques (Biosensors) 12.5
SP537 Medical Imaging 12.5
SP547 Biomedical Instrumentation 12.5
SP555 Introduction to Biophysical Systems 12.5

Semester 3
EE761 Research Project B 25.0
EE762 Major Research Project 50.0

EO77

EO87

EO97

PO91 Master of Engineering (Computer Integrated Manufacture) by coursework and thesis

The aim of the course is to prepare graduates from engineering and the physical sciences for future roles in the development and application of computer integrated manufacturing in Australian manufacturing industry. Such graduates must have proved academic ability.

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.

Entrance 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.

Duration of course
The course is a one and a half year equivalent full-time program incorporating the academic program for the Graduate Diploma in Computer Integrated Manufacture. The coursework and the project work for Masters of Engineering (CIM) may be completed in one calendar year for a full-time course. Further options include a three and four year part-time format.
Students are not normally permitted to extend their course enrolment beyond five years, except when leave of absence has been granted.

**Course structure**

**Semester 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM641</td>
<td>Computer Aided Design</td>
<td>15.0</td>
</tr>
<tr>
<td>MM642</td>
<td>Manufacturing Management Systems</td>
<td>20.0</td>
</tr>
<tr>
<td>MM643</td>
<td>Robotics and Automation</td>
<td>7.5</td>
</tr>
<tr>
<td>MM644</td>
<td>Numerical Control</td>
<td>7.5</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>MM651</td>
<td>Intelligent Manufacturing Systems</td>
<td>7.5</td>
</tr>
<tr>
<td>MM652</td>
<td>Computer Control and Sensing</td>
<td>20.0</td>
</tr>
<tr>
<td>MM653</td>
<td>Expert Systems Simulation and Modelling</td>
<td>7.5</td>
</tr>
<tr>
<td>MM654</td>
<td>Computer Modelling and FEA</td>
<td>15.0</td>
</tr>
</tbody>
</table>

**Semester 3**

- **Project Work**: 50.0

**E095 Master of Engineering**

(Computer Systems Engineering)

**E085 Graduate Diploma of Engineering**

(Computer Systems Engineering)

**E075 Graduate Certificate in Computer Systems Engineering**

This program normally involves three years of part-time or one and half years of full-time study. This program of advanced studies in the hardware and software engineering of computer systems is intended for graduates in Engineering, Science or Computing, seeking careers in the computer applications field, e.g. as engineers in the computer, electronics or telecommunications manufacturing industries.

**Entrance requirements**

Entry to the Graduate Diploma/Master of Engineering is open to applicants with a four year engineering or science (Electrical, Communications or Computer Systems) qualification or to those with lesser qualifications but substantial and relevant experience.

**Course structure**

Students must complete 100 credit points for the Graduate Diploma and 150 credit points to complete the Masters, including relevant project work

- **Semester 1**: EE740 Project Management & Research Methods plus 3 core subjects (50 credits)
- **Semester 2**: EE760 Research Project A plus 2 core subjects; 50 credit points
- **Semester 3**: EE761 Research Project B plus 2 core subjects (50 credit points).

Alternative structure:

- **Semester 1**: EE740 Project Management & Research Methods plus 3 core subjects (50 credit points)
- **Semester 2**: four core subjects (50 credit points); 50 credit points
- **Semester 3**: EE762 Major Research Project (50 credit points)

**Semester 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE730 *</td>
<td>Engineering Software (or equivalent)</td>
<td>12.5</td>
</tr>
<tr>
<td>EE740 *</td>
<td>Project M'ment &amp; Research Methods</td>
<td>12.5</td>
</tr>
<tr>
<td>EE781</td>
<td>CAD and High Level Synthesis</td>
<td>12.5</td>
</tr>
<tr>
<td>EE786</td>
<td>Advanced Image Processing</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>EE730 *</td>
<td>Engineering Software (or equivalent)</td>
<td>12.5</td>
</tr>
<tr>
<td>EE732</td>
<td>Computer Architecture &amp; Hardware</td>
<td>12.5</td>
</tr>
<tr>
<td>EE752</td>
<td>Digital Communications</td>
<td>12.5</td>
</tr>
<tr>
<td>EE760</td>
<td>Research Project A</td>
<td>25.0</td>
</tr>
<tr>
<td>EE783</td>
<td>Digital Signal Processing Systems Eng.</td>
<td>12.5</td>
</tr>
<tr>
<td>EE787</td>
<td>Advanced Computer Architecture</td>
<td>12.5</td>
</tr>
</tbody>
</table>

**Semester 3**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE761</td>
<td>Research Project B</td>
<td>25.0</td>
</tr>
<tr>
<td>EE762 *</td>
<td>Major Research Project</td>
<td>50.0</td>
</tr>
</tbody>
</table>

**Alternative subjects (subject to approval)**

- EE530 Analogue Elec. Instr. & Techniques: 12.5
- EE751 Telecommunications Networks: 12.5
- EE754 Integrated Services: Digital Networks & BISDN: 12.5
- EE757 Personal & Mobile Communication: 12.5
- SE750 Communication Systems: 12.5
- SQ757 Local Area Networks: 12.5

*indicates subjects can be taken in either semester

**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.

**Duration of program**

This course has been designed to take place over one and a half years on a full-time basis. Students may commence their studies in either the first or second semester of any year and spend the first two semesters engaged in coursework. The course can also be undertaken part-time over six semesters.

**Prerequisites**

Candidates for the degree of Master of Engineering shall:
• have completed the degree of Bachelor of Engineering, or equivalent qualifications; OR
• have completed successfully a four year degree in Building or Architecture;
• have qualifications and experience which, in the opinion of the Divisional Board, are of a satisfactory standard and are a suitable preparation for study in the Masters program; AND
• preferably have appropriate experience.

Course structure

Year 1

Semester 1  Credit points
Core topics
CE690 Civil Eng Project Control 12.5
CE791 Construction Management 5
CE793 Contract & Law 10
CE794 Financial Management 10
Minor strand (Construction)
CE670 Construction Technology 12.5
OR

Minor strand (Building)
CE677 Quantity Surveying A 12.5
OR

Minor strand (Infrastructure Asset Management)
CE697 Infrastructure Systems 12.5

Semester 2

Core topics
CE693 Building Admin & Law 7.5
CE691 Civil Eng Management or 12.5
CE695 Property Management 12.5
CE692 Communications 12.5
CE792 Health & Safety in Construction 5
Minor strand (Construction)
CE772 Construction Technology 12.5
OR

Minor strand (Building)
CE777 Quantity Surveying B 12.5
OR

Minor strand (Infrastructure Asset Management)
CE795 Infrastructure Asset Management 12.5

Year 2

Semester 1
CE773 Research Project* 50.0
* One semester subject which can be taken in either semester.

Semester 1 (For part-timer)
CE773P Research Project 25.0

Semester 2 (For part-timer)
CE773P Research Project 25.0

*** Master of Engineering (Industrial Engineering)

The aim of this program is 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.

Course design & career potential

In the first semester emphasis is placed on fundamental through a thorough coverage of the fundamental concepts of IE, to provide students early on with important 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. As an emphasis on manufacturing, the technology management subjects introduce all aspects of adoption of new technology including financial analysis, project management and provides an overview of both traditional and modern production methods. 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 structure

Semester 1 (Graduate Certificate)
Fundamentals of Industrial Engineering 4
Quality and Productivity 2
Manufacturing Management Systems 4
Decision Analysis 2

Semester 2 (Graduate Diploma)
Expert Systems, Simulation and Modelling 2
Optimisation and Reliability 4
Computing for IE 2
Design of Physical facilities 2

Second semester provides more technical subjects to equip the IEs with tools and techniques to scientifically formulate, analyse and solve complicated problems at all levels of the organisation to achieve better performance.

Semester 3 (Masters)
Either
Minor thesis 12
Or
2 approved subjects 4 - 6
and
1 small project 6 - 8

Further information

Industrial Research Institute (IRIS) on 9214 8280.
Internet: http://www.swin.edu.au/iris
Master of Engineering in Open Systems
Graduate Diploma of Engineering in Open Systems
Graduate Certificate of Engineering in Open Systems

A three-year part-time program for graduates with a four year computing qualification or a lesser qualification but substantial and relevant experience. The course is primarily aimed at practising computer professionals and concentrates on those skills necessary for client-server computing.

To qualify, a student must complete the subjects listed below through three academic years of part-time study for the Master degree, two years for the Graduate Diploma and one year for the Graduate Certificate. The program normally requires attendance on two evenings per week.

Entry to the Master of Engineering in Open Systems is open to applicants with a four year computing qualification or those with lesser qualifications but substantial and relevant experience. In some cases, students may be admitted to the course provisionally, based on successfully undertaking some bridging units.

Course structure

Graduate Certificate

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT906</td>
<td>12.5</td>
</tr>
<tr>
<td>SQ757</td>
<td>12.5</td>
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</table>

Semester 2

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ752</td>
<td>12.5</td>
</tr>
<tr>
<td>SQ754</td>
<td>12.5</td>
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</tbody>
</table>

Graduate Diploma

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ755</td>
<td>12.5</td>
</tr>
<tr>
<td>SQ762</td>
<td>12.5</td>
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</tbody>
</table>

Semester 2

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT926</td>
<td>12.5</td>
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<tr>
<td>SQ753</td>
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</tbody>
</table>

Masters

<table>
<thead>
<tr>
<th>Semester (Electives)</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ952</td>
<td>12.5</td>
</tr>
<tr>
<td>SQ956</td>
<td>12.5</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2 (Electives)</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ955</td>
<td>12.5</td>
</tr>
<tr>
<td>SQ957</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Electives other than those shown (Masters level only) may be proposed by the student for approval.

Application procedure
Refer to page 168.

Master of Risk Management (subject to accreditation)

This is a three year part-time course commencing in March.

The degree program
This program addresses needs of industry to improve the management of resources associated with short and long term risk to people, assets and production. The program provides further studies for graduates from all branches of engineering, applied science and business who wish to gain more specialist knowledge in Risk Management.

Entrance requirements
A degree in any branch of Engineering, Applied Science or Business.

Course structure

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credit points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Risk</td>
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<tr>
<td>Quantitative Risk</td>
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<tr>
<td>Risk Law</td>
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<tr>
<td>Risk Management Principles</td>
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<td>Risk Analysis</td>
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<tr>
<td>Risk Engineering</td>
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<tr>
<td>Risk Evaluation Techniques</td>
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<tr>
<td>Financial Risk Management</td>
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<tr>
<td>Risk Engineering Science</td>
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<tr>
<td>Risk Research</td>
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<tr>
<td>Risk Project</td>
<td></td>
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<tr>
<td>Thesis</td>
<td></td>
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</tbody>
</table>

Further information
Contact the School of Mechanical and Manufacturing Engineering on 9214 8004.
Internet: http://www.mmm.swin.edu.au

Master of Engineering (Robotics & Automation) (subject to accreditation)

This is a one and a half year full-time or three years part-time course commencing in March or July.

The degree program
Graduates from this program will be able to assume a leadership role in the design and operation of robotic and automated systems.

In addition to those subjects in the Graduate Diploma program an industry based project may be completed.

Entrance requirements
A degree or diploma in Mechanical, Electrical, Electronic or Manufacturing Engineering.

Further Information
Contact the Industrial Research Institute Swinburne (IRIS) on 9214 8280.
Internet: http://www.swin.edu.au.iris
E096 Master of Engineering (by coursework) (Telecommunications)

E086 Graduate Diploma of Engineering (~electrocommunications)

E076 Graduate Certificate in Telecommunications

This program normally involves three years of part-time or one and half years of full-time study. This program is intended for graduates in Electrical, Communications, Computer Engineering or Computer Science seeking careers in engineering telecommunication 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).

Entrance requirements

Entry to the Graduate Certificate, Graduate Diploma and Master of Engineering is open to applicants with a four year engineering or science qualification or to those with lesser qualifications but substantial and relevant experience.

Course structure

Students must complete 100 credit points for the Graduate Diploma and 150 credit points to complete the Masters, including relevant project work

Semester 1: EE740 Project Management & Research Methods plus 3 core subjects (50 credit points)

Semester 2: EE760 Research Project A plus 2 core subjects; (50 credit points)

Semester 3: EE761 Research Project B plus 2 core subjects (50 credit points).

Alternative structure:

Semester 1: EE740 Project Management & Research Methods plus 3 core subjects (50 credit points)

Semester 2: four core subjects (50 credit points);

Semester 3: EE762 Major Research Project (50 credit points)

Alternative subjects (subject to approval)

EE730* Engineering Software (or equivalent) 12.5
EE732 Computer Architecture & Hardware 12.5
EE781 CAD and High Level Synthesis 12.5
EE786 Advanced Image Processing 12.5
EE787 Advanced Computer Architecture 12.5

* indicates subjects can be taken in either semester

1090 Master of Information Technology

This course is under review. Further information is available in the School of Computer Science and Software Engineering.

The Master of Information Technology involves one year full-time or two years part-time study. Entry is open to graduates with either an honours degree in computer science, information technology, information systems or an equivalent. Entry is also open to holders of graduate diplomas in computer science, information technology, information systems or computer systems engineering. Candidates with three year degrees but substantial industry experience may also apply.

The course is designed to provide opportunities for in-depth studies in some areas of contemporary information technology. The course is based around the concept of a 'cluster', and the subjects in each of the clusters are listed below. Clusters are of three types:

- **Discipline clusters**, consisting of four subjects with a common theme.
- **Complementary clusters**, consisting of four subjects that complement the disciplinary cluster, previous experience and interests. Complementary cluster subjects may be chosen from other clusters, honours degree subjects or other suitable sources.
- **Research and project/thesis clusters**, consisting of a major piece of work in the area of the discipline cluster and submission of a thesis. If the area of study is software engineering or automated systems development this may be a major group project.

The course consists of completion of two 'clusters' of study, one of which must be a discipline cluster. Currently, discipline clusters are offered in the areas of:

- human—computer interaction
- software engineering

Additional options may be available in the areas of Automated Systems Development and the Management of Information Technology.

The full-time program normally requires attendance for sixteen hours per week for two semesters and the part-time course for eight hours per week for four semesters.

Students progressing from a graduate diploma would normally be expected to have maintained a distinction level average over the course.
Course structure (1993 syllabus)

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<tr>
<td></td>
<td>IT993 Research Project Project (for 2 semesters)</td>
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</table>

* IT903 is only available to part-time students who have already completed the Software Engineering discipline cluster.

To be assessed for this degree, a candidate must present a major thesis based on original research, investigation or development work carried out either at Swinburne or externally. External work may be carried out at any approved industrial, governmental, educational or research organisation.

Copies of the statute for the degree of Master are in the separate publication Higher Education Policies and Procedures handbook and application forms are available from the Graduate Studies Officer.

Doctor of Philosophy

Z001 Applied Science

Programs are offered in areas of applied chemistry, biochemistry, biophysics, instrumental science, computer science, mathematics, operations research, statistics, mathematical modelling and mathematics education.

Applicants who are graduates at Bachelors or Masters degree level and who have shown a high standard of academic achievement may be admitted to candidature for the degree of PhD. Applicants shall have demonstrated to the Higher Degrees Committee of the Academic Board a capacity for research and investigational work in the area of study proposed.

To be assessed for this degree, a candidate must present a major thesis based on original research, investigation or development work carried out either at Swinburne or externally. External work may be carried out at any approved industrial, governmental, educational or research organisation.

Copies of the statute for the degree of PhD can be found in the separate publication Higher Education Policies and Procedures handbook or are available from the Swinburne Graduate Research School.

Y006 Civil Engineering

Y007 Electrical Engineering

Y008 Mechanical and Manufacturing Engineering

Graduates who hold a Bachelor degree and who have shown a high standard of academic achievement in that course may be admitted to candidature for the degree of Doctor of Philosophy.

The higher degree programs currently available require the presentation of a major thesis based on original research, investigation or development work, carried out either within Swinburne or externally, providing that adequate facilities and supervision can be arranged. External work can be carried out in the approved industrial, governmental, educational or research organisation.

Copies of the Statute for the degree of Master or PhD appear in the separate publication Higher Education Policies and Procedures handbook and application forms are available from the Swinburne Graduate Research School.
How to find subjects
All unit or 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 opposite.

The numeric code is made up of three or four digits, the first of which indicates the academic level: 1 for a first year subject, 2 for second year, 3 for third year and 4 for fourth year. Any higher number indicates subjects at postgraduate level.

Subject length
Unless otherwise stated all subjects are semesters 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 the 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.

Subjects are listed in numerical order within the following alpha-codes.

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AA106  Advanced Italian 1A

6 hours per week  •  Hawthorn  •  Prerequisite: VCE Italian or approved equivalent  •  Assessment: partly continuous, partly by examination

A subject in the Bachelor of Arts

Objectives and Content
The program has been planned in order to develop students' conversation skills and proficiency in writing standard Italian. Through a study of contemporary literature, students will improve their competence in grammar, vocabulary and idioms.

Recommended Reading

A4107  Advanced Italian 1B

6 hours per week  •  Hawthorn  •  Prerequisite: AA106 or approved equivalent  •  Assessment: partly continuous, partly by examination  •  Equivalent value: two semester subjects

A subject in the Bachelor of Arts

Objectives and Content
The program has been planned in order to develop students' conversation skills and proficiency in writing standard Italian. Through a study of contemporary literature, students will improve their competence in grammar, vocabulary and idioms.

The aim of the course is to consolidate and extend the work begun in semester one.

AA109  Italian 1X

6 hours per week  •  Hawthorn  •  Prerequisite: nil  •  Assessment: partly continuous, partly by examination

A subject in the Bachelor of Arts

Objectives and Content
This is a practical introduction to the language; a basic grammatical and conversational ability will be achieved. The course also includes a general introduction to the study of the Italian way of life.

Textbooks
Lazzarino, G. Da Capo: An Italian Review Grammar. 3rd edn, Fort Worth, Harcoun, Bruce Jovanovich, 1992

AA110  Italian 1Y

6 hours per week  •  Hawthorn  •  Prerequisite: AA109 or approved equivalent  •  Assessment: partly continuous, partly by examination  •  Equivalent value: two semester subjects

A subject in the Bachelor of Arts

Objectives and Content
This is a practical introduction to the language; a basic grammatical and conversational ability will be achieved. The aim of the course is to extend the work begun in semester one.

AA119  Post-War Italy

3 hours per week  •  Hawthorn  •  Prerequisite: nil  •  Assessment: by essay, seminar presentation and class test

A subject in the Bachelor of Arts

Objectives and Content
The aim of the subject is to explore some of those influences — internal — European and international which have shaped the development of Italy into a modern industrial nation.

The course is designed:
(a) to give students an appreciation of the Italian way of life and an understanding of the people of Italy today;
(b) to develop in the students an understanding of contemporary Italy by introducing them to changing Italian cultural values and to current social, political and economic issues.

AA206  Advanced Italian 2A

6 hours per week  •  Hawthorn  •  Prerequisite: AA106 or approved equivalent  •  Assessment: partly continuous, partly by examination

A subject in the Bachelor of Arts

Objectives and Content
The course aims to consolidate students' Italian language knowledge through advanced grammatical exercises and the study of appropriate literary works. The subject will also develop in subjects an understanding of contemporary Italy through the study of Italian history which covers the period from the rise of Fascism to present day Italy.

Textbooks

AA207  Advanced Italian 2B

6 hours per week  •  Hawthorn  •  Prerequisite: AA206 or approved equivalent  •  Assessment: partly continuous, partly by examination

A subject in the Bachelor of Arts

Objectives and Content
The course aims to consolidate students' Italian language knowledge and extend the work begun in semester one through advanced grammatical exercises and the study of appropriate literary works. The subject will also develop in students an understanding of contemporary Italy through the study of Italian history which covers the period from the rise of Fascism to present day Italy.
**AA208  Twentieth Century European Literature and Thought**

*3 hours per week • Hawthorn • Prerequisite: any two stage one BA subjects • Assessment: essay, seminar presentation & class test*

A subject in the Bachelor of Arts

**Objectives and Content**

This is an interdisciplinary subject which examines writers who have shaped the European consciousness. It provides students with the opportunity to study influential works in twentieth century European literature and through this to gain an understanding of some of the main intellectual currents in western culture.

*Note: This subject is interdisciplinary and may be accredited towards a major in Italian, Philosophy, Literature or European Studies.*

**Recommended reading**


**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.

**AA209 Italian 2X**

*6 hours per week • Hawthorn • Prerequisite: AA110 or approved equivalent • Assessment: partly continuous, partly by examination*

A subject in the Bachelor of Arts

**Objectives and Content**

The main objective of this subject is to consolidate students' proficiency by advanced language studies and by the study of twentieth century narrative (Pavese, Bassani, Sciascia).

Through a study of contemporary literature, students will be able to develop further their competence in grammar, vocabulary and idioms.

**Textbook**


**AA210 Italian 2Y**

*6 hours per week • Hawthorn • Prerequisite: AA209 or approved equivalent • Assessment: partly continuous, partly by examination*

A subject in the Bachelor of Arts

**Objectives and Content**

The main objective of this subject is to consolidate the knowledge of the Italian language and extend the work begun in semester one thus gaining linguistic competence that will enable students to deal with a wide range of topics in the written and spoken language.

Through a study of contemporary literature, students will be able to develop further their competence in grammar, vocabulary and idioms.

**AA212 European Union**

*3 hours per week • Hawthorn • Prerequisite: any stage one subject • Assessment: continuous*

A subject in the Bachelor of Arts

**Objectives and Content**

Introductory subject which outlines the historical, political, legal background of the European Union, analyses the role of European institutions and discusses the application of EU policy, with particular reference to Australian business.

**Recommended reading**


Lane, P. *Europe Since 1945*. London, Thames Hudson, 1985


**AA306 Advanced Italian 3A**

*No. of hours per week: three hours • Prerequisite: AA207 or approved equivalent • Assessment: partly continuous, partly by examination*

A subject in the Bachelor of Arts

**Objectives and Content**

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). Literary works to be advised.

**AA307 Advanced Italian 3B**

*No. of hours per week: three hours • Prerequisite: AA306 or approved equivalent • Assessment: partly continuous, partly by examination*

A subject in the Bachelor of Arts

**Objectives and Content**

The course continues to develop students' proficiency by advanced language studies and by the study of twentieth century narrative (Pavese, Bassani, Sciascia). Literary works to be advised.
AA309 Italian 3X

6 hours per week. Hawthorn. Prerequisite: AA210 or approved equivalent. Assessment: partly continuous, partly by examination.

A subject in the Bachelor of Arts

Objectives and Content

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 grammar; 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 covers the period from the rise of Fascism to present day Italy. It is complemented by contemporary documents on present day Italy and appropriate films and other media.

Textbook


AA310 Italian 3Y

6 hours per week. Hawthorn. Prerequisite: AA309 or approved equivalent. Assessment: continuous and examination.

A subject in the Bachelor of Arts

Objectives and Content

The main objectives of Italian 3Y are to consolidate students' advanced level language skills and to develop these further through a study of appropriate literature and related grammar; 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 covers the period from the rise of Fascism to present day Italy. It is complemented by contemporary documents on present day Italy and appropriate films and other media.

AA313 Contemporary Italy

3 hours per week. Hawthorn. Prerequisite: AA307 or AA310 (AA207 or AA210 if the subject is being studied concurrently with AA307 or AA310). Assessment: continuous.

A subject in the Bachelor of Arts

Objectives and Content

The subject is designed to make students aware of some of the main areas of Italy's achievements and to develop in students an understanding of the important economic, commercial, political, social and cultural aspects of Italy's changing reality.

Note: In order to complete a major in Italian, AA309 and AA310 (Beginner's stream) or AA306 and AA307 (post-VCE stream) are normally completed prior to, or concurrently with AA313.

AA375 Industry Based Learning in Europe

Prerequisite: any stage two Business and/or Arts subjects. Assessment: continuous.

A subject in the Bachelor of Arts

Objectives and Content

The objective of this elective is to provide students with a three month experience of living in a European country and working in a European company as a regular employee. The Industry Based Learning 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


AA376 European Union Study Tour

Prerequisite: AA119 and AA212 (recommended). Assessment: continuous.

This subject is offered bi-annually. It is not offered in 1997.

A subject in the Bachelor of Arts

Objectives and Content

This subject will expose students to the cultural, political and regulatory environments that currently constitute the European Union. The basis of the course is a study tour to several European countries. Students will visit the institutions of the European Union (such as the European Parliament, the European Court of Justice, the European Investment Bank and the offices of the European Commission) and European business enterprises. Lectures on topics relevant to the course will be provided by European universities. The tour will be preceded by three briefing sessions.

Recommended reading


AA377 International Business in the Italian Context

3 hours per week. Hawthorn. Prerequisite: stage one Business subjects and stage two Italian subjects or equivalent. Assessment: continuous. Only offered biannually - not offered in 1997.

A subject in the Bachelor of Arts

Objectives and Content

This subject is designed to make students familiar with international trade and the contemporary Italian business
environment, and to extend appropriate vocabulary and language skills. The aim is to give students the essential skills and confidence to do business with Italian and European entities. Topics will include elements of international management and marketing, Italian political, financial, cultural and economic structures and environment, export/import practices, and linguistics of international trade.-A student seminar and case discussion approach will be taken. Teaching and student participation will be both in English and Italian.

Recommended reading

**AA378 European Union - Business Context**

3 hours per week • Hawthorn • Prerequisite: Two stage two Bachelor of Arts or Bachelor of Business subjects • Assessment: assignments

**Objectives and Content**

This course has been developed in conjunction with industry and is offered off-campus and is also available to business people who are interested in increasing their knowledge of business in the rapidly developing European market. It is a 3rd year Bachelor of Business unit which may count towards both a Bachelor of Arts and Bachelor of Business. The course examines the main features of the European regulatory environment and identifies elements of the business strategy required and contractual problems experienced when working within the European Single Market. Specifically, the course will analyse Australian business opportunities, and present positive answers.

**AB200 Knowledge Thought and Computers**

10 credit points • 3 hours per week • Hawthorn

**Objectives**

To develop skills in critical and creative thinking, and to develop an understanding of the conceptual and ethical aspects of advanced computer technology, including the ways in which computers are transforming our concept of ourselves and our relationship to the environment.

**Content**

Reasoning and argument, philosophical logic, logic and language. Traditional and contemporary theories of knowledge and their relevance to knowledge engineering.

Mind and machines computation as a model for thinking about (human) thinking and vice versa.

Ethical questions arising from the above.

Enquiries about this subject should be directed to the Division of Business, Humanities and Social Science.

**AB310 Behavioural Studies and Communication**

5 credit points • 2 hours per week • Hawthorn

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

**Content**

The course reviews the basis principles of communication with particular emphasis on the various skills needed to apply them in both personal and vocational settings. It identifies some of the barriers to good communication and some causes of communication breakdown. While the emphasis is largely on the use of language and developing written communication skills, these skills are development through an examination of the requirements of both large organisations and small groups.

Individual and group exercise provide students with the opportunity to develop specific communication skills which may be taken into the workplace and generalised to their other interpersonal interactions.

**AB2100 Behavioural Studies and Communication**

5 credit points • 2 hours per week • Hawthorn

This is a first year subject of the Bachelor of Applied Science (Environmental Health)

**Objectives and content**

This course provides an introduction to the basic principles of communication, conflict resolution, and stress management. Topics covered will include verbal and nonverbal 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 practise and so to help develop skills that will be of practical use in both their workplaces and their interpersonal relationships.

**AD100 Analysis and Argument**

5 credit points • 3 hours per week • Hawthorn

• Prerequisite: nil • Assessment: continuous

A subject in the Associate Degree in Social Science

**Objectives and Content**

Introduces students to some of the key terms involved in argumentative structures and seeks to develop students' skills in critical analysis and clear thinking through an examination of a range of contemporary Australian social issues.

**AD101 Australian Government**

3 hours per week • Hawthorn • Prerequisite: nil • Assessment: continuous

A subject in the Associate Degree in Social Science

**Objectives and Content**

Examines the ways in which government is structured in Australia and how the different levels of government function in our society. Particular reference is given to the relationship that exists between the political and the legal systems and their related functions.
AD102/ Australian Society, the Economy and the Environment 1 and 2
3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous
A subject in the Associate Degree in Social Science

Objectives and Content
This subject runs over two semesters and highlights the development of Australian society, the economy and the effect of these developments on the natural environment. Within this framework the subject examines the role of government and the means that are used to achieve its economic objectives. The conflict between objectives and the consequences for the Australian population are stressed. The focus for study is on issues derived from these elements and their importance within the context of macroeconomics.

Unit 1 of the subject develops and applies an understanding of microeconomics as well as macroeconomic concepts to a particular organisation or market within the economy. The case study approach will be based on an application of research skills to economic and social processes.

AD104 Communication Skills
3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous
A subject in the Associate Degree in Social Science

Objectives and Content
This subject explores the nature of communication theory and the ways in which people can develop and apply their abilities in the key areas associated with written, spoken and graphic formats and styles.

AD105 Individuals, Groups and Organisations
3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous
A subject in the Associate Degree in Social Science

Objectives and Content
Explores the relationships between behaviour, personal identity, social roles, interpersonal relationships and social contexts. Considers the social and psychological dimensions of organisations including employment contexts.

AD106/ Using Information Technology
AD107 1 and 2
3 hours per week for two semesters • Hawthorn
• Prerequisite: nil • Assessment: continuous
A subject in the Associate Degree in Social Science

Objectives and Content
Familiarises students with the broad impact of information technology in the workplace. Instructs and assists students to use personal computers and to understand the basic applicants of a range of computer software. In the first semester, students will be introduced to operating systems and word processing and will develop basic competence in file management and word processing. In the second semester, word processing skills will be further developed and other kinds of applications (e.g. spreadsheets) will be introduced.

AD108 Issues in Multicultural Australia
3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous
A subject in the Associate Degree in Social Science

Objectives and Content
Explores the social impact of Australia's ethnically diverse population and explores the effects of cultural and linguistic differences on individuals' life chances. The subject will also cover the practical issues of dealing with members of the public and/or the workplace who may come from different cultural backgrounds.

AD109/ AD110 Language Other than English
6 hours per week for two semesters • Hawthorn
• Prerequisite: nil • Assessment: continuous
A subject in the Associate Degree in Social Science

Objectives and Content
Students choosing to study a language other than English as an elective must undertake two semesters of study. The course of study assumes no prior knowledge of the language chosen. Both written and spoken language skills will be developed. The cultural dimensions of the language and its social context will be studied, especially in relation to its relevance in the workplace.

AD111 Technology and Society
3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous
A subject in the Associate Degree in Social Science

Objectives and Content
Investigates the key concept of change in society with particular reference to explaining how and in what ways societies generate new technologies and adapt to their impact. Case study examples will be used to focus the study of technology.

AD112 Understanding the Mass Media
3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous
A subject in the Associate Degree in Social Science

Objectives and Content
Examines the roles and functions of the major forms of mass media in Australian society. Particular emphasis is given to such factors as ownership and control of the media, mechanisms for media regulation and debates about the influence of mass media on individuals and social patterns.
AD200  Behaviour in Organisations
3 hours per week  •  Hawthorn  •  Prerequisite: nil
•  Assessment: continuous
A subject in the Associate Degree in Social Science
Objectives and Content
Examines the theories of organisational behaviour. Considers the ways in which groups and individuals interact with each other and the impact of organisational structures on the functioning of organisations. Particular emphasis is given to the analysis of organisational culture and how such phenomena affect behaviour in the workplace.

AD201  Culture and Ideas
3 hours per week  •  Hawthorn  •  Prerequisite: first year Associate Degree in Social Science  •  Assessment: continuous
A subject in the Associate Degree in Social Science
Objectives and Content
Examines theories of culture and the notions of cultural transmission, continuity and discontinuity and change in society. Includes case studies of cultural contexts, meaning systems, representations in film and text and the social sources and impact of cultural symbolism. The role of ideas and systems of meaning in Australian society is highlighted.

AD202  Data Usage and Interpretation
3 hours per week  •  Hawthorn  •  Prerequisite: first year Associate Degree in Social Science  •  Assessment: continuous
A subject in the Associate Degree in Social Science
Objectives and Content
This subject helps the student understand a range of forms of data and ways of organising both qualitative and quantitative data. It helps students comprehend basic methods of analysis of these data as well as how to interpret data for particular purposes in a variety of employment contexts.

AD203  Economic Decision-making in the Enterprise
3 hours per week  •  Hawthorn  •  Prerequisite: first year Associate Degree in Social Science  •  Assessment: continuous
A subject in the Associate Degree in Social Science
Objectives and Content
Develops an understanding of the role of the enterprise in a modified market economy. The emphasis is on concepts relevant to microeconomics but the importance of the macroeconomic context in which decisions are made will be stressed. The student should develop skills of analysis and synthesis based on an understanding of economic concepts. The aim will be to ensure that there is an appreciation of the complexity and the interrelationship between economic factors and their importance in making economic decisions within business organisations.

AD204  Equity and Opportunity in Australian Society
3 hours per week  •  Hawthorn  •  Prerequisite: first year Associate Degree in Social Science  •  Assessment: continuous
A subject in the Associate Degree in Social Science
Objectives and Content
Examines the ideas which underpin concepts of equity and opportunity and explores how these ideas and concepts are made evident in Australian society, in organisational structures and in related contexts. Evaluation of these concepts and the critical analysis of their applicability in particular work structures is investigated.

AD205  Health and Illness
3 hours per week  •  Hawthorn  •  Prerequisite: first year Associate Degree in Social Science  •  Assessment: continuous
A subject in the Associate Degree in Social Science
Objectives and Content
Examines the area of occupational health and safety both in its social and legislative contexts and in its organisational context. Investigates the impact of illness in the workplace and the broad legal and social issues of health and illness in the society and the workplace, e.g., prevention, rehabilitation, improved work practices, retraining, access to medical care.

AD206  Industrial Relations
3 hours per week  •  Hawthorn  •  Prerequisite: first year Associate Degree in Social Science  •  Assessment: continuous
A subject in the Associate Degree in Social Science
Objectives and Content
Investigates the forces for cooperation and conflict as they impact on the industrial relations arena in complex technological societies. Explores the roles and boundaries of government involvement and the legal dimensions of industrial relations as they affect the roles of employers and unions in a changing environment. Case studies of the interaction between these often competing groups are examined.

AD207  Information Systems, Society and Technology
3 hours per week  •  Hawthorn  •  Prerequisite: first year Associate Degree in Social Science  •  Assessment: continuous
A subject in the Associate Degree in Social Science
Objectives and Content
Explores the theoretical perspectives which influence understanding about the evolution of information technology and its place in different economic contexts. Investigates the design and use of information systems and develops the skills of needs analysis to arrive at decisions with the selection and implementation of appropriate solutions adapted to the workplace.
AD208 Negotiation and Change Management  
3 hours per week • Hawthorn • Prerequisite: first year Associate Degree in Social Science • Assessment: continuous  
A subject in the Associate Degree in Social Science  
Objectives and Content  
Considers how interpersonal and group communication theory can inform the skills of discussion, presentation and conciliation involved in negotiation. Analyses the dynamics of change and how change occurs within complex societies and organisations. Develops the ability to understand, devise, implement and monitor strategies to change aspects of the way workplaces operate.

AD209 Report Writing  
3 hours per week • Hawthorn • Prerequisite: first year Associate Degree in Social Science • Assessment: continuous  
A subject in the Associate Degree in Social Science  
Objectives and Content  
Examines the nature, purposes, styles and formats for report writing. Particular audiences are used to highlight the need to decide what sort of data should be collected, how they should be analysed and how they should be presented in writing according to the judgments about purposes identified by the writer of the report. Setting out and production of reports will also be covered.

AD210 Research Skills  
3 hours per week • Hawthorn • Prerequisite: first year Associate Degree in Social Science • Assessment: continuous  
A subject in the Associate Degree in Social Science  
Objectives and Content  
This course aims to assist students to develop skills in secondary and primary research. Students will develop the ability to distinguish appropriate from inappropriate research methodologies, to locate sources of published social data, to analyse secondary data and to carry out small-scale independent research projects using both qualitative and quantitative techniques.

AD211 Writing and Producing for Public Release  
3 hours per week • Hawthorn • Prerequisite: first year Associate Degree in Social Science • Assessment: continuous  
A subject in the Associate Degree in Social Science  
Objectives and Content  
Instructs students in the appropriate formats and production modes for preparing material to be disseminated through the written and electronic mass media. Prepares students to identify the characteristics of target audiences and to write text appropriate for particular audiences. Training in in-house journalism techniques will also be included.

AD212/AD213 Language Other than English  
6 hours per week for two semesters • Hawthorn  
• Prerequisite: first year Associate Degree in Social Science  
• Assessment: continuous  
A subject in the Associate Degree in Social Science  
Objectives and Content  
Students continue with a study of a language commenced in Year 1.

AH100 Introduction to Philosophy  
3 hours per week • Hawthorn • Prerequisite: nil  
• Assessment: continuous and by examination  
A subject in the Bachelor of Arts  
Objectives and Content  
An introduction to the problems and methods of philosophy. An examination of the thoughts of some of the great philosophers of the past, and consideration of how their ideas apply to contemporary issues and problems. Basic principles of handling language and conceptual analysis; the application of such principles to specific problem areas such as: knowledge, perception, and belief; reality and truth; mind, body, consciousness, and self-identity; ethics and morality; social and political relations.  
Recommended Reading:  
Please consult with lecturer before buying recommended readings.  

AH101 History of Ideas  
3 hours per week • Hawthorn • Prerequisite: nil  
• Assessment: continuous  
A subject in the Bachelor of Arts  
Objectives and Content  
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. Themes which serve as a focus for this course may include one or more of the following: Darwin’s theory of evolution, the concept of the self (from Descartes to Freud), God and nature; knowledge and belief.  
Recommended Reading:  
To be advised

AH102 Theories of the Universe  
3 hours per week • Hawthorn • Prerequisite: nil  
• Assessment: continuous  
A subject in the Bachelor of Arts
Objectives and Content

Ideas about the world and our relationship to the universe. Within the general framework of social history the main emphasis is on the interaction of culture, civilisation, social change, and science.

Major topics include ancient societies, religion and science, concepts of the universe, theories and hypotheses.

Recommended reading

Please consult with lecturer before buying recommended reading.


AH103 Critical Thinking

3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous

A subject in the Bachelor of Arts

Objectives and Content

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 is 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 recommended readings.


AH204 Philosophy of Culture

3 hours per week • Hawthorn • Prerequisite: one of AH100, AH101, AH102, AH103 or approved equivalent
• Assessment: continuous

A subject in the Bachelor of Arts

Objectives and Content

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. 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 recommended reading.


Dupre, L. Marx's Social Critique of Culture. New Haven, Yale University Press, 1983

AH205 Social Philosophy, Politics and Ethics

3 hours per week • Hawthorn • Prerequisite: one of AH100, AH101, AH102, AH103 or approved equivalent
• Assessment: continuous

A subject in the Bachelor of Arts

Objectives and Content
Ever since the Enlightenment, the project of modernity has dominated philosophical thinking about the social, political, and ethical principles, practices, and institutions to which we owe allegiance. In recent times, however, the existing orthodoxy has been severely challenged by the cultural condition known as ‘postmodernity’. The aim of this subject is to introduce students to the modernity/postmodernity debate, and to elucidate its social, political, and ethical implications. To ensure a cohesive focus, the issues in dispute between J. Habermas and M. Foucault, two of the foremost contributors to the debate, serve as focal points for discussion, but the views of a range of other thinkers, ancient and modern, are also considered to the extent that these views are helpful in elucidating our contemporary condition in its social, political, and ethical dimensions.

Recommended Reading:
Please consult with lecturer before buying recommended reading.


* Not available to students who have previously passed AH202 and AH200 Moral and Political Philosophy.

AH206 Society, Culture, and Resources

3 hours per week • Hawthorn • Prerequisite: one of AH100, AH101, AH102, AH103 or approved equivalent
• Assessment: continuous

A subject in the Bachelor of Arts

Objectives and Content
Resources, people, survival, and development within the general framework of social history this course emphasises the interaction between technology, social change and the environment from ancient to modern times. Politics, economics, religion, values, traditions, social structures, education, relations with neighbours, knowledge, skills and the natural environment are factors which combine to influence the course of human development. Issues considered are the moral dilemmas of industrial societies, particularly problems of pollution and environment control.

Recommended reading
Please consult with lecturer before buying recommended reading.


AH207 Professional and Business Ethics

16.66 points • 3 hours per week • Hawthorn • Prerequisites nil
• Assessment: Continuous

Subject to accreditation.

A subject in the Bachelor of Arts and Bachelor of Business

This subject is designed primarily for business students to provide them with the knowledge of ethics necessary to understand the ethical implications of business activity and the means to resolve ethical disputes. The subject will examine what ethics is, what are the most important ethical doctrines that have been developed and what are the central ethical problems associated with business, showing how ethical doctrines are relevant to defining the ethical significance of both individual and corporate situations, decisions and actions and to working out the appropriate response to these.

Recommended Reading:

AH208 Asian Traditions in Philosophy

16.66 points • 3 hours per week • Hawthorn • Prerequisites nil
• Assessment: Continuous

Subject to accreditation.

A subject in the Bachelor of Arts

Objectives and Content
The purpose of this subject is to introduce students to some of the main traditions in Chinese, Indian and Japanese philosophical thought, and through this to develop an understanding of Asian cultures and an appreciation of the diversity of thought in non-Western traditions. The course is organized around the four key philosophical themes of reality, self, knowledge, and ethics. The main schools of thought are Hindu, Buddhist and Confucian.

References

AH301 Rationality

3 hours per week • Hawthorn • Prerequisite: two of AA208, AH201, AH202, AH203, AH204, AH205, AH206, or approved equivalents • Assessment: continuous

A subject in the Bachelor of Arts
**Objectives and Content**

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. Discussion will focus on such issues as: the challenges to rationality posed by our status as situated human agents; the threats 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 recommended readings.


**AH306 Practical Ethics**

*3 hours per week* • Hawthorn • Prerequisite: two of AA208, AH201, AH202, AH203, AH204, AH205, AH206, or approved equivalents • Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

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. 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 recommended readings.


Elliot, R. and Gare, A. *Environmental Philosophy*. Brisbane, University of Queensland Press, 1983


**AH307 Australian Science and Society**

*3 hours per week* • Hawthorn • Prerequisite: two of AA208, AH201, AH202, AH203, AH204, AH205, AH206 or approved equivalents • Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

This subject will bring perspectives from the history, philosophy and social studies of science to bear on the theme of Australian science and society. Topics covered will range from Aboriginal conceptions of nature to colonial science with its cultural dependence on metropolitan centres, to the triumph of molecular biology and immunology and the rise of scientific internationalism and cultural independence. The subject will also examine current issues in Australian science and technology, science policy and the public image of science.

**Recommended Reading**

Please consult with lecturer before buying recommended readings.

*AH308 Social Studies of Science*

*3 hours per week* • Hawthorn • Prerequisite: two of AA208, AH201, AH202, AH203, AH204, AH205, AH206 or an approved equivalent • Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

This subject will examine the contemporary debate on the social construction of scientific knowledge. The extent to which science reflects the culture in which it is set has been the subject of much recent writing about science. Some authors make the claim that scientific knowledge is autonomous, and the proper objects of sociological inquiry are the various social and institutional relationships which hold within the community of scientists, both in the laboratory and in the wider world. More recently, the claim has been made that social factors contribute in a crucial way to the content of science itself, to the type of knowledge that is produced. These claims will be investigated through case studies on both historical and current issues.

**Recommended Reading**

Please consult with lecturer before buying recommended reading.

**AH309 Special Topics in Philosophy**

*3 hours per week* • Hawthorn • Prerequisite: two of AA208, AH201, AH202, AH203, AH204, AH205, AH206 or approved equivalents • Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

A series of advanced seminars on contemporary topics in philosophy or an intensive study of a particular topic. Topics may be chosen from any of the major areas. The topics chosen in any given year will depend upon the expertise of the lecturer in charge.
AH310 Approaches to Culture

3 hours per week • Hawthorn • Prerequisite: two of AA208, AH201, AH202, AH203, AH204, AH205, AH206, or approved equivalents • Assessment: continuous

A subject in the Bachelor of Arts

Objectives and Content
Contemporary approaches to the study of culture draw on the European philosophical traditions of phenomenology, hermeneutics and structuralism. 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 recommended reading.

*AH311 Environmental Philosophy

3 hours per week • Hawthorn • Prerequisite: two of AA208, AH201, AH202, AH203, AH204, AH205, AH206 or approved equivalents • Assessment: continuous

A subject in the Bachelor of Arts

Objectives and Content
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 assumptions of belief systems on the scientific enterprise? Among the authors whose works will be considered are Dewey, Smart, Popper, Kuhn, Ravetz.

Recommended reading
Please consult with lecturer before buying recommended reading.

*AH312 Natural Philosophy and the Sciences

3 hours per week • Hawthorn • Prerequisite: two of AA208, AH201, AH202, AH203, AH204, AH205, AH206, or approved equivalent • Assessment: continuous

A subject in the Bachelor of Arts

Objectives and Content
Science in the twentieth century is inaugurating one of the most radical revolutions in thought in the history of humanity. This subject examines this revolution and its implications. It begins with a critical study of theories of scientific knowledge to reveal the inextricable link between science and natural philosophy, the quest to characterise the nature of physical existence. It is then shown how the ‘new physics’ and the ‘new biology’ have abandoned the philosophy of nature on which science has been based for the last three hundred years, creating a new conception of physical existence which is transforming our view of the cosmos, of life, and what it means to be human. It is shown how these transformations are enabling us to understand how we, as both natural and cultural beings, are able to create science and achieve this understanding of the world and ourselves. The subject concludes by looking at science as a cultural process in which humans are creating and transforming themselves and their relationship to the rest of nature.

Recommended reading
Please consult with lecturer before buying recommended reading.
Chalmers, A. What is This Thing Called Science? 2nd edn, St. Lucia, University of Queensland Press, 1982
* Not available to students who have previously passed AH304 Philosophy of Science A.

*AH313 Knowledge, Science and Reality

3 hours per week • Hawthorn • Prerequisite: two of AA208, AH201, AH202, AH203, AH204, AH205, AH206 or approved equivalents • Assessment: continuous

A subject in the Bachelor of Arts

Objectives and Content
The Instrumentalism/Realism debate. Can we have absolute knowledge of the world? Is there such a thing as ‘truth’ or is our knowledge always tentative and open to revision? What effects have values, attitudes, perceptions, emotions and belief systems on the scientific enterprise? (e.g. biotechnology, IVF). What are the consequences for the sciences and social sciences? Among the authors whose works will be considered are Dewey, Smart, Popper, Kuhn, Ravetz.

Recommended reading
Please consult with lecturer before buying recommended reading.
A subject in the Bachelor of Arts

**AH314 Philosophical Psychology**

*16.66 points*  
• 3 hours per week  
• Hawthorn  
• Prerequisites: Any two Stage 2 subjects in Humanities or Social Science, or approved equivalents  
• Assessment: Continuous

Subject to accreditation.

A subject in the Bachelor of Arts

**AH305 Philosophy of Science B.**

This subject introduces historical and cultural topics of direct relevance to the development of Japanese art forms, and thereby to complement the nature of explanation in the behavioural sciences, and themes and methodologies, and thereby to complement studies particularly in psychology, but also in the behavioural and social sciences generally. The subject includes: the subject includes (a) a study of mind, science and the nature of explanation in the behavioural sciences, and (b) a study of self, identity and the concept of the person.

**References**


**A1102 Introduction to Japan – A Cultural Overview**

*3 hours per week*  
• Hawthorn  
• Prerequisite: nil  
• Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

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.

**Textbooks**


**Recommended reading**


- Childs, M.H. *Rethinking Sorrow. Revelatory Tales of Late Medieval Japan*. Michigan, University of Michigan, 1991
- Kishibe, S.H. *The Traditional Music of Japan*. Tokyo, Ongaku No Tomo Sha, 1984

**A1103 Japanese 1A**

*6 hours per week*  
• Hawthorn  
• Prerequisite: nil  
• Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

This subject is designed to introduce students to the Japanese language. Training is provided in grammar, writing, reading, conversation and listening comprehension. Films, slides and a variety of taped materials are used extensively throughout the course. As a further aid, taped cassettes of each lesson can be purchased. It is highly recommended that students enrolled in this subject also enrol for A102, offered in both semesters.

**Textbooks**

- Japanese Section, *Dialogue and Aural Comprehension 1*. Melbourne, Swinburne Press, 1995

**Recommended reading**

- Mizutani, O. and N. *Nihongo Notes*. Vols. 1 and 2, Tokyo, Japan Times, 1977

**A1104 Japanese 1B**

*6 hours per week*  
• Hawthorn  
• Prerequisite: A1 103 or equivalent  
• Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

This subject is a continuation of A1 103. It continues training in grammar, writing, reading, conversation and listening comprehension. Variety of audio-visual materials are used to supplement the written texts. Cassette tapes for each lesson can be purchased.
**Textbooks**
Japanese Section, T. *Dialogues and Aural Comprehension 1.* Melbourne, Swinburne Press, 1995
Machida, T. and Skoutarides, A. *Nihongo, Reading and Writing.* Vols. 4 and 5, Melbourne, Swinburne Press, 1988

**Recommended reading**
Mizutani, O. and N., *Nihongo Notes.* Vols. 1 and 2, Tokyo, Japan Times. 1977

**AJ105 Advanced Japanese 1A**
6 hours per week  •  Hawthorn  •  Prerequisite: VCE Japanese or approved equivalent  •  Assessment: continuous
A subject in the Bachelor of Arts

**Objectives and Content**
This subject consolidates students knowledge of basic grammar and extends the range of grammar patterns, Japanese characters and vocabulary acquired at VCE level. It also provides training in aural/oral skills appropriate to post-VCE competence level.

**Textbooks**

**Recommended reading**

**A1106 Advanced Japanese 1B**
6 hours per week  •  Hawthorn  •  Prerequisite: AJ105 or approved equivalent  •  Assessment: continuous
A subject in the Bachelor of Arts

**Objectives and Content**
This subject continues training in written and spoken Japanese. It introduces students to unabridged fiction reading texts. It extends the range of Japanese characters and begins training in honorifics appropriate to a range of adult communicative situations.

**Textbooks**
Japanese Section, *Nihongo, Reading and Writing.* Vols. 6 and 7, Melbourne, Swinburne Press, 1996

**Recommended reading**
Mizutani, O. and N., *Nihongo Notes.* Vols. 1, 2 and 3, Tokyo, Japan Times Ltd., 1979-1981

**A1202 Communication in Japanese**
3 hours per week  •  Hawthorn  •  Prerequisite: AJ104 or AJ106  •  Assessment: test/assignments/participation
A subject in the Bachelor of Arts

**Objectives and Content**
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**
Mizutani, O. and N. *How to be Polite in Japanese.* Tokyo, Japan Times, 1987
A comprehensive list of other references is available from the subject coordinator.

**A1203 Japanese 2A**
6 hours per week  •  Hawthorn  •  Prerequisite: AJ104 or approved equivalent  •  Assessment: continuous
A subject in the Bachelor of Arts

**Objectives and Content**
This subject extends the range of language patterns, grammar and writing. It also provides further training in oral and aural skills. Students are introduced to various topics on Japanese culture and society through reading in Japanese. A variety of audio-visual material is used throughout the course.

It is highly recommended that students enrolled in this subject also enrol for A1202 which is offered in semester 2.

**Textbooks**
Japanese Section, A. *Nihongo, Reading and Writing.* Vols. 6 and 7, Melbourne, Swinburne Press, 1996

**Recommended reading**
Mizutani, O. and N., *Nihongo Notes.* Vols. 1, 2, 3, Tokyo, Japan Times, 1977
**AJ204  Japanese 2B**

6 hours per week • Hawthorn • Prerequisite: AJ203 or approved equivalent • Assessment: continuous

A subject in the Bachelor of Arts

This subject is a continuation of AJ203. It provides further training in the various aspects of the language through extensive reading and exposure to a variety of audio-visual materials.

**Textbooks**

Japanese Section, *Nihongo, Reading and Writing*. Vols. 8, 9 & 10, Melbourne, Swinburne Press, 1996


**Recommended reading**

Japan Foundation *Basic Japanese-English Dictionary*. Tokyo, Bonjinsha, 1986

Mizutani, O. and N., *Nihongo Notes*. Vols. 1 and 2, Tokyo, Japan Times. 1977

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**AJ205  Advanced Japanese 2A**

6 hours per week • Hawthorn • Prerequisite: AJ106 or an approved equivalent • Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

This subject extends the range of language patterns, grammar and writing covered in the first stage of the advanced stream and provides further training in aural and oral skills.

**Textbooks**


**Recommended reading**

Mizutani, O. and N. *Nihongo Notes*. Vols. 1-3, Tokyo, Japan Times, 1977

Japan Foundation *Basic Japanese-English Dictionary*. Tokyo, Bonjinsha, 1986

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**AJ206  Advanced Japanese 2B**

6 hours per week • Hawthorn • Prerequisite: AJ205 or an approved equivalent • Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

This subject introduces students to unabridged non-fiction reading material. It provides further training in oral/aural skills. It accelerates students’ acquisition of Japanese characters and provides training in writing of different styles of text.

**Textbooks**

Fukushima, N. *Japan and Australia*. Melbourne, Swinburne Press, 1994

Fukushima, N. *Signs and Ads*. Melbourne, Swinburne Press, 1995


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**AJ302  Work Experience in Japan**

Prerequisite: minimum three years of double degree Business/Arts (Japanese) studies including satisfactory completion of stage 3 subjects of the Japanese major • Assessment: completion of the work experience component and report from the work experience provider; assessed on pass/fail basis

This elective subject is only available to students undertaking the double degree Business/Arts (Japanese) course.

**Objectives and Content**

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: A series of preparatory lectures on Japanese, company structure, employer-employee relations and similar.

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


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**AJ303  Japanese 3 C**

6 hours per week • Hawthorn • Prerequisite: AJ204 or an approved equivalent • Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

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**

Fukushima, N. *Japan and Australia*. Melbourne, Swinburne Press, 1992

Fukushima, N. *Signs and Ads*. Melbourne, Swinburne Press, 1993


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Swinburne University of Technology 1997 Handbook 229
AJ304  Japanese 3D
6 hours per week  ● Hawthorn  ● Prerequisite: AJ303 or approved equivalent  ● Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
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
Fukushima, N. Japan and Australia. Melbourne, Swinburne Press, 1992
Skoutarides, A. et al., Nihongo, Reading and Writing. vol. 12 & 13, Melbourne, Swinburne Press, 1991

AJ305  Advanced Japanese 3C
6 hours per week  ● Hawthorn  ● Prerequisite: AJ206 or approved equivalent  ● Assessment: continuous
A subject in the Bachelor of Arts

Note: If insufficient student numbers enrolled in this course - an alternative course of study will be provided.

Objectives and Content
This subject continues to develop skills in written and spoken Japanese with particular attention to communication styles appropriate to different situations.

Textbooks
Fukushima, N. Japan and Australia. Melbourne, Swinburne Press, 1991
Machida, T. and Skoutarides, A. Nihongo, Reading and Writing. vol. 12 & 13, Melbourne, Swinburne Press, 1991

AJ306  Advanced Japanese 3D
6 hours per week  ● Hawthorn  ● Prerequisite: AJ305 or approved equivalent  ● Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
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
4 hours per week  ● Hawthorn  ● Prerequisite: Credit or above in AJ204, AJ205 or approved equivalent  ● Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
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
4 hours per week  ● Hawthorn  ● Prerequisite: AJ204, AJ206 or approved equivalent  ● Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
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
4 hours per week  ● Hawthorn  ● Prerequisite: credit or above in AJ204, AJ206 or approved equivalent  ● Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
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. The double degree Business/Arts students are strongly recommended to enrol in this subject.

**Textbooks**

**AJ400 Japanese Society A**
4 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous
This subject is not offered in 1997.
A subject in the Graduate Diploma in Japanese

**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**
4 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous
This subject is not offered in 1997.
A subject in the Graduate Diploma in Japanese

**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**
4 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous
This subject is not offered in 1997.
A subject in the Graduate Diploma in Japanese

**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**
Additional reading materials and reading guides are distributed to students enrolled in the course.

**AJ403 Japanese Culture B**
4 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous
This subject is not offered in 1997.
A subject in the Graduate Diploma in Japanese

**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**
Additional reading materials and reading guides are distributed to students enrolled in the course.
A1404 Japanese Business and Industry A

4 hours per week  •  Hawthorn  •  Prerequisite: nil  •  Assessment: continuous

A subject in the Graduate Diploma in Japanese

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.

A1405 Japanese Business and Industry B

4 hours per week  •  Hawthorn  •  Prerequisite: nil  •  Assessment: continuous

A subject in the Graduate Diploma in Japanese

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.

A1406 Japanese Politics A

4 hours per week  •  Hawthorn  •  Prerequisite: nil  •  Assessment: continuous

A subject in the Graduate Diploma in Japanese

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


Additional reading materials and reading guides are distributed to students enrolled in the course.

A1407 Japanese Politics B

4 hours per week  •  Hawthorn  •  Assessment: continuous

A subject in the Graduate Diploma in Japanese

Objectives and Content

This subject covers reading and conversation which extends to topics introduced in Japanese Politics A.

Textbooks


Additional reading materials and reading guides are distributed to students enrolled in the course.

A1420 Graduate Diploma in Japanese for Professionals 1A

6 hours per week  •  Hawthorn  •  Prerequisite: nil  •  Assessment: continuous

A subject in the Graduate Diploma in Japanese

Content

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.

Textbooks

Machida, T. Introduction to Japanese Writing. Melbourne, Swinburne Press, 1982


Japanese Section. Dialogues and Aural Comprehension I, Melbourne, Swinburne Press, 1996

Japanese Section, Japanese Workbook, Melbourne, Swinburne Press, 1994

Machida, T. and Skoutarides, A. Pronunciation Exercises, Melbourne, Swinburne Press

Recommended reading

AJ421 Graduate Diploma in Japanese for Professionals 1B
6 hours per week • Hawthorn • Prerequisite: AJ420 Graduate Diploma in Japanese for Professionals 1A • Assessment: continuous

Content
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.

Textbooks
Japanese Section, Dialogues and Aural Comprehension 1, Melbourne, Swinburne Press, 1996
Japanese Section, Questions for Slide Commentaries, Melbourne, Swinburne Press, 1996
Machida, T. and Skoutarides, A. Nihongo, Reading and Writing Vol 4-5, Melbourne, Swinburne Press, 1988

Recommended reading
Mizutani, O. and N. Nihongo Notes Vol 1-2. Tokyo, Japan Times, 1977

AJ422 Graduate Diploma in Japanese for Professionals 2A
6 hours per week • Hawthorn • Prerequisite: Graduate Diploma in Japanese for Professionals 1B • Assessment: continuous

Content
This subject is a continuation of AJ421. 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 business and industry 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 business and industry components.

Textbooks
Japanese Section, Dialogues and Aural Comprehension 2A, Melbourne, Swinburne Press, 1996
Japanese Section, Nihongo, Reading and Writing Vol 6-7, Melbourne, Swinburne Press, 1996

Recommended reading
Mizutani, O. and N. Nihongo Notes Vol 1, 2, 3. Tokyo, Japan Times, 1977
Japan Foundation. Basic Japanese • English Dictionary, Tokyo, Bojinsha, 1986

AJ423 Graduate Diploma in Japanese for Professionals 2B
6 hours per week • Hawthorn • Prerequisite: Graduate Diploma in Japanese for Professionals 2A • Assessment: continuous

Content
This subject is a continuation of AJ422. 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 politics 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 politics component.

Textbooks
Japanese Section, Dialogues and Aural Comprehension 2B, Melbourne, Swinburne Press, 1996
Japanese Section, Nihongo, Reading and Writing Vol 8, 9 and 10, Melbourne, Swinburne Press, 1996

Recommended reading
Mizutani, O. and N. Nihongo Notes Vol 1, 2, 3. Tokyo, Japan Times, 1977
Japan Foundation. Basic Japanese • English Dictionary, Tokyo, Bojinsha, 1986

AK102 Traditional Korea
3 hours per week • Hawthorn • Prerequisite: nil • Assessment: continuous
A subject in the Bachelor of Arts

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-Hiu. The Last Phase of the East Asian World Order. Berkeley, University of California 1980

The above sources will be supplemented by a variety of specialist journal articles.
AK103 Korean 1A

6 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
The objective of the subject is to introduce students to the Korean language and to give them a secure command of its basic structures. This entails instruction in language patterns, grammar, reading, writing, aural comprehension and socio-linguistics. A wide range of audio-visual materials are used, including language slides, cassette tapes, realia, and video-cassettes. Audio cassettes of the course material are available to students for purchase.

Students undertaking a major in Korean are strongly advised to enrol for AK102 Traditional Korea.

Textbook

AK104 Korean 1B

6 hours per week • Hawthorn • Prerequisite: AK103 or approved equivalent • Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
This subject is a continuation of AK103. It continues training in grammar writing, reading conversation and listening comprehension. A variety of audio-visual materials are used to supplement the written texts. Cassette tapes for each lesson can be purchased.

Textbook

AK205 Korean 2A

6 hours per week • Hawthorn • Prerequisite: AK104, or equivalent • Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
Extension of the students' command of modern Korean. This entails further instruction in language patterns, grammar, reading, writing, aural comprehension with increasing emphasis on media Korean and on socio-linguistics. A wide range of audio-visual materials are used, including language slides, cassette tapes, realia, and video-cassettes. Audio cassettes of the course material are available to students for purchase. It is highly recommended that students enrolled in this subject also enrol in AK207 and AK208.

Textbooks

AK206 Korean 2B

6 hours per week • Hawthorn • Prerequisite: AK205 • Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
This subject is a continuation of AK205. This subject extends the range of language patterns, grammar and writing. It also provides further training in oral and aural skills. Students are introduced to various topics on Korean culture and society through reading in Korean. A variety of audio-visual material is used throughout the course.

It is highly recommended that students enrolled in this subject also enrol in AK207 and AK208.

Textbooks

AK207 Korean Society

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

Objectives and Content
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

The above sources will be supplemented by a variety of specialist journal articles.

AK208 Korean Politics and Economy

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

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.

**Textbooks**


**Recommended reading**

Cotton, James (ed.) *Korea under Roh Tae-woo: Democratization, Northern Policy and Inter-Korean Relations*. St Leonards, NSW, Allen & Unwin, 1993


The above sources will be supplemented by a variety of specialist journal articles.

**AK303 Korean 3C**

*6 hours per week • Hawthorn • Prerequisite: AK206, or equivalent • Assessment: continuous*

A subject in the Bachelor of Arts

**Objectives and Content**

This subject continues to extend students' command of modern Korean in a variety of spoken and written contexts. The language is taught at both the written level, utilising a variety of contemporary sources, such as the electronic and print media and at the more colloquial level, where individual conversation practice on a wide range of topics is offered.

**Textbooks**

Seo, W. *Advanced Korean*. Melbourne 1, Swinburne Press, 1995

**AK304 Korean 3D**

*6 hours per week • Hawthorn • Prerequisite: AK303 or approved equivalent • Assessment: continuous*

A subject in the Bachelor of Arts

**Objectives and Content**

This subject is a continuation of AK303. It continues expansion of students' knowledge of spoken and written Korean.

**Textbooks**

Seo, W. *Advanced Korean*. Melbourne, Swinburne Press, 1996

**AK305 Reading Korean Newspapers**

*4 hours per week • Hawthorn • Prerequisite: AK206 or approved equivalent • Assessment: continuous*

A subject in the Bachelor of Arts

**Objectives and Content**

This subject deals with a number of contemporary issues in Korea studied through the language. Materials are drawn from a variety of contemporary media sources, and presented in such a way as to encourage further development of oral skills.

**Recommended reading**

Nil

**AK400 Korean Society A**

*4 hours per week • Hawthorn • Prerequisite: BA in Korean • Assessment: continuous*

A subject in the Graduate Diploma in Korean

**Objectives and Content**

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**

*4 hours per week • Hawthorn • Prerequisite: AK400 or equivalent • Assessment: continuous*

A subject in the Graduate Diploma in Korean

**Objectives and Content**

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**

*4 hours per week • Hawthorn • Prerequisite: BA in Korean • Assessment: continuous*

A subject in the Graduate Diploma in Korean

**Objectives and Content**

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**

*4 hours per week • Hawthorn • Prerequisite: AK402 or equivalent • Assessment: continuous*

A subject in the Graduate Diploma in Korean

**Objectives and Content**

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**

4 hours per week ● Hawthorn ● Prerequisite: BA in Korean ● Assessment: continuous

A subject in the Graduate Diploma in Korean

**Objectives and Content**
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**

4 hours per week ● Hawthorn ● Prerequisite: AK404 or equivalent ● Assessment: continuous

A subject in the Graduate Diploma in Korean

**Objectives and Content**
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**

4 hours per week ● Hawthorn ● Prerequisite: BA in Korean ● Assessment: continuous

A subject in the Graduate Diploma in Korean

**Objectives and Content**
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**

4 hours per week ● Hawthorn ● Prerequisite: AK406 or equivalent ● Assessment: continuous ● Note: To obtain an overall pass mark, a pass in each section of the course is required.

A subject in the Graduate Diploma in Korean

**Objectives and Content**
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 Graduate Diploma in Korean for Professionals 1A**

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

**Objectives and Content**
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 seminar paper or write a research essay for assessment of the culture and history component.

**Recommended reading**

A list of references for the culture and history component is available from the course coordinator.

**AK421 Graduate Diploma in Korean for Professionals 1B**

6 hours per week ● Hawthorn ● Prerequisite: AK420 ● Assessment: continuous

A subject in the Graduate Diploma in Korean for Professionals

**Objectives and Content**
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.
AK422  Graduate Diploma in Korean for Professionals 2A

6 hours per week  •  Hawthorn  •  Prerequisite: AK421  
•  Assessment: continuous

A subject in the Graduate Diploma in Korean for Professionals

Objectives and Content
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
Buzo, A.F. Learning Korean Hanja Book 1. Melbourne, Swinburne 
Press, 1990
Shin, G.H. and Buzo, A.F. Learning Korean New Directions 3, 
Melbourne, Swinburne Press, 1995
A list of references for the Korean politics component is available 
from the course coordinator.

AK423  Graduate Diploma in Korean for Professionals 2B

6 hours per week  •  Hawthorn  •  Prerequisite: AK422  
•  Assessment: continuous

A subject in the Graduate Diploma in Korean for Professionals

Objectives and Content
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
Buzo, A.F. Learning Korean Hanja Book 1, Melbourne, Swinburne 
Press, 1990
A list of references for the economy component is available from 
the course coordinator.

The core literature unit: ALM 104 Texts and Contexts is 
listed in alpha-numeric code order on page 239.

AL102  Nature and the Machine Age: Pre and Post Industrial Culture in Nineteenth 
Century Literature

3 hours per week  •  Hawthorn  •  Prerequisite: nil  
•  Assessment: assignments and examination

A subject in the Bachelor of Arts

Objectives and Content
This subject surveys Romantic and post-Romantic writers of 
the nineteenth and early twentieth century, emphasising the 
artist’s awareness of, and increasing divorcement from, 
social concerns. The course includes English and European 
fiction and drama, and English poetry.

Recommended reading

AL202  Contemporary Australian Writing

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

Objectives and Content
The subject introduces students to the various kinds of 
writing being practised by contemporary authors. A 
diversity of forms will be examined — poetry, fiction, 
drama, non-fiction (autobiography and biography), and 
Aboriginal writing, as well as the contribution made to 
Australian literature by authors for whom English is not 
their first language. Students will keep a journal as a record 
of preparation for the discussion-based class. An oral 
presentation will be made of a piece of Australian writing 
that is not a set text.

Recommended reading
Engleton, T. Literary Theory An Introduction. Oxford, Blackwell, 
1983
Melbourne, Penguin, 1988

AL204  Reading, Writing and Criticism

3 hours per week  •  Hawthorn  •  Prerequisite: ALM104 or 
approved equivalent  •  Assessment: continuous

A subject in the Bachelor of Arts

Objectives and Content
This subject is an exploration of the relationship between 
various theories and practices of writing. 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
Boyd, D. and Salusinszky, I. 'Newer Than New. Australian 
Society’s Plain Person’s Guide to Literary Criticism’. Australian 

AL205  American Literature

3 hours per week  •  Hawthorn  •  Prerequisite: ALM104 or 
approved equivalent  •  Assessment: continuous

A subject in the Bachelor of Arts

Objectives and Content
This subject offers a thorough survey of the important 
literary landmarks from the nineteenth and twentieth 
centuries. Emphasis will be placed on the connections 
between literature and developments within culture and 
society. Also, the historical emergence of a ‘modern’ literary 
tradition will be considered.

Recommended reading
AL304 Cross-Cultural Perspectives

3 hours per week • Hawthorn • Prerequisite: two stage two literature subjects or approved equivalents
- Assessment: essay, class paper, examination, class contribution

A subject in the Bachelor of Arts

Objectives and Content

The subject seeks to explore, by a close analysis of significant texts of cross-cultural encounters, the ways in which different cultures have sought to explain and interpret each other by thinking about and interacting with each other. It focuses on non-English writers from mainly India, Africa and the Caribbean and their creative manipulation of the English language to comment on their own traditions and history, or to interpret the interaction between Eastern! African and Western cultures and values.

*AL306 Renaissance Literary Culture

3 hours per week • Hawthorn • Prerequisite: two stage two literature subjects or approved equivalents
- Assessment: continuous

A subject in the Bachelor of Arts

Objectives and Content

The principal aim of this subject is to critically investigate the ways in which we read and interpret the literature of the renaissance. Not losing sight of our position as late twentieth century readers, this subject explores the place that literature occupied within Renaissance culture as a whole. Drawing on contemporary theoretical models, it seeks to relate the historical phenomenon of the renaissance to the modern/postmodern debate.

Recommended reading


*Not available to students who have previously passed AL203 Renaissance Literature.

AL307 Australian Literature

3 hours per week • Hawthorn • Prerequisite: two stage two literature subjects or approved equivalents • Assessment: essay, class paper and examination; class contribution

A subject in the Bachelor of Arts

Objectives and Content

A study of the development of the novel, the short story and poetry in Australia from the nineteenth century to the present day. Comparisons will be invited between filmic and written texts, as well as a play reading. Students will make an oral presentation reviewing a text that is not set for study, and keep a journal as preparation for class discussions. Classes will be discussion based.

Recommended reading

Healy, T. Literary Transcendentalism Style and Vision in the American Renaissance. Ithaca, Cornell University Press, 1973


AL308 Literary Transcendentalism Style and Vision in the American Renaissance

2 hours per semester • Hawthorn • Prerequisite: two stage two literature subjects or approved equivalents
- Assessment: essay, class paper, examination, class contribution

A subject in the Bachelor of Arts

Objectives and Content

A subject in the Graduate Diploma in Writing

Objectives and Content

The aim of this subject is to present students with a wide variety of options in writing and its production, together with a time and a place to explore in greater depth elements of the elective subjects which are of special interest to them. Seminars may take a variety of forms, from 'Writers' Reading' sessions in which original work is presented, to the formal and informal seminar, the writers' workshop, the element of dramatic performance. As part of their course students will be encouraged to attend and report on public functions such as the Melbourne Writers' Festival and participate in community arts events, e.g. open reading at various Melbourne venues. It is envisaged that students will produce a collection of their writing as part of the year's activities.

Recommended reading


AL400 Reading and Writing Seminar

2 hours per fortnight over two semesters • Hawthorn • Prerequisite: Bachelor of Business • Assessment: folio and participation in seminars and workshops

Subject in the Graduate Diploma in Writing

Objectives and Content

This subject provides students with the opportunity to work on an extended piece of writing in an atmosphere of support, encouragement and mutual critical advice. It allows for expansion and elaboration of themes encountered in previous writing subjects, with an anticipated outcome being 'finding one's own voice'. A series of workshops will provide the basis for the evolution of the longer work out of preliminary drafts.

Recommended reading


ALM series subjects begin on the next page
**AL403 Narrative Writing**

3 hours per week • Hawthorn • Prerequisite: (or corequisite for full-time students) **AL400 Reading and Writing Seminar**
• Assessment: a folio of writing, workshop participation and exercises

A subject in the Graduate Diploma in Writing

**Objectives and 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. Developing skills in critical and creative thinking and the application of these skills in various practices of writing fiction will be included: e.g. plugging into both rational and irrational processes; the role of conjectural thinking, intuition and luck; the use of analogies, metaphor, and associative thinking; perceiving and creating relationships. Emphasis is placed on the participants as writer and critic.

**Recommended reading**


**AL405 From Book to Film: Textuality and Discourse**

3 hours per week • Hawthorn • Prerequisite: **AL400 Reading and Writing Seminar** • Assessment: essay, script and seminar participation of folio of writing, workshop participation and exercises

A subject in the Graduate Diploma in Writing

**Objectives and Content**

This subject explores the relationships between discourse and reception through the adaptation of texts. It will be organised around a case study (e.g. multi-media adaptations of Bram Stoker’s *Dracula*), and involve the examination of issues of reproduction and authenticity, as well as the cultural impact of new writing technologies on popular textual discourse. Students will be encouraged to use and reflect upon different electronic modes of communication and delivery, and to utilise computer applications to produce an adaptation proposal.

**Recommended reading**


**AL407 Open Subject**

Prerequisite: completion of two semester subjects
• Assessment: a writing project to be negotiated with the students’s supervisor

A subject in the Graduate Diploma in Writing

**Objectives and Content**

This subject is designed to accommodate student initiated special projects. There will be a written contract between student and supervising lecturer, issued as a preliminary to enrolment, which will state the project, the form of assignment and the date of completion of the project. As an example, this subject offers the opportunity for students to work in genres such as romance, science fiction, fantasy and the thriller, where learning opportunities and experiences exist outside formal academic institutions, with the Nova Mob, Sisters in Crime, fandom and fanzines, etc.

**ALM104 Texts and Contexts**

(Stage 1 subject for both Media and Literature)

3 hours per week • Hawthorn • *Lilydale This subject is compulsory for all students taking Media Studies and/or Literature. • Prerequisite: nil • Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

How do we represent ourselves in contemporary society? How do we make sense of these representations? In an age increasingly dominated by electronic 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**


Swinburne University of Technology 1997 Handbook 239
ALM310 Electronic Writing
3 hours per week • Hawthorn • Prerequisite: two stage two literature subjects, one of which must be AL204 • Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
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 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.

For another stage one media subject please refer to ALM104 listed in alpha-numeric order on previous pages.

AM102 Media and Meanings: An Introduction
3 hours per week • Hawthorn • Prerequisite: nil • Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
This subject introduces an analytical approach to media texts. Though it will refer to print and radio forms, it will primarily concern itself with film and/or television. Our interest in studying these texts is not so much to establish their worth, or otherwise, as to draw attention to the mechanics of our work as readers, to the ways in which we produce meanings from (or are confused by) the texts, to the methods they use in order to produce meanings, and to the values they embody in their representations. The texts for study will be selected from fiction and documentary films, television series, news and current affairs programs, music videos, advertisements, variety and sports shows, and children’s programs. They will be examined within the context of textual theory, with particular attention being given to their visual aspects.

Recommended reading
Fiske, J., Television Culture, London, Methuen, 1987

AM105 The Media in Australia
3 hours per week • Hawthorn • Prerequisite: nil • Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
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. It 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 professional journalistic standards are discussed from a range of perspectives.

**Recommended reading**
Armstrong, M. Media Law in Australia. 3rd edn, Melbourne, Oxford University Press, 1995
Bonney, W. and Wilson, H., Australia's Commercial Media, Melbourne, Macmillan, 1983
Chadwick, P., Media Mates Carving up Australia's Media, South Melbourne, Macmillan, 1989
Inglis, K.S. This is the ABC. The Australian Broadcasting Commission 1932-1983, Melbourne, Melbourne University Press, 1983

The following subjects AM111 to AM118 are subjects only available to students from the Certificate in Commercial Radio

**AM11 Radio in Australia**

- **3 hours per week**  
  - Hawthorn  
  - Prerequisite: nil  
  - Assessment: will include analysis of the formats of stations and the survey results for different Australian markets. From this initial study detailed programming exercises will be developed, which will be integrated into the Radio Presentation 1 subject.  
  - A subject in the Certificate in Commercial Radio

**Objectives and Content**
This subject provides an historical and current overview of radio in Australia, including commercial, government and community stations, and the ownership and control regulations currently in place. 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.

**Recommended reading**
Keith, M., Radio Programming, Boston, Focal Press, 1987  
Higgins, C., Moss, P., Sounds Real, St. Lucia, Qld., University of Queensland Press, 1982  
Pons, J., Radio in Australia, Kensington, NSW, New South Wales University Press, 1989

**AM12 Radio Management**

- **3 hours per week**  
  - Hawthorn  
  - Prerequisite: nil  
  - Assessment: will include analysis of the marketing and promotion of stations, the design of a marketing plan for a station and an assessment of students' understanding of radio sales techniques.  
  - A subject in the Certificate in Commercial Radio

**Objectives and Content**
This subject will 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. A major focus will be the marketing of a radio station to its clients and audience, and selling radio airtime. The aims of promotions will be analysed and the 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**
ABC All Media Law Handbook, ABC Enterprises, 1990  
Determination of Planning Priorities, Canberra, Australian Broadcasting Authority, 1993

**AM13 Radio Presentation 1**

- **2 hours per week**  
  - Hawthorn  
  - Prerequisite: nil  
  - Assessment: will revolve around programs recorded to the strict guidelines of assignments, and will consider technical and operational proficiency, vocal presentation and program formatting.  
  - A subject in the Certificate in Commercial Radio

**Objectives and Content**
This subject aims to develop practical understanding of the radio presentation process, teaching the skills necessary to use broadcasting equipment and effectively communicate with an audience. Individual tutoring on studio equipment is followed by voice training and development of an individual style for each student. Structured assignments are designed to lead students to proficiency in operating techniques and communication. Writing assignments develop in students the ability to prepare efficiently and deliver information effectively, and students will learn to plan the sequential flow of a radio program.

**Recommended reading**
Welch, D. and Hicks, M., Swinburne Radio Production Notes, Hawthorn, Swinburne Press, 1991  

**AM14 Radio Presentation 2**

- **2 hours per week**  
  - Hawthorn  
  - Prerequisite: AM11 Radio Presentation 1  
  - Assessment: will revolve around programs recorded to the guidelines of assignments, and will consider operational and programming proficiency, preparation and vocal presentation and the ability to relate to an audience.  
  - A subject in the Certificate in Commercial Radio

**Objectives and Content**
This subject further develops understanding of radio presentation techniques, using more advanced broadcasting equipment and more difficult programming techniques. Once again, structured assignments are designed to lead students to proficiency in program preparation, operating techniques and self-evaluation. Skills in interviewing are developed through a structured plan, beginning with simple, short pre-recorded interviews leading to live 'in-depth' talkback interviews. Students will use their skills to program and operate an in-house
broadcasting service.

**Recommended reading**

**AM15 Radio Journalism 1**

2 hours per week • Hawthorn • Prerequisite: nil • Assessment: will include recorded bulletins, current affairs reports and written preparation and analysis, and will consider accuracy, writing and vocal style and public interest. A subject in the Certificate in Commercial Radio

**Objectives and Content**
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. 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.

**Recommended reading**
Hogan, T., *Radio News Workbook*, North Ryde, NSW, Resources Unit, Australian Film and TV School, 1985

**AM16 Radio Journalism 2**

2 hours per week • Hawthorn • Prerequisite: AM15 Radio Journalism 1 • Assessment: will include recorded bulletins, current affairs reports and written preparation and analysis, and will consider accuracy, writing and vocal style and public interest. A subject in the Certificate in Commercial Radio

**Objectives and Content**
This subject will 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**

**AM17 Advertising Copywriting**

3 hours per week • Hawthorn • Prerequisite: AM16 • Assessment: client briefs completed as part of structured assignments, and to prepare and present finished scripts. A subject in the Certificate in Commercial Radio

**Objectives and Content**
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, gaining the skills to understand and interpret the needs of that client, developing 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**

**AM18 Radio Advertising Production**

3 hours per week • Hawthorn • Prerequisite: AM113 Radio Presentation 1 and AM117 Advertising Copywriting • Assessment: written script to the final recorded commercial ready for broadcast. Through a series of graded assignments, skills will be assessed in recorded voice clarity, the use of music and sound effects, creativity, correct identification and labelling and technical quality. A subject in the Certificate in Commercial Radio

**Objectives and Content**
This subject will develop the 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 standard ready for professional broadcasting.

**Recommended reading**

**AM203 Popular Culture**

3 hours per week • Hawthorn • Prerequisite: AM104 or AM105 • Assessment: continuous A subject in the Bachelor of Arts

**Objectives and 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. Attention will be drawn to the ongoing developments and changes in popular culture in Australia in the 1990s. 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.
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.

**Recommended reading**

Fiske, J. *Understanding Popular Culture*. Boston, Unwin Hyman, 1989

Fiske, J. *Reading the Popular*. Boston, Unwin Hyman, 1989


**AM208 New Media: The Telecommunications Revolution**

3 hours per week • Hawthorn • Prerequisite: AM104 and AM105, and AP112 for students majoring in Australian Studies • Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

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 that media are undergoing profound change. This subject will examine the issues of who is driving these changes and who might benefit. New communications technologies, such as cable and pay television, interactive television applications, and internet are discussed in terms of the impact on the industry and the culture in which they exist.

**Recommended reading**


Wheelwright, E. and Buckley, K., *Communications and the Media in Australia*. Sydney, Allen & Unwin, 1987

**AM209 Media Voices, Media Style: The Process of Journalism**

4 hours per week • Hawthorn • Prerequisite: AM104 or AM105 and competence in Word for Windows 6 • Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

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 practises and constraints which shape how events are reported. This subject takes both a theoretical and practical approach to news writing by looking at the different reporting strategies and practices of newspaper, radio and television journalism. Students will use a range of resources including a detailed Study and Learning Guide which covers key issues, readings and computer laboratory exercises, generic skills in independent learning, team learning and peer assessment, using the Internet and World Wide Web.

**Recommended reading**


**AM300 Cinema Studies**

4 hours per week • Hawthorn • Prerequisite: ALM104 or AM105 and any two stage two media studies subjects or equivalent • Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

The viewing material for this subject is a selection of films arranged generically (e.g., the musical, or the horror film, or the western, or the science-fiction film), thematically (the romantic drama, or the journey film, or the domestic drama), or stylistically (the films noirs, or the problems of realism, or 'to cut or not to cut?'). 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. Attention is focused upon the usefulness of structuralist and semiological studies, and their function in relation to the humanist discourse which dominates more traditional critical work. In this context, particular questions to do with the developing study of film will be on the agenda for ongoing consideration for example, the ways in which ideology is inscribed into the works examined (as well as into the methods of examination), for various systems of representation, for the usefulness of the work of the ‘frame-by-frame heretics’, for the kinds of relationships constructed between a film and its viewer, for the place of ‘the author’ in this process in relation to the formal and thematic organisation of the works which bear his/her name, for the usefulness of ‘genre’ studies, for the function of the ‘star system’, and for the relationship between the film, the industry and the culture in which they exist.

**Recommended reading**

Grant, B.K. (ed.) *Film Genre Reader*. Austin, University of Texas Press, 1986
Cineaction, Cinema Papers, *The Journal of Popular Film and Television, Screen, Wide Angle, Film Comment*

**AM302 Radio Production and Criticism**

4 hours per week • Hawthorn • Prerequisite: *AM105 or AM104 and any other stage two media studies subject or equivalent* • Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

The 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.

Finally *AM302* 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**

*Hicks, M. *Radio on Radio*. Swinburne, 1985 (Audio tapes)*
*Ong, W. *Orality and Literacy*. London, Methuen, 1982*

**AM306 Professional Attachment Program**

Fifteen days • Hawthorn • Equivalent value - one semester subject • Prerequisite: 5 media studies subjects • Assessment: continuous. AM306 is a *pass/fail* only subject.

A subject in the Bachelor of Arts

**Objectives and Content**

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 Swinburne media studies staff, and students will be required to keep a diary account of their attachment.

**Another stage three Media subject AM310 is listed in alpha-numeric order on previous pages.**

**AM311 Information Society: A Global Perspective**

3 hours per week • Hawthorn • Prerequisite: *AM104 or AM105 and any other stage two media studies subject or equivalent* • Assessment: continuous

A subject in the Bachelor of Arts

**Objectives and Content**

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**

*Barr, T. (ed.), *Challenges and Change Australia's Information Society*. Melbourne, Oxford University Press, 1987*
*Reinecke, I. *Connecting You ...,* Ringwood, Penguin Books 1985*

**Another stage three Media subject AM312 is listed in alpha-numeric order on previous pages.**
AM404 Writing for the Media

3 hours per week ● Hawthorn ● Prerequisite: nil
● Assessment: production of a script, exercises and seminar participation.

A subject in the Graduate Diploma in Writing

Objectives and Content
This subject involves the practice of writing for specific purposes within different sectors of the media: news reports, feature stories, press releases, advertorials, community press and in-house releases, and documentaries. It will take a case study approach which analyses the strategies and conventions utilised by different media to common subject matter. Students will also be expected to produce original material for different media, and to reflect theoretically on the implications of different media production on issues of reception and comprehension.

Recommended reading
Ong, W. Orality and literacy: The Technologizing of the Word. London, Methuen, 1982

AM408 Scriptwriting

4 hours per week ● Hawthorn ● Prerequisite: Completion of two semester subjects ● Assessment: weekly submitted scenes and final project

A subject in the Graduate Diploma in Writing.

Objectives
Students will develop a proposal into script form.

Students will develop skills in the processes of writing up guidelines and making grant applications.

Content
In this subject students will develop a proposal into script form. A series of workshop exercises will explore the nature of the dramatic script and its application in different fields such as radio, film, television and theatre. The course places emphasis on the importance of the development phase in shaping the idea and of working with criticism from both peers and practitioners. In exploring the particularities of each medium, students will deal with the "business of writing", working with processes such as writing to guidelines and making a grant application.

Recommended reading
Field, S. Screenplay. New York, Dell, 1987
Sign, L. Making a Good Script Great. New York, Dodd, Mead and Co., 1987

AM500 Globalisation: Media and Telecommunications

Objectives and Content
This subject examines the extraordinary growth and changes in the fields of communication, with special attention to the convergence of media and telecommunications. The complex forces for change, particularly the increasing international trend towards privatisation, mega-amalgamation, liberalisation and deregulation. The notion of an electronic culture is discussed, with relationship to established political economy and media and cultural theory.

Almost every developed society is seeking national comparative advantage in communications policy, often expressed in terms of a strategy for an emergent network society or a superhighway policy. Approached taken in the USA, Canada, Europe, Asia and Australia will be analysed, with special reference to international networking, cultural imperialism, globalisation and equity issues.

Alternative international industry approaches, from the different perspectives of parties and government, carriers, suppliers and interest groups, will be examined in the context of comparative policy models. The political policy process, and the forces for change will be analysed in terms of lessons and outcomes for Australia.

Recommended reading

AM501 Communication Environments

3 hours per week ● Hawthorn ● Prerequisite: nil
● Assessment: presentation of research proposal 50% final report 50%

A subject in the Master of Communications

Objectives and Content
This subject examines the convergence of broadcasting and telecommunications in the context of political, economic and social change, especially in terms of the future of Australian society. Key questions are addressed about the communications revolution, such as who decides about the introduction of new technologies, and how, what choices may be available, whose interests are served, and whose needs may be met by these technologies of abundance. The new policy paradigm in Australian broadcasting and telecommunications – competition and choice – will be analysed. Methods of technological assessment will be examined, including issues related to the information needs of different Australians. Vexed questions about the cultural impact of programming, access and diversity, especially for
indigenous people will be canvassed. Special attention will be given to major social and communications trends in Australia, and to the methodologies of future studies. Some modelling of strategic planning and strategic thinking will be offered, especially in the construction of possible scenarios for the future of Australian communications.

**Recommended reading**

*ABC 2000* (Australian Broadcasting Corporation)
*Information Society 2000.* Telecom Australia (forthcoming)
*Alternative* – *AM407 Information Society 2000*

Wilson, L. *The State of Strategic Planning*, Technological Forecasting and Social Change. vol. 37, No. 2, April 1990
*Note – Course attended based on AM307: Information Society Promises and Policies, but with more substantial assessment requirements.*

**AM502 Asian Communications**

*3 hours per week*  ●  *Hawthorn*  ●  *Prerequisite: nil*
*Assessment: seminar paper 40%, final paper 60%*

A subject in the Master of Communications

**Objectives and Content**

This subject will offer a panorama of print, broadcasting and telecommunications issues, policies and practices in Asia and SE Asia. It will examine the relevance of western communications perspectives on Asia, and the complexity of issues such as media freedom, satellite TV and development journalism, in an Asian context. The changing scene in Asian broadcasting will be analysed, with special reference to debates about new communications technology – especially cable, pay and Star television – as well as about multi-media systems and the prospect of a Pan-Asia broadcasting network. In telecommunications, the significance of network modernisation will be analysed, especially in the context of the drive for privatisation and deregulation, and of the staggering levels of contemporary investment in new systems. Vexed issues will include the use of alternative media for social development, and the cultural impact and access of western media throughout Asia.

National development models, especially those of Singapore, Malaysia and Thailand, will be analysed as comparative studies for desirable communications systems and development for Asia and SE Asia.

**Recommended reading**


Jussawalla, M. and Hukill, M. ‘Structural Change of Telecommunications in South East Asia’, in *Media Asia.* vol. 19, No. 1, 1992


**AM503 Interrogating Texts: Cultural Dreaming**

*3 hours per week*  ●  *Hawthorn*  ●  *Prerequisite: nil*
*Assessment: seminar paper 40%, final paper 60%*

A subject in the Master of Communications

**Objectives and Content**

This subject will explore issues attendant upon those in AM500 Globalisation, using as a launching pad the study of a variety of texts selected from film, television, literature, and print and sound media. Questions to be explored will be chosen from amongst: the function of theories of language and society in making ‘sense’ of texts; the representation of journalism and the media on screen (in film and television); the depiction of the Third World in western fiction and non-fiction: the representation of technology in and through film and literature (with special emphasis on science fiction); the American entertainment industry’s representation of the US in film and on television; images of Australia offered in the arts and the media; Australian film, television and literature into the ’90s.

**Recommended reading**


Parrinder, P. *Science Fiction, Its Criticism and Teaching.* London, Methuen, 1980


**AM504 Professional Production**

*3 hours per week*  ●  *Hawthorn*  ●  *Prerequisite: nil*
*Assessment: production of a radio program or short film or television script*

A subject in the Master of Communications

**Objectives and Content**

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.

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 print 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 streams will also attend seminars which address different forms of writing.
Recommended reading

Ong, W. Orality and Literacy: the Technologizing of the Word. London, Methuen, 1982

AM505 Workplace Practice

3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: presentation of workplace proposal 40%, final report 60%
A subject in the Master of Communications

Objectives and Content
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. 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.

Possible participating organisations: ABV-2, 3LO, 3RN, 3CR, 3RRR-FM, 3PBS-FM, 3AW, SBS-TV.

AM506 Thesis

Hawthorn • Prerequisite: AM501, AM502, AM504 and AM505 • Assessment: to be advised
A subject in the Master of Communications

Objectives and 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.

AM508 From Book to Film: Textuality and Discourse

3 hours per week • Hawthorn • Prerequisite: AL400 Reading and Writing Seminar • Assessment: essay, script and seminar participation of folio of writing, workshop participation and exercises
A subject in the Graduate Diploma in Writing

Objectives and Content
This subject explores the relationships between discourse and reception through the adaptation of texts. It will be organised around a case study (e.g. multimedia adaptations of Bram Stoker's Dracula), and involve the examination of issues of reproduction and authenticity, as well as the cultural impact of new writing technologies on popular textual discourse. Students will be encouraged to use and reflect upon different electronic modes of communication and delivery, and to utilise computer applications to produce an adaptation proposal.

Recommended reading
Ong, W. Orality and Literacy: the Technology of the Word. London, Methuen, 1982
Ulmer, G. Teletheory, Grammatology in the Age of Video. New York, Routledge, 1989

AP100 Australian Politics

3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: class work and essays
A subject in the Bachelor of Arts

Objectives and Content
This subject is an introduction to Australian politics. To begin with the subject covers the basic framework of government. The following topics are considered the electoral system, the constitutional basis, federalism and the Westminster system, parliament, cabinet and the public service, the organisation of the main political parties, and the role and future of minor political parties. These topics are taught at a level which presumes no previous knowledge of Australian politics. However, as the subject progresses students are introduced to the broader dimensions of politics which include the role of pressure groups, their basis of support, in the electorate and in society at large, and their bearing on Australian democracy.

Recommended reading
or
AP112 Australian Identities

3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: essays and tutorial participation

A subject in the Bachelor of Arts

Objectives and Content
This is the first in a sequence of Australian Studies subjects. This subject examines the relationship between citizenship and contemporary social movements. It begins with an analysis of the core ideas which have shaped Australian national identity. It goes on to explore the role of gender identity in the emergence of contemporary feminism. This is followed by a study of how the shared experience of work gave rise to the labour movement, and how cultural heritages have been politically mobilised as ethnic identities. The subject concludes with an examination of how the promise of formal equality underlying the nationalist idea of common citizenship has been contested by these contemporary social movements.

Recommended reading

AP114 Australia and Asia

3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous

A subject in the Bachelor of Arts

Objectives and Content
This subject introduces students to Australia's relations with the nations of Asia through a series of thematic classes and case studies. It outlines the contours of the debate concerning Australia's place in Asia and traces the process of foreign policy making, outlining institutional structures, pressure groups and key concepts such as the 'national interest'. The various elements of foreign policy are examined — trade, defence and security, aid and political relations. The course has a historical dimension and highlights the ways in which policies towards specific Asian nations have changed over time.

Recommended reading
Evans, G. and Grant, B. Australia's Foreign Relations in the World of the 1990s. Carlton, Vic., Melbourne University Press, 1992

AP115 Introduction to Modern Asia

3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous

A subject in the Bachelor of Arts

Objectives and Content
This subject provides an introduction to modern Asia through the biographical/autobiographical accounts of four major leaders who fundamentally altered the political framework of their countries. They include Mahatma Gandhi, Mao Zedong, Benazir Bhutto and Corazon Aquino. The course will consider their contribution within the broader context of nationalism, revolution and modernisation. It offers important insights into the history, politics and culture of diverse societies in Asia. Some of the topics covered include India's nationalist movement, the growth of communism in China, and democratisation in the Philippines and Pakistan.

Recommended reading

AP116 International Politics Since 1945

3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: class work and essays

A subject in the Bachelor of Arts

Objectives and Content
This subject deals with the origin and development of the main force shaping world politics since 1945 — namely the Cold War between the US and the USSR. It deals with their emergence as world powers, the origin of the conflict in post-war Europe, and follows the development of US-Soviet relations from the Truman-Stalin era to the break-up of the USSR in the early 1990s. Particular emphasis is placed on the impact of the Cold War on Australia's strategic environment, the Asia-Pacific region, and topics include the Korean and Vietnam wars.

Recommended reading
Ambrose, S.E., Rise to Globalism American Foreign Policy Since 1938. 7th rev. edn, New York, Penguin, 1993

AP202 Europe, Capitalism and The Third World

3 hours per week • Hawthorn • Prerequisite: any stage one political studies subject or approved equivalent
• Assessment: essays and tutorial participation

A subject in the Bachelor of Arts

Objectives and Content
This subject relates the shaping of today's Third World to the emergence of capitalism in Western Europe. It examines the forces that have produced the uneven development where some parts of the world are industrialised and rich and other parts still technically primitive and poor.

The broad themes of the subject are the social origins of capitalism and the process of proletarianisation, the Industrial Revolution, European colonisation and the making of a world economy.
Recommended reading
Wolf, E. Europe and the People Without History. Berkeley, University of California, 1982

AP204  Modern Japan
3 hours per week  •  Hawthorn  •  Prerequisite: any stage one political studies subject or an approved equivalent
•  Assessment: essays and/or exam
A subject in the Bachelor of Arts

Objectives and 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

AP206  Politics of China A
3 hours per week  •  Hawthorn  •  Prerequisite: one stage one political studies subject  •  Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
In 1949 the Chinese Communist Party came to power after the defeat of the Nationalists. This subject investigates the development of 'New China' through an examination of the political system, different models for economic growth, social restructuring, mass campaigns and the place given to dissent. Through an examination of these issues, an understanding of the factors that have made China the nation it is today, its political culture, shifting ideological framework and changing relations with the West will be reached. By the end of the subject, some insights into the future options that lie before China will be possible.

Recommended reading
Townsend, J. and Womack, B. Politics in China. 3rd edn, Boston, Little Brown, 1986

AP207  Modern Australia
3 hours per week  •  Hawthorn  •  Prerequisite: any stage one political studies subject or equivalent  •  Assessment: essays and tutorial participation
A subject in the Bachelor of Arts

Objectives and Content
This subject explores the patterns of change that have shaped contemporary Australia. 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

AP208  Politics and Society
3 hours per week  •  Hawthorn  •  Prerequisite: any stage one political studies subject or an approved equivalent
•  Assessment: continuous
A subject in the Bachelor of Arts
This subject cannot be taken by students who have passed AP201 Political Sociology.

Objectives and Content
In this subject, key aspects of the relationships between politics and society are examined. It is an introduction to the theme of power and its exercise. Its main objective is to provide students with the basic skills necessary to identify and understand major forms of power, which they can apply to their immediate environment or to the broader dimensions of society.

Topics to be considered include the historical background to political sociology; classic views about the nature of human beings and society; an analysis of the concepts of power, authority and influence, with reference to Max Weber; the problem of locating power in modern society and an examination of three theories of power and society, namely Marxist, elitist and pluralist theories; the definition of democracy and the debate about its various models.

Recommended reading
Dowse, R.E. and Hughes, J.A. Political Sociology. London, Wiley, 1972, ch. 1

AP300  Public Policy in Australia
3 hours per week  •  Hawthorn  •  Prerequisite: AP100 or equivalent, two stage two political studies subjects
•  Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
In this subject the decision and policy-making structures and processes of the Australian Federal Government are examined. While the focus is on the Federal Government, other institutions and actors in the policy process will also, where necessary, be examined. This could include state government, business and labour organisations, and other
interest and pressure groups. The approach to the study of the decision and policy-making process is through a critical evaluation of the performance and programs of the Hawke and Keating Labor Governments. There are lectures and workshops dealing with selected areas of labor government policy. Students are able to specialise in an area of government policy and are asked to submit a policy case study at the end of the semester.

**Recommended reading**

**AP304 Japan in Asia**

*3 hours per week ● Hawthorn ● Prerequisite: two stage two political studies subjects ● Assessment: seminar participation and papers*

A subject in the Bachelor of Arts

**Objectives and Content**
A study of Japan's involvement in South-East and East Asia since 1952. Students will be required to investigate Japan's relationship with one nation and to examine the ramifications of Japan's expanding role and influence in the Asia-Pacific region and the implications of the emerging patterns of political relationships, investment, development assistance and trade.

**AP308 Seminar in Political Studies**

*3 hours per week ● Hawthorn ● Prerequisite: two stage two political studies subjects ● Assessment: continuous*

A subject in the Bachelor of Arts

**Objectives and Content**
A series of advanced seminars on contemporary issues or an intensive study of a specific topic in political studies. The topics to be offered are specific illustrations of one or more of the following broad themes within political studies the politics of modern industrial society, social and political change in Asia, and the political economy of underdevelopment. These seminars include considerations of the methodological questions involved.

In 1997 the subject will be devoted to the study of electoral behaviour and political elites in Australia.

**AP311 Politics of China B**

*3 hours per week ● Hawthorn ● Prerequisite: two stage two political studies subjects. AP206 is highly recommended. Students who have not passed this subject are advised to consult with the course convenor before enrolling ● Assessment: continuous*

A subject in the Bachelor of Arts

**Objectives and Content**
By means of detailed case studies in Chinese foreign policy, this subject aims to develop and explore ways of interpreting and understanding the People's Republic of China's relationships with other countries since 1949. The focus is on countries within the Asian region, including Australia and the United States. On the basis of some appreciation of the issues and problems in domestic politics, topics will include Maoist foreign policy, international relations, an examination of the value of cultural and technological exchanges with developed countries and China's current 'open door' policy.

**Recommended reading**
Klintworth, G. *China's Modernisation: The Strategic Implications for the Asia-Pacific Region.* Canberra, AGPS, 1989

**AP312 Problems of Contemporary South-East Asia**

*3 hours per week ● Hawthorn ● Prerequisite: two stage two political studies subjects ● Assessment: class participation, a short seminar and a final paper of 3,000 words*

A subject in the Bachelor of Arts

**Objectives and Content**
This subject provides an understanding of the problems of countries in Australia's region, and the background from which many of Australia's most recent immigrants have come. It is intended to develop students' capabilities for undertaking research on the background of contemporary issues, and for sifting facts out of the conflicting propaganda and reportage, and identifying possible courses of action. The present focus is on Vietnam, Cambodia and Laos. The subject also deals with the impact events in Indochina have had on Australia.

**Recommended reading**

**AP313 India — Uneven Development**

*3 hours per week ● Hawthorn ● Prerequisite: two stage two political studies subjects ● Assessment: continuous*

A subject in the Bachelor of Arts

**Objectives and Content**
The course highlights the uneven character of development in India, relating it to the economic-political structure of Indian society. It explains why a country with an extensive and relatively advanced industrial base also suffers widespread poverty. The course deals with both the empirical and theoretical aspects of development in India. Topics include 'green revolution', land reform, agrarian conflict, industrialisation, gender relations, caste and social status, and population and family planning.

**Recommended reading**
Alavi, H. and Harriss, J. *South Asia.* Basingstoke, Macmillan, 1989
Work in Australia

3 hours per week • Hawthorn • Prerequisite: any two stage two political studies subjects, or equivalent. AP207 is recommended, but not compulsory • Assessment: essay, seminar paper and participation

A subject in the Bachelor of Arts

Objectives and Content
This subject provides a historical and thematic approach to the study of work in Australia. The subject traces the evolution of blue collar and white collar occupations from the 1880s through to the Depression, the Second World War and the long boom. It looks at the formation of unions, professions, employer organisations, and the role of government in the shaping of the industrial relations system. It gives attention to the processes which have led to labour market inequalities on the grounds of gender, ethnicity and age. Contemporary issues such as technological change, labour market deregulation and unemployment are also addressed.

Recommended reading

Sociology 1A (Families and Societies)

3 hours per week • Hawthorn • Prerequisite: nil, but note that AS100 and AS101 are normally taken in the one year • Assessment: one essay, examination and class participation

A subject in the Bachelor of Arts

Objectives and Content
Sociology 1A introduces the discipline of sociology through a comparative study of the family. It begins by looking at the family as a social institution, as opposed to a biological formation. It then examines the history of the family, the influence of the market and the state, kinship and community, marriage and divorce, and children. The course examines differences in family patterns according to social class, gender and ethnicity. It also considers contemporary issues and sociological debates, for example the rise of divorce, the impact of commercial childcare, and the decline of the welfare state. Families in Australia are compared with family patterns in other societies, concentrating upon Western Europe, North America and East Asia.

Recommended reading

Sociology 1B (Economies, Governments and Societies)

4 hours per week • Hawthorn • Prerequisite: AS100 • Assessment: essay, exercise and examination

A subject in the Bachelor of Arts

Objectives and Content
Sociology 1B develops the comparative sociological perspective by examining issues to do with economies, governments and societies. It examines the sociological dimensions of recent economic restructuring in Australia, and the debates of economic rationalists, conservatives, social democrats and Marxists. It compares Australia with other nation states, notably Sweden, Germany, the United States and Japan. Finally, the subject provides an introduction to data collection and analysis in social research.

Recommended reading
Bell, S. and Head, B. (eds), State, Economy and Public Policy in Australia, Sydney, Oxford University Press, 1994

Models of Sociological Analysis

3 hours per week • Hawthorn • Prerequisite: AS100 and AS101, and AP116 for students majoring in Australian Studies • Assessment: assignments and a test

A subject in the Bachelor of Arts

Objectives and Content
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.

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

Sociology of Deviance and Social Control

3 hours per week • Hawthorn • Prerequisite: AS100 and AS101 • Assessment: continuous

A subject in the Bachelor of Arts
(This subject cannot be taken by students who have passed AS202 Sociology of Deviance)
Objectives and Content
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. 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 elicits. Three main forms 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

AS206 Sex and Gender in Society
3 hours per week • Hawthorn • Prerequisite: AS100 and either AS101 or AP116 for students majoring in Australian studies • Assessment: one essay and an examination
A subject in the Bachelor of Arts

Objectives and Content
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.

The course examines key social institutions and practices, including work, family, sexuality, and violence. There is a focus upon recent developments and controversies, including sexual harassment, sex change operations, pornography, 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

AS300 Urban Sociology
3 hour per week • Hawthorn • Prerequisite: two stage two sociology subjects • Assessment: tests, class exercises, and an essay
A subject in the Bachelor of Arts

Objectives and Content
Patterns of urban work and leisure are being transformed, as are the spatial and temporal relationships within and between cities. Old industries such as those centred around mass production are being replaced by new ones centred around tourism, information technology, financial services and the production of the modern spectacle (like grand prix car races, casinos, and the like). Cities are being differentiated globally. They are also being fragmented internally by deep and enduring inequalities in access to resources such as housing.

Urban sociology examines these trends. It locates them in a broader theoretical debate about the role of cities. Emphasis is given to the policy implications of these changes and the difficulties governments face solving urban problems in cities that are increasingly 'going global'.

Recommended reading

AS302 Sociology of Organisations
3 hours per week • Hawthorn • Prerequisite: for students majoring in Sociology, two stage two sociology subjects • Assessment: one essay and an examination
A subject in the Bachelor of Arts

Objectives and Content
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.

Sociology of Organisations examines first the major explanations of large organisational structures. It then considers aspects of organisations, including organisational culture, gender patterns, corporate networks and power. Finally, the course addresses organisational restructuring, the emergence of new corporate forms and the resurgence of small businesses in the late twentieth century.

The course uses case studies such as BHP, General Motors and McDonalds to illustrate theoretical arguments, and compares Australian organisational patterns with those of other societies.

Recommended reading

AS303 Current Issues in Sociology
3 hours per week • Hawthorn • Prerequisite: for students majoring in sociology, two stage two sociology subjects • Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
The subject matter of AS303 changes on a year to year basis depending on what issues are considered relevant and interesting to students. Typical issues include environment, health and gender. Irrespective of the issue, key concepts and theories drawn from sociology will be used to inform students’ understanding.
At present the focus is on the environment and population. The course 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**
Harding, G. *Living Within Limits*, New York, Oxford University Press, 1993

**AS306 Methodology of Social Research**

*3 hours per week ● Hawthorn ● Prerequisite: for students majoring in sociology, two stage two sociology subjects ● Assessment: continuous*

A subject in the Bachelor of Arts

**Note:** This subject must be taken by students completing a major in sociology

**Objectives and Content**
This subject is designed to provide an understanding of the range of methodologies that link sociological theory with social research practices, and to provide the opportunity for practical experience in research by using different methods and designs. The subject has a strong applied focus and we examine 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*, 2nd edn, Boston, Allyn and Bacon, 1994
Betts, K. and Seitz, A. *Writing Essays and Research Reports in the Social Sciences*, Melbourne, Thomas Nelson, 1994

**AS307 Sociology and Social Policy**

*3 hours per week ● Hawthorn ● Prerequisite: for students majoring in Sociology, two stage two sociology subjects ● Assessment: continuous*

A subject in the Bachelor of Arts

**Objectives and 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, chronically and disability. The subject also seeks to compare Australian health policy to health policy developments in a number of other societies.

**Recommended Reading**

**AS308 Migration and Ethnicity**

*3 hours per week ● Hawthorn ● Prerequisite: for students majoring in sociology, two stage two sociology subjects (or two sociology subjects and AP207 for students majoring in Australian Studies) ● Assessment: continuous*

A subject in the Bachelor of Arts

**Objectives and Content**
International migration pressures in Western societies are widespread and growing, as are tensions over settlement and integration. This subject takes a comparative approach and examines social and political factors shaping these processes with examples drawn from Australia, North America, France and Germany. It analyses theories that attempt to explain the international movement of people and theories focused on the development of ethnicity.

**Recommended Reading**
Freeman, G. and Jupp, J. (eds) *Nations of Immigrants Australia, the United States and International Migration*. Melbourne, Oxford University Press, 1992

**AS400 Urban and Social Theory**

*3 hours per week ● Hawthorn ● Prerequisite: nil ● Assessment: continuous*

A subject in the Graduate Diploma in Urban Research and Policy

**Objectives and Content**
This subject is designed to introduce students to the major theoretical perspectives used by social scientists to analyse urban development, to examine the nature of the urbanisation process and related urban problems, and to develop an understanding of the role of the State in urban society.

**AS402 Urban Policy**

*3 hours per week ● Hawthorn ● Prerequisite: nil ● Assessment: continuous*

A subject in the Graduate Diploma in Urban Research and Policy

**Objectives and Content**
This subject is concerned with an examination of national, state, and local policies that pertain to urban areas. Crucial issues covered include consideration of what constitutes urban problems and policies, the significance of ideology to policy, formulating policy, putting ideas into operation, evaluation and analysis of policy, and the significance of political structure. Particular topics such as housing, land-use, infra-structure will be used to exemplify issues, and experts in various policy areas participate in the course.
**AS403 Research Report**

3 hours per week • Hawthorn • Prerequisite: nil

*Assessment: continuous*

A subject in the Graduate Diploma in Urban Research and Policy

**Objectives and Content**

This subject provides students with the opportunity to gain research experience by carrying out a research study under staff supervision and presenting the results of the study in the form of a report. The report is one of the major requirements of the graduate diploma course.

**AS404 Advanced Urban Research**

3 hours per week • Hawthorn • Prerequisite: nil

*Assessment: continuous*

A subject in the Graduate Diploma in Urban Research and Policy

**Objectives and Content**

This subject offers more intensive first-hand training in research methods than that offered in AS411. Students undertake a group research program which involves taking a research issue through from conception to completion of a final report. The research program will involve students in survey, design, data collection, interviewing, coding, computing, and research analysis. For students undertaking an empirical analysis in their research projects or for students seeking employment as research officers, this subject provides necessary additional training in urban research.

**AS411 Urban Research**

3 hours per week • Hawthorn • Prerequisite: nil

*Assessment: continuous*

A subject in the Graduate Diploma in Urban Research and Policy

**Objectives and Content**

This subject has three broad objectives: first, to introduce students to the range of subject areas and methodologies covered in contemporary urban research; secondly, to familiarise students with information sources for Australian urban research and methods of data acquisition; and thirdly, to develop a limited competence in basic research techniques. This involves introductory statistical procedures relevant to urban research, use of Swinburne's computer facilities, and an introduction to the software packages for social research.

**AS465 Urban and Regional Economics**

3 hours per week • Hawthorn • Prerequisite: nil

*Assessment: continuous*

A subject in the Graduate Diploma in Urban Research and Policy

**Objectives and Content**

This subject is designed to introduce students to the principles of economic analysis as they apply to the city. Particular attention is paid to techniques of economic analysis such as cost benefit analysis, program budgeting, investment analysis and demand forecasting. Topics to which these principles and techniques are applied include housing, transport, and local government.

**AT13 Writing Fiction**

3 hours per week • Hawthorn • Prerequisite: nil

*Assessment: continuous*

A subject in the Bachelor of Arts

**Objectives and Content**

This subject will introduce students to the range of skills required by 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.

An introduction to techniques of critical and creative thinking will be provided: e.g., plugging into both rational and irrational processes; the role of conjectural thinking, intuition and luck; the use of analogies, metaphor, and associative thinking; perceiving and creating relationships.

Emphasis is placed on the participant as writer and critic.

**Recommended reading**


**AT16 Linguistics 1**

3 hours per week • Hawthorn • Prerequisite: nil

*Assessment: continuous*

A subject in the Bachelor of Arts

**Objectives and Content**

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**

**AT117 Philosophy of Mind**
4 hours per week • Hawthorn • Prerequisite: nil
- **Assessment:** continuous
A subject in the Bachelor of Arts

**Objectives and Content**
This subject is offered as an elective for psychophysiology co-major students. This subject introduces students to a range of philosophical issues associated with the study of mind, brain and cognition. It draws upon problems and issues arising from recent developments in computer technology, especially in artificial intelligence research, expert systems and neural nets, to show the contemporary relevance of many traditional approaches to the philosophy of mind, and to explore some of the new questions which have emerged from these advanced technologies.

**Recommended reading**
Consult the lecturer in charge


**AT118 Aboriginal Issues**
3 hours per week • Hawthorn • Prerequisite: nil
- **Assessment:** continuous
A subject in the Bachelor of Arts

**Objectives and Content**
This subject is designed to allow examination of a wide range of contemporary Aboriginal issues. It is expected that students will become aware of the social and historical antecedents and recognise relationships that exist between them.

The central theme of the subject is the relationship between land and culture, from dispossession and demoralisation to the contemporary land rights movement as an attempt to re-establish a satisfactory cultural identity. Issues covered will include land rights, the search for identity, community development, health, employment, art and music.

**Recommended reading**
To be advised

**AT119 Academic Communication Skills**
4 hours per week • Hawthorn • Prerequisite: nil
- **Assessment:** continuous, and will be based on classwork, a journal and essay
A subject in the Bachelor of Arts

**Objectives and Content**
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. 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.

It incorporates guest lecturers, language support and a forum for problem solving for students new to the Australian academic expectations.

**Recommended reading**

**AT218 Archaeology**
3 hours per week • Hawthorn • Prerequisite: nil
- **Assessment:** essay, fieldwork diary and report
A subject in the Bachelor of Arts

**Objectives and Content**
This subject introduces students to field techniques as a method of enquiry in archaeology. Students will develop an understanding of the adaptability of human populations, theories of human evolution and development, and acquire insights into Australian race relations.

The subject involves a five day field work program held during a non-teaching week. Students learn and practise a number of site survey techniques on a variety of sites. Direct contact with local Aboriginal communities is provided through cultural heritage officers. Lectures and tutorials are held for five weeks after the field trip and cover such topics as developments in Australian archaeology, contributions from the sciences, environmental issues, ethics and the Aboriginal view of archaeology.

**Recommended reading**
AV103  Vietnamese 1A
6 hours per week • Hawthorn • Prerequisite: nil
• Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
Introduction to the tone, essential syntax and the writing system of the Vietnamese language: the use of kinship terms, particles and 'articles'; greetings; the individual; family and time. The teaching method is based on class work. As no previous knowledge of the language is presumed, some time will be devoted to the description of the language, the present system of writing and the essential syntax of the language. By working through a series of graded and contextualised dialogues students will begin to develop reading, writing, listening and speaking skills.

Recommended reading
Nguyen A. Q. Vietnamese for Foreigners, Hanoi 1994
Thompson, L. Vietnamese Grammar, Hawaii, University of Hawaii Press, 1988
Ton That Q.D. Learning Vietnamese for Speakers of English, Book 1, Department of Asian Studies and Languages, Monash University, 1993
Vuong, G.T. Vietnamese in a Nutshell, Montclair, N.J., Institute for Language Study, 1975
Other materials will be provided by the lecturer.

AV104  Vietnamese 1B
6 hours per week • Hawthorn • Prerequisite: AV103 or approved equivalent • Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
This subject is a continuation of Vietnamese 1A. The focus will be on the question of tense, usage of conjunctions and more complex particles and further development of reading, writing, listening and speaking skills. The content of this subject includes the usage of some important preverbs and postverbs, dimensions and expressions of distance, comparisons, directions and modes of transport, the human body and health terms.

Recommended reading
Nguyen A. Q. Vietnamese for Foreigners, Hanoi 1994
Thompson, L. Vietnamese Grammar, Hawaii, University of Hawaii Press, 1988
Ton That Q.D. Learning Vietnamese for Speakers of English, Book 2, Department of Asian Studies and Languages, Monash University, 1993
Other materials will be provided by the lecturer.

AV204  Vietnamese 2B
6 hours per week • Hawthorn • Prerequisite: AV203 or approved equivalent • Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
Continuation of development of skills in written and spoken Vietnamese. The focus is on communicative active oral and written skills for a wide range of contexts. Topics covered include contemporary issues directly relevant to the Vietnamese community of Australia, such as health, education, the law and immigration.

Recommended reading
Bui, P. Learning Modern Spoken Vietnamese, Hanoi, 1992
Thompson, L. Vietnamese Grammar, Hawaii, University of Hawaii Press, 1988
Ton That Q.D. Intermediate Vietnamese Book 4, Monash University, 1993
In addition videotaped materials and texts selected by the lecturer will be provided.

AV303  Vietnamese 3A
6 hours per week • Hawthorn • Prerequisite: AV204 or approved equivalent • Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
The objective if this subject is to continue to develop skills in written and spoken Vietnamese. The focus is on communicative active oral and written communication in a wide range of contexts. Topics covered include areas directly relevant to the country of Vietnam such as history, geography, trade and tourism.

Recommended reading
Bui, P. Learning Modern Spoken Vietnamese, Hanoi, 1992
Thompson, L. Vietnamese Grammar, Hawaii, University of Hawaii Press, 1988
Ton That Q.D. Intermediate Vietnamese Book 4, Monash University, 1993
In addition videotaped materials and texts selected by the lecturer will be provided.

AV303  Vietnamese 3A
6 hours per week • Hawthorn • Prerequisite: AV204 or approved equivalent • Assessment: continuous
A subject in the Bachelor of Arts

Objectives and Content
The objective if this subject is to continue to develop skills in written and spoken Vietnamese. The focus is on communicative active oral and written communication in a wide range of contexts. Topics covered include areas directly relevant to the country of Vietnam such as history, geography, trade and tourism.

Recommended reading
Bui, P. Learning Modern Spoken Vietnamese, Hanoi, 1992
Thompson, L. Vietnamese Grammar, Hawaii, University of Hawaii Press, 1988
Ton That Q.D. Intermediate Vietnamese Book 4, Monash University, 1993
In addition videotaped materials and texts selected by the lecturer will be provided.
training is provided in correct usage of vocabulary and grammatical forms in accordance with accepted conversational conventions.

**Recommended reading**

In addition videotaped materials and texts selected by the lecturer will be provided.

**AV304 Vietnamese 3B**

* 6 hours per week • Hawthorn • Prerequisite: AV303 or approved equivalent • Assessment: continuous

A subject in the Bachelor of Arts.

**Objectives and Content**
This subject continues to develop skills in written and spoken Vietnamese. The focus is on communicative active oral and written skills for a wide range of contexts. An outline of the development of modern Vietnamese literary tradition will be given. Topics covered will include areas of the arts, literature and history. Time will be devoted to the discussion of the social background to the emergence of the romanised system of writing, its role as a vehicle for social change, the influence of the Western tradition of thought and the role of the Tu Luc Van Doan group of writers.

**Recommended reading**

In addition videotaped materials and texts selected by the lecturer will be provided.

**AV306 Reading Vietnamese Newspapers**

* 4 hours per week • Hawthorn • Prerequisite: AV204 or approved equivalent • Assessment: continuous

A subject in the Bachelor of Arts.

**Objectives and Content**
The objective of this subject is to provide further training in reading skills to enable students to deal with contemporary and original Vietnamese texts on their own. Selected texts, contemporary in nature and diverse in topic, will form the basis for the required reading for this subject.

**Recommended reading**
A comprehensive reading list will be provided by the lecturer.

**AY100 Psychology 100**

* 4 hours per week • Hawthorn • Prerequisite: nil • Assessment: practical exercises (including participation as a subject in research), a practical report and an examination

A subject in the Bachelor of Arts and the Bachelor of Applied Science.

**Objectives and Content**
AY100 and AY101 are designed to introduce students to the content and method of psychology. Topics introduced in AY100 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 AY100.

**AY101 Psychology 101**

* 4 hours per week • Hawthorn • Prerequisite: AY100 • Assessment: essay, a practical report (including participation as a subject in research) and an examination

A subject in the Bachelor of Arts and the Bachelor of Applied Science.

**Objectives and Content**
This subject concentrates on various aspects of cognition such as memory, information processing, intelligence and problem solving. Other topics covered include motivation, genetics, personality, sexuality, stress and coping and psychopathology. The design and analysis of experimental studies forms a major part of the teaching program.

**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.

**AY202 Cognition and Human Performance**

* 3 hours per week • Hawthorn • Prerequisite: AY100, AY101, SM278 • Assessment: project work, laboratory exercises and an examination

A subject in the Bachelor of Arts and the Bachelor of Applied Science.

**Objectives and Content**
This subject examines major theories of cognitive functioning and the mechanisms and processes involved in memory, attention and human performance. It will provide a basis for understanding of skill acquisition and examine the effects of motivation, overload and arousal levels on performance. After a general introduction to theory, contemporary issues are considered, including decision-making, perceptual-motor performance and clinical and organisational applications.
Recommended reading
* Not available to students who have previously passed AY313 Cognition and Human Performance.

*AY203 Developmental Psychology
4 hours per week • Hawthorn • Prerequisite: AY100 and AY101 or corequisite SM278 • Assessment: a practical report, an essay, and an examination
A subject in the Bachelor of Arts and the Bachelor of Applied Science

Objectives and Content
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
Berk, L. Child Development. 3rd edn, Boston, Allyn & Bacon, 1994
* Not available to students who have previously passed AY200 Psychology

*AY204 Social Psychology
3 hours per week • Hawthorn • Prerequisite: AY100, AY101, SM278 • Assessment: a practical report and an examination
A subject in the Bachelor of Arts and the Bachelor of Applied Science

Objectives and Content
This subject involves the scientific study of the personal and situational factors that influence an individual’s behaviour in social situations. The aim is to introduce students to the key conceptual and theoretical models in social psychology and to develop an appreciation of how our behaviour is affected by the presence or awareness of others.

The teaching program involves two lectures, a tutorial/practical session and an average of one hour of project work per week.

Recommended reading
* Not available to students who have previously passed AY201 Psychology.

AY312 The Psychology of Personality
3 hours per week. Hawthorn • Prerequisite: AY202, AY203, AY204, SM278 or corequisite SM378 • Assessment: an examination (50%) and a research project and report (50%)
A subject in the Bachelor of Arts and the Bachelor of Applied Science

Objectives and Content
This subject focuses on the behaviour and experience of the individual as a whole person. Attention is given to contributions from other specialised fields of psychology, especially development, social interaction, learning, motivation, cognition, emotion. Theory and research from these fields are considered specifically from the viewpoint of integrating such contributions to increase our understanding of ourselves and others as persons.

Four major perspectives on personality are examined psychodynamic, dispositional, cognitive/behavioural, phenomenological. Issues such as methods of personality assessment and research strategies are considered. Selected contemporary issues are examined, including conflict and defence; the self, self-regulation; purpose and meaning; the effective personality, personality disorders.

Recommended reading
Mischel, W. Introduction to Personality. 5th edn, Fort Worth, TX, Harcourt Brace, 1993

*AY319 Psychological Measurement
2 hours per week • Hawthorn • Prerequisite: AY202, AY203, AY204 • Assessment: class test and practical report
A subject in the Bachelor of Arts and the Bachelor of Applied Science

Equivalent value of one half-semester subject

Objectives and Content
In this subject, students will be involved with the practical aspects of psychometrics design, construction, validation and evaluation of assessment techniques. 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.

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
* Not available to students who have previously passed AY311 Methods and Measures.

*AY320 Psychological Foundations of Counselling
2 hours per week • Hawthorn • Prerequisite: AY312 • Assessment: a theoretical examination and a practical interviewing skills project
A subject in the Bachelor of Arts and the Bachelor of Applied Science

Equivalent value of one half-semester subject
Objectives and Content
The nature of counselling and its relationship to guidance, psychotherapy and other helping activities is considered. The basic helping interview skills are introduced, drawing upon the microcounselling model proposed by Ivey. Video-assisted practice interviews are an important in-class activity. Models of counselling, such as that proposed by Egan, are discussed. Concepts from developmental psychology, social psychology and cognitive psychology related to counselling are considered. The evidence concerning the effectiveness of counselling intervention is examined.

Recommended reading
Benjamin, A. The Helping Interview. 4th edn, Boston, Houghton Mifflin, 1987
Egan, G. The Skilled Helper. 5th edn, Pacific Grove, California, 1994

AY314 Counselling and Interviewing

AY400 Applied Social Psychology
3 hours per week ● Hawthorn ● Prerequisite: nil
● Assessment: Class presentation 30%, essay 30%, test 40%

AY401 Research Design and Analysis
3 hours per week ● Hawthorn ● Prerequisite: nil
● Assessment: practical report 50%, two class exercises 50%

AY403 Advanced Quantitative Methods
3 hours per week ● Hawthorn ● Prerequisite: nil
● Assessment: classroom test 50%, workbook 50%

AY411 Counselling in the Human Services
3 hours per week ● Hawthorn ● Prerequisite: nil
● Assessment: theory essay 50%, video-taped interview and assignment 50%

AY413 Research Project and Report
● Hawthorn ● Prerequisite: AY401 ● Assessment: Submission of a report (4000-6000 words), assessed by two examiners.

Recommended reading

AY403 Advanced Quantitative Methods

AY411 Counselling in the Human Services

AY413 Research Project and Report
empirical research question, design an appropriate study, collect and analyse data, interpret these data in relation to the original research question, and submit a report on the investigation in the form of a journal manuscript.

The research project may take any one of a number of forms controlled observations, case studies, field surveys, laboratory experiments, field experiments, secondary analysis of data sets, archival research. The individual student must plan and carry out every phase of the project from initial planning to final analysis, interpretation and reporting of the data. While flexibility in methodology is clearly required, given the diversity of potential topics for investigation, the methodology and data analysis procedures used must be (a) generally recognised within the field of psychological research as sound and appropriate for the particular question, and (b) correctly implemented in a systematic manner.

A member of the School of Social and Behavioural Science will be assigned to supervise the research. Supervisor and student will be expected to meet regularly for consultation according to a mutually agreed timetable.

The conduct of the research overall must conform in all respects to the principles of research ethics stated in the School of Social and Behavioural Science’s Statement of Research Ethics.

**Recommended reading**
Swinburne Psychology Department. *Statement on Research Ethics*. Melbourne, Swinburne Press, 1986

**AY420 Assessing Persons and Environments**
2 hours per week • Hawthorn • Prerequisite: nil
*Assessment: case study and assessment report 50% Psychometrics examination 50%*

A subject in the Graduate Diploma in Applied Psychology

**Objectives and Content**
This Objectives to equip 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.

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**

**AY422 Ethical and Professional Issues**
2 hours per week • Hawthorn • Prerequisite: nil
*Assessment: required attendance and participation in a minimum of 75% of the class meetings. May include seminar presentation and paper, essay, and/or a class test*
A subject in the Graduate Diploma in Applied Psychology

**Objectives and Content**
Topics will be selected from the following list:
- psychology as a profession;
- the Australian Psychological Society and requirements for registration in the State of Victoria;
- confidentiality, report writing and supervision;
- philosophical and professional issues morality and ethicals professional problems;
- problem solving;
- psychology and the media;
- psychology and the law, mental health legislation, forensic psychology, and the psychologist as expert witness.

**Recommended reading**

**AY430 Organisational Psychology**
3 hours per week • Hawthorn • Prerequisite: nil
*Assessment: Oral presentation 40%, written assignment 60%: theory examination 60%, practical assignment 40%*
A subject in the Graduate Diploma in Applied Psychology

**Objective**
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**

**AY510 Human Services Research and Evaluation**

- **3 hours per week** • Hawthorn • Prerequisite: nil
- **Assessment: individual research assignments (100%)**

A subject in the Master of Arts in Counselling Psychology

**Objectives and Content**
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.

Topics include:
- review of foundation topics in research design and analysis;
- research design in field settings;
- measurement in human services research;
- qualitative research methodologies;
- single-case methodologies;
- program evaluation methods;
- program monitoring and performance indicators;
- evaluation in practice;
- reporting research.

**Recommended reading**

**AY511 Group Counselling Skills**

- **3 hours per week** • Hawthorn • Prerequisite: nil
- **Assessment: demonstration of an acceptable level of skill in conducting group-based activities 60% Assignment 40%**

A subject in the Master of Arts in Counselling Psychology

**Objectives and Content**
This subject is designed to provide students with the knowledge, skills, and self-awareness necessary to use group-based interventions. There will be didactic input, experiential learning, and practice of skills with feedback.

Topics include:
- applications of groups in counselling psychology practice, types of groups;
- foundation concepts in group-work; structure, content, process, roles;
- theories of helping-group functioning;
- interpersonal relationships in groups, group leadership, leadership skills modelling, teaching process-commentary, managing hostility and aggression.

Interventions to promote learning, interventions to enhance group processes selected techniques in group-work warm ups, introductions, motivators, role-plays, de-briefing, sharing, terminating.

**Recommended reading**

**AY512 Counselling Theory and Skills**

- **3 hours per week** • Hawthorn • Prerequisite: nil
- **Assessment: practical examination involving the demonstration of an adequate skill level in conducting and appraising a counselling interview Theory (50%) Examination (50%)**

A subject in the Master of Arts in Counselling Psychology

**Objectives and Content**
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.

Topics include:
- the development of counselling and counselling psychology. Major theoretical perspectives; cognitive-behavioural, psychodynamic, experiential, systemic;
- developments in counsellor education Carkhuff's IDET/SHRT model; Kagan's IPR; Ivey's microcounselling model; Stone's cognitive;
- 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**
Gelso, C.J. and Fretz, B.R. *Counselling Psychology*, Fortworth, Harcoun Brace Jovanovich, 1992
AY513 Research Colloquium

3 hours per week • Hawthorn • Prerequisite: AY510
- Assessment: presentation of a research proposal 50%, submission of literature review 50%

A subject in the Master of Arts in Counselling Psychology

Objectives and Content
This subject is designed to extend students’ appreciation of developments in research related to counselling psychology. Students in the program give brief presentations concerning their proposed individual research projects.

Presentations by school staff and visiting researchers and practitioners are made concerning current research in the field.

Selected examples of published research are examined, which constitute exemplars of approaches to researching theoretical or practice issues in counselling psychology.

Recommended reading

AY514 Development and Adaptation

3 hours per week • Hawthorn • Prerequisite: nil
- Assessment: seminar paper 50%, examination 50%

A subject in the Master of Arts in Counselling Psychology

Objectives and Content
- Introduction to life span development theory analysis of meta theories. Theoretical models derived from the above metatheory, e.g. Erikson, Piaget, Levinson, Bandura and others.
- The notion of life transitions and their links to the experience of stress and coping.
- Problems and issues in conceptualising and measuring development and adaptation to life events.
- Applications of the above theoretical material and models to specific life events and transitions including identity and intimacy issues in adolescence and young adulthood; developmental problems confronting men and women in mid-life and late adulthood; crises of development such as substance abuse; stress related illness and relationship breakdown.

Recommended reading

AY515 Psychological Assessment:

3 hours per week • Hawthorn • Prerequisite: nil
- Assessment: practical examination involving the use, interpretation, and reporting of selected assessment procedures (100%)

A subject in the Master of Arts in Counselling Psychology

Objectives and Content
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.

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 (e.g. DSM-IV); cognitive and behavioural assessment; Adaptive Behaviour scales;
- assessing occupational interests and references: The Holland VPI and SDS, the W.A.P.S.;
- assessing abilities including the use of WISC-III and WAIS-R;
- self-report and projective measures of personality functioning MMPI-2 Rorschach, TAT; 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

AY516 Counselling Applications

3 hours per week • Hawthorn • Prerequisite: AY512
Counselling Theory and Skills • Assessment: practical examination involving case-studies (100%)

A subject in the Master of Arts in Counselling Psychology

Objectives and Content
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 practica and subsequent independent practice.

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


AY517 First Supervised Practicum (Internship A)

60 work days • Hawthorn • Prerequisite: AY512 Counselling Theory and Skills • AY515 Psychological Assessment • Assessment: students will be evaluated by the supervisor(s) most closely associated with their work together with the coordinator. Performance will be reviewed mid-way through the internship and an evaluation made at the end.

A subject in the Master of Arts in Counselling Psychology

Objectives and Content

This first practicum is 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 telephone enquiries to the Centre.

Students will be allocated clients in accordance with their existing levels of counselling skills, their professional interests, their professional interests. A normal case load will be four clients per week. Students will be expected to see a mixture of child, adolescent and adult clients and to gather experience in working with groups and families as well as individuals. A supervisor will be appointed and will meet weekly with the student for supervision. The supervisor will be an Associate of the Centre.

Students will meet once a month in a small group supervision session to discuss their clients. Each student will be required to present a report on a case for discussion by the group. In addition, each student will write a comprehensive case summary after termination with each client.

The 60 work days include 120 hours of client contact.

AY610 Professional and Ethical Issues

3 hours per week • Hawthorn • Prerequisite: nil • Assessment: case study 30%, practical and theoretical examination 70%

A subject in the Master of Arts in Counselling Psychology

Objectives and Content

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.

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


Lakin, M. *Coping with Ethical Dilemmas in Psychotherapy*. New York, Pergamon 1991


AY611 Counselling Psychology B Marriage and the Family

3 hours per week • Hawthorn • Prerequisite: nil • Assessment: seminar presentation 50%, videotaped interview 50%

A subject in the Master of Arts in Counselling Psychology

Objectives and Content

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;

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


Nichols, M.F. and Schwartz, R.C. *Family Therapy*. 3rd edn, Boston, Allyn and Bacon, 1995
AY612 Second Supervised Practicum – Internship B

60 work days ● Hawthorn ● Duration two semesters ●
Prerequisite: AY517 ● Assessment: students will be evaluated by the supervisor(s) most directly associated with their work together with the coordinator. Performance will be reviewed midway through the internship and an evaluation made at the end.

A subject in the Master of Arts in Counselling Psychology

Objectives and Content
This second practicum is intended to broaden and consolidate students’ previous learning in the program and to provide students with the opportunity to act as a responsible professional within a counselling setting. The 60 work days include 120 hours of client contact.

Students will be allocated to an internship in one or two settings over the year. Allocation to an internship setting will be guided both by the student’s professional interests and the objective of extending his or her existing skills. Students will take on counselling clients and participate as fully as possible in the professional activities of the internship setting. The School of Social and Behavioural Science has links with numerous practice settings in which experienced psychologists work, including organisations such as the Vietnam Veterans Counselling Service, the Banking Staff Counselling Staff Service; University and TAFE counselling units; Moreland Hall Drug and Alcohol Service; Doncare Community Counselling Services; and Relationships Australia.

Students will be required to have presented written and/or verbal case reports about their clients to other professionals. Where appropriate, students are encouraged to participate in an Assessment or review of some aspect of service delivery or administration of the internship setting.

AY613 Counselling Psychology: A Psychology of Work and Health

3 hours per week ● Hawthorn ● Prerequisite: nil ●
Assessment: applied project 50%, class test 50%

A subject in the Master of Arts in Counselling Psychology

Objectives and Content
This course is designed to develop an understanding of counselling practice related to health, well-being and behaviour with particular reference to the person/organisation interface and workplace settings.

Specific topics will include:
- psychology of work;
- organisational theory;
- career choice, development and change;
- vocational guidance and career counselling;
- personnel selection, induction, training, socialisation and appraisal;
- leadership and supervision;
- communication
- industrial relations, negotiations, change and conflict resolution;
- health psychology;
- the biopsychosocial perspective of health and wellness;
- stress, illness and psychological health; stress and its management;
- lifestyle effects on health and wellbeing;
- personal, work related and community related health problems;
- occupational health and safety;
- ergonomics and person/machine interaction;
- future developments.

Recommended reading
Bishop, G.D., Health Psychology: Integrating Mind and Body, Boston, Allyn and Bacon 1994

AY614 Aspects of Professional Practice

3 hours per week ● Hawthorn ● Prerequisite or corequisite
AY612 Supervised Practicum – Internship B ● Assessment: seminar presentation and essay 50% each

A subject in the Master of Arts in Counselling Psychology

Objectives and Content
The aim of the subject is to consolidate the knowledge and skills gained by students during their supervised practica in order to assist the transfer of this knowledge and skill to psychological practice after graduation.

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

AY615 Supervised Research Project and Report

Hawthorn ● Prerequisite: AY513 Research Colloquium ●
Assessment: continuous; final review and report 100%

A subject in the Master of Arts in Counselling Psychology

Objectives and Content
- This subject is 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 first year of their enrolment. At the end of this first year of enrolment each student must submit a written, detailed research proposal.
- 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 Counselling 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 report on his or her research in the form of a 4-5,000 word article in a form suitable for submission to a nominated journal which publishes empirical research related to counselling psychology. This report must be accompanied by a technical supplement containing detailed results, raw data, and copies of measures used.
- This research report will also be accompanied by the 4000 word literature review. The two submissions comprise the work to be assessed for this subject.

Recommended reading

BB701 Management 2 (Resources)

2 hours per week • Hawthorn • Prerequisite: normally all subjects taught in the first term of the course. This subject is compulsorily (conversion students excepted). • Assessment: assignments, presentations, tests.

A subject in the Master of Business Administration

Objectives

The basic objective of this subject is to provide a broad understanding of, and some basic practical skills for, the effective planning, acquisition and control of human, financial material and information resources in an organisation. The technological implications of this subject will be complemented by study of the place of innovation and internationalism. Issues addressed will be seen to draw from, and contribute to, other subjects in the course.

Specific objectives include:
- to provide an introduction to the process of planning an organisation's needs for all categories of resources;
- to provide an introduction to the methods of acquiring the various resources needed;
- to provide an introduction to the key concepts involved in monitoring, reviewing and controlling the use of resources.

Content

The subject will emphasise the largely integrated nature of resource management from the point of view of general management.

Planning resource requirements.

Acquiring resources:
- information as a corporate resource;
- human — the nature and role of the personnel function in attracting, retaining and motivating competent employees;
- financial — acquiring an appropriate financial mix including short term/long term funds, debt/equity, local and foreign currency etc.; mechanics of fund raising, sources of advice etc.;
- what is happening in financial markets now;
- capital investment — approaches to selection of investments in plant and equipment, buildings, R&D and other long term assets;
- materials — sourcing materials, parts and other non capital resources;
- Implications of international sourcing of materials, personnel, information, finance and capital assets both for domestic use and in overseas operations;
- Controlling resource use: key concepts in control of human, financial and materials resources:
- use of financial and non financial indicators
- accounting and management reporting systems.

Recommended reading

BB702 Management 3 (Ideas)

2 hours per week • Hawthorn • Prerequisite: normally all subjects taught in the first term of the course. This subject is compulsorily for all students. • Assessment: assignments, presentations, tests.

A subject in the Master of Business Administration

Objectives

The basic objectives of this subject are to develop an attitude
towards business that encourages and supports innovation and creativity as essential components of successful business, and to provide some basic practical skills for the management of ideas within the business. Internationalism and technology will be inherent themes, and the subject will draw on the knowledge gained in other subjects of the MBA.

Specific objectives include:

- to establish a framework that encourages managers to seek out, encourage and utilise opportunities for creativity and innovation to generate sustainable competitive advantage;
- to examine some of the methods for generating high value-added products (goods or services) through the application of ideas/intellectual skills/creativity;
- to develop the skills and knowledge necessary for managers and their enterprises to respond positively and creatively to changes in their operating environment.

Content

Topics to be covered include:

- the importance of innovation in business operations: encouragement and management of innovation, new product development, process innovation, and R&D;
- market driven behaviour: making marketable products rather than customary or easily-made products; creation of new markets;
- building ideas into products: product design quality, production quality control, image, support and service, manufacturing technologies, productivity; entrepreneurship and intrapreneurship; new ventures, judgement, risk taking; managing and decision support in an uncertain environment; management of innovation: seeking opportunities in a changing environment; adapting management styles and the organisation to fit change and to encourage innovative ideas.

Textbooks


Recommended reading


BB801 International Business

2 hours per week ● Hawthorn ● Prerequisite: normally all subjects taught in the first term of the course. This subject is a compulsory part of the MBA for all students. ● Assessment: assignments, presentations, tests. This is compulsory for all students.

A subject in the Master of Business Administration

Objectives

The purpose of this subject is to ensure that managers and prospective managers are aware of the basics of international business operations — exporting, importing, licensing, foreign exchange, and foreign investments, and of the special features of the world economic, social and political environment in which companies function.

The objectives:

- to provide a framework for international business and for the role of the manager in an international setting;
- to raise awareness of the opportunities in international trade (particularly export) and investment, and to examine some of the obstacles;
- to examine some of the most unusual aspects of the economic environment of the international operator — the world monetary system, foreign exchange markets, multinational organisations, and balance of payments, particularly as they affect Australian exporters.

Content

- the basis for international trade;
- the basis for international factor movements;
- barriers to international business;
- the world monetary system and foreign exchange;
- balance of payments;
- international reach of trade practices;
- foreign direct investment;
- organisation of international operations;
- export management;
- the role of marketing in economic development; trading with the socialist economies;
- global marketing management;
- human resource management;
- ethics in international business operations;
- cultural diversity and business operations;
- financing International Trade Risk Management and International Business;
- special problems of international operations from Australia.

Recommended reading


BB802 Management 4: (Technology and Management)

2 hours per week ● Hawthorn ● Prerequisite: nil
- Assessment: assignments, presentations, tests. This is compulsory for all students.

A subject in the Master of Business Administration

Objectives

The principal aim of this subject is to prepare managers for operating in a business environment in which advancing technology is an increasingly important part of the process of doing business.

Specific objectives include:

- to examine the increasingly important role of
technology in the global and national economies and the consequences of this for corporate strategies;
• to provide some basic skills of technology assessment to assist in utilising technology within the organisation and in incorporating technology into corporate strategies;
• to examine the influence of changing technologies on the work environment and to develop ways of minimising adverse influences;
• to manage organisational change.

Content

Topics to be covered include:
• the importance of technology in national and global economies: the increase in its importance throughout the twentieth century; technological levels of the Australian economy and some of the reasons for Australia’s comparatively poor performance; government policies for increasing the role of technology in business; implications of this for individual organisations, particularly smaller ones;
• using technology within the organisation: technology life-cycles; differing uses of technology; technological forecasting; sources of technology; strategic place of technology within the business;
• stages of growth in the introduction and application of technology in organisations e.g. Nolan Stages of Growth;
• the influence of technology on corporate culture: introducing new technology into organisations; influence of new information technologies on business practice, management methods and organisational structures;
• the key characteristics of the principal business-related technologies: information technology; microelectronics; materials technology; biotechnology; manufacturing technology;
• relevance of R&D to business success.

Recommended reading

Timmons, J.A. New Venture Creation: Entrepreneurship in the 1990s. 3rd edn, Homewood, Irwin, 1990

BB804 Management 5 (Management and Society)

2 hours per week • Hawthorn • Prerequisite: nil
• Assessment: assignments, presentations, tests. This is compulsory for all students.

A subject in the Master of Business Administration

Objectives

This subject focuses on the international, national and community context in which planning and decision making must take place.

The subject aims to encourage successful and socially responsible management by developing:
• an understanding of the broader social and environmental context of management;
• an awareness of the importance of social legislation and of the philosophy and values underlying it;
• a critical awareness of the traditional assumptions underlying organisational values;
• sensitivity to other value systems including those of other cultures;
• an understanding of the impact of value systems on organisational processes and decision-making;
• an awareness of the moral and ethical dilemmas that confront practising managers.

Content

The subject will draw on the experience of participants to examine the values implicitly in management practice and organisational structure and to investigate the implications for action of those values. It will seek to locate these values in the broader social and political context of management, and to explore the nature and extent of the responsibilities this creates. Accordingly, the following themes will be addressed:
• Introduction: identifying values implicitly in different management styles, goals, etc., and examining their underlying assumptions and theoretical frameworks;
• the context and structure of organisations: social, political, environmental: power and control;
• the rationale for social legislation: conceptual, historical and practical considerations;
• technology and the formation of organisational values: e.g. the impact of information technology, technocratic values, etc.;
• cross-cultural value differences and the implications for international business and trade;
• the challenge of the multi-ethnic work force.

Recommended reading

Selected articles and extracts will be prescribed.

As background reading, the following texts are recommended: Deul, T.E. and Kennedy, A.A. Corporate Culture: The Rites & Rituals of Corporate Life. London, Penguin, 1988
Rozsak, T. The Cult for Information. New York, Pantheon, 1986
BB809  Strategic Project — Master of Business Administration

Please contact course provider for details.

BC110  Accounting 1

3 hours per week  •  Hawthorn/Mooroolbark  •  Prerequisite: nil  •  Assessment: examination/mid semester assessment/assignment.

A subject in the Bachelor of Business

Objectives and Content

A basic introduction to accounting concepts, financial accounting, management accounting and finance. 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


BC220  Accounting 2

4 hours per week  •  Hawthorn/Mooroolbark  •  Prerequisite: BC110 Accounting 1 or BS113 Accounting  •  Assessment: examination/computerised practice set

A subject in the Bachelor of Business

Objectives and Content

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.

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

Student Manual, Swinburne, 1996
Insight Accounting: Software and accompanying notes. Longman, Melbourne, Australia, 1995
Hoggett, J. and Edwards, L., Accounting in Australia. 3rd edn, Brisbane, John Wiley and Sons, 1995
CCH Macquarie Dictionary of Accounting (Student version), CCH, Sydney, 1991

BC221  Corporate Accounting

3 hours per week  •  Hawthorn/Mooroolbark  •  Prerequisite: BC220 Accounting  •  Assessment: examination/assignment

A subject in the Bachelor of Business

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 including Fifth Schedule and Accounting Standards requirements;
- reconstruction and company liquidation.

Recommended reading

Australian Corporations and Securities Legislation, Accounting/ Auditing Statements 1997
ASICPA or ICAA BC221 Corporate Accounting Student Manual, Swinburne, 1997
Leo, K.J. and Hoggett, J.R., Company Accounting in Australia. 3rd edn, Brisbane, Wiley, 1997
Cliff, R.C. and Sims, M.A., Corporate Accounting. 4th edn, New York, Prentice Hall, 1993

BC222  Management Accounting

3 hours per week  •  Hawthorn/Mooroolbark  •  Prerequisite: BC110 Accounting 1  •  Assessment: test 35%, final exam 65%

A second year subject in the Bachelor of Business

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, and;
• critically evaluate traditional management accounting theory and practice against the contemporary literature on activity-based costing and the new technologies.

Recommended reading
Hansen, D.R. and Mower, M.M. Cost Management, Cincinatti, Ohio, South Western, 1995
Shillinglaw, G., Managerial Cost Accounting. 5th edn, Homewood, Illinois, Irwin, 1982

BC223 Management Accounting 2
3 hours per week • Hawthorn/Mooroolbark
• Prerequisite: BC110 Accounting 1 and BC222 Management Accounting 1 • Assessment: examination/assignment
A subject in the Bachelor of Business

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 Just in Time systems, performance evaluation of business units, profit variance analysis and cost of quality programs.

Recommended reading
Hansen, D.R. and Mower, M. Cost Management, Cincinatti, South-Western, Ohio, 1995

BC224 Financial Management 1
3 hours per week • Hawthorn/Mooroolbark
• Prerequisite: completion of all core subjects
Assessment: examination/assignments

A subject in the Bachelor of Business

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
Shillinglaw, G., Managerial Cost Accounting. 5th edn, Homewood, Illinois, Irwin, 1982
Recommended reading
Auditing Student Manual, Swinburne University of Technology, 1996
Chartered Accountant and Australian Society of CPAs, Auditing Handbook 1996, Vol 12

BC227 Financial Risk Management
3 hours per week • Hawthorn • Prerequisite: BE220
Macroeconomics • Assessment: examination/assignment
A subject in the Bachelor of Business which maybe counted towards either a finance major/minor or an accounting major/minor

Objectives and Content
This is a second year subject which builds on the material covered in BE220, the first year macro subject.
The main objectives of the subject are to:
• broaden students’ understanding and appreciation of macroeconomic principles, current issues and policy;
• provide students with the necessary skills to evaluate macroeconomic policies and related debates.
Specific topics include: understanding the business cycle, the different views of economists, important current economic debates such as, does the current account deficit matter?, national saving; taxation reform and; an evaluation of macroeconomic management.
The course will describe the deficiencies in earlier macroeconomic theories which led to disaffection the theories now in vogue, and importantly the policies based upon them, and their limitations.

Recommended reading
Indec, State of Play 8, Sydney, Allen and Unwin, 1995
Stewart, M. Keynes in the 1990’s, London, Penguin, 1993

BC330 Accounting Theory
3 hours per week • Hawthorn/Mooroolbark
• Prerequisite: All second year subjects required for professional accounting recognition • Assessment: examination/essay/tutorial performance/test
A subject in the Bachelor of Business

Objectives and Content
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.

Recommended reading

BC331 Taxation
3 hours per week • Hawthorn/Mooroolbark
• Prerequisite: BC221 Corporate Accounting • Assessment: examination/assignments
A subject in the Bachelor of Business

Objectives
The overall course 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.
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 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.

Recommended reading
Australian Income Tax Assessment: Act 1936, North Ryde, N.S.W., CCH Australia Ltd.
Australian Master Tax Guide. North Ryde, N.S.W., CCH Australia Ltd.
Barcocy, S., Australian Tax Casebook, North Ryde, N.S.W., CCH Australia Ltd., 1995
Australian Federal Tax Reporter. CCH Australia Ltd
Lehmann, G. and Coleman, C., Taxation Law in Australia. 3rd edn, Sydney, Butterworths, 1994
Topical Tax Cases for Australians. North Ryde, N.S.W., CCH Australia Ltd., 1991
Australian Tax Handbook. Sydney, Butterworths
**BC332 Strategic Cost Management**

3 hours per week  • Hawthorn/Mooroolbark
- Prerequisite: BC223 Management Accounting 2 and BC224 Financial Management 1  • Assessment: group case studies and individual research essay

A subject in the Bachelor of Business

**Objectives**

This is a final year subject designed to develop and integrate the planning, control and decision-making techniques and skills introduced in management accounting and financial management within a strategic framework.

**Content**

Topics 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, the provision of services in the context of an increased focus on quality, customer service and world’s 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. and Govindarajan, V. *Strategic Cost Management*. Free Press 1993
- Current journals, especially *Journal of Cost Management and Management Accounting*

**BC333 EDP Auditing**

3 hours per week  • Hawthorn  • Prerequisite: BC225 Auditing
- Assessment: examination/assignment

A subject in the Bachelor of Business

**Objectives and Content**

This subject assumes 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.

The topics to be studied include:
- the study of auditing principles with specific reference to computerised accounting information systems;
- EDP audit techniques;
- statistical sampling techniques;
- analytical review techniques;
- audit related causes for company failures.

The subject makes extensive use of audit oriented software packages.

**Recommended reading**

To be advised.

**BC334 Financial Accounting**

3 hours per week  • Hawthorn  • Prerequisite: BC221 Corporate Accounting and BC330 Accounting Theory
- Assessment: examination/assignment

A subject in the Bachelor of Business

**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;
- 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; cash flow accounting; financial forecasts; employee entitlements; accounting and ethics; international accounting standard; and regulation; and contemporary financial accounting issues.

The syllabus is flexible to allow new financial accounting issues which emerge to replace topics of less relevance.

**Recommended reading**

- Various current Exposure Drafts and Standards issued by the Australian Accounting Research Foundation and the Australian Accounting Standards Board

**BC336 Advanced Taxation**

3 hours per week  • Hawthorn • Mooroolbark
- Prerequisite: BC331 Taxation  • Assessment: examination/assignment

A subject in the Bachelor of Business

**Objectives and Content**

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, superannuation funds and primary producers. 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. 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 and tax avoidance;
- international taxation;
- sales tax.

**Recommended reading**

- Income Tax Assessment: Act (1936 as amended)
- Australian Master Tax Guide. North Ryde, CCH Australia Ltd. 1997, or
- Australian Federal Tax Reporter. North Ryde, CCH Australia Ltd
- Australian Tax Cases, North Ryde CCH Australia Ltd.

**BC337 Personal Investment**

*3 hours per week* • Hawthorn • Prerequisite: none but strongly recommended that students should have completed or be concurrently enrolled in BC224 Financial Management 1 • Assessment: examination/assignments

A subject in the Bachelor of Business

This subject may be counted towards either a finance major/minor or an accounting major/minor.

**Objectives and Content**

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.

**Recommended reading**


**BC400 Accounting Honours**

Students should seek advice from the appropriate Accounting staff when formulating their discipline-specific course of study and their research project proposal.

To encourage a multi-discipline approach, students may, subject to approval, undertake selected honours level coursework subjects from other schools, divisions, or institutions provided that they show the relevance of these coursework subjects to their proposed area of research. Such arrangements are subject to the student having any necessary prerequisite studies and may be subject to any quotas imposed on these subjects by the offering School.

Students must submit their proposal to the Accounting Honours Convener for approval prior to the commencement of their honours program. Approval for a student's discipline-specific course of study and research project proposal shall be subject to the availability of any necessary resources and the availability of appropriate staff supervision.

**Advanced Accounting**

This subject is designed to broaden the student's understanding and awareness of contemporary issues in accounting and to provide the student with an opportunity to undertake in-depth study of the relevant theoretical concepts and techniques in a variety of accounting areas. Attention will be given to the application of accounting developments in different sectors of the local and international economy and to the impact of rapid technological and organisational change on accounting. Issues of current concern in the areas of finance, management accounting, tax, auditing, reporting, behavioural accounting and the profession may be included. Students will be required, with guidance, to research selected topics and make presentations to the class and to attend and participate fully in a series of seminars conducted by staff.

**Accounting Honours Research Project**

Students will be required to undertake a substantial research project, with individual and group supervision, on a research
Students intending to complete their degree with honours in accounting literature. Topics may be drawn from the areas of management accounting, finance, tax, financial accounting, auditing, accounting theory, corporate reporting and computer accounting. Students will be required to make class presentations at progressive stages in their research and will be required to submit a written dissertation of approximately 15,000 words in length.

Students intending to complete their degree with honours must apply for entry into the honours year by the end of their three year degree.

Note that entry into the honours year is competitive and the number of places is subject to a quota.

BC401 Accounting for Management

2.35 hours per week • Hawthorn • Prerequisite: nil

- Assessment: assignments

A subject in the Graduate Certificate in Business Administration

Objectives

The objectives of the subject are to develop a manager's ability to understand and apply financial information in making business decisions and assessing the performance of a business.

The subject will aim to produce a more effective user of accounting information. A minimum of technical accounting will be used but emphasis will be placed on understanding sufficient accounting to be aware of the appropriate uses and limitations of information produced by the accounting system.

Content

No prior knowledge of accounting is assumed.

Topics include:

- general purpose financial statements;
- financial statement analysis;
- cash flow statements;
- business finance and investment decision analysis;
- cost, volume, profit analysis;
- costing products and services;
- segment performance evaluation;
- budgeting and profit planning.

Recommended reading

Hey-Cunningham, D., Financial Statements Demystified, Allen & Unwin, 1993

BC410 Introduction to Taxation

2.25 hours per week • Hawthorn • Prerequisite: see Graduate Certificate in Taxation and Finance • Instruction: lectures and class discussion of issues and problems • Assessment: Assignments

A subject in the Graduate Certificate in Taxation and Finance

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.

Specifically, the subject 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; and
- 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 rules governing deductions.

Content

A selection of topics including the scheme of the income tax assessment act, assessable income, statutory inclusions and exclusions in income, source derivation and residency, allowable and specific deductions.

Recommended reading

Australian Master Tax Guide, North Ryde, N.S.W., CCH Australia Ltd.
Australian Income Tax Assessment Act 1936, CCH Australia Ltd.
Australian Federal Tax Reporter, North Ryde, N.S.W., CCH Australia Ltd.
Borkoczy, S., Australian Tax Casebook, North Ryde, N.S.W., CCH Australia Ltd., 1995
Lehrmann, G. and Coleman, C., Taxation Law in Australia, 3rd edn, Sydney, Butterworths, 1994


**Australian Federal Tax Reporter**, North Ryde, N.S.W., CCH Australia Ltd.
Barkocz, S. *Australian Tax Casebook*, North Ryde, N.S.W., CCH Australia, 1995

**BC412 Introduction to Finance**
2.25 hours per week • Hawthorn • Prerequisite: see Graduate Certificate in Taxation and Finance • Assessment assignments

**Objectives**
The objectives of this subject are:
• to provide students with an understanding of the concepts of corporate finance; and
• to develop in students the skills of analysis and evaluation needed to apply the concepts of corporate finance to financial management.

**Content**
Various topics will be covered including understanding company reports, financial statement analysis, working capital management, fund flow analysis, sources of finance, valuation concepts, cost of capital, financial structures and evaluation of investment projects.

**Recommended reading**

**BC413 Investment Analysis**
2.25 hours per week • Hawthorn • Prerequisite: see Graduate Certificate in Taxation and Finance • Assessment: assignments

**Objectives**
The broad objective 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.

More specifically, the subject 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.

**Content**
Various topics will be covered including investment and financial planning, role of the stock exchange, investment in shares, fixed interest securities, property investment, tax implications of investment strategies, options and convertible securities, portfolio theory management evaluation and investment advice.

**Recommended reading**

**BC503 Introduction to Financial Management**
2 hours per week • Hawthorn • Prerequisite: nil • Assessment: assignment(s) and examination
A subject in the Graduate Diploma course in Business Administration

**Objectives**
The objectives of the subject are to: develop the student’s ability to understand, interpret and use financial statements as an information source; develop in the student 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; introduce the student to the use of accounting information in financial management.

No prior knowledge of accounting is assumed.
Applicants who have previously studied accounting at a tertiary level or are working as accountants are precluded from taking this subject.

**Content**
Topics include:
• accounting models and the reporting system;
• basic report analysis and interpretation;
• asset valuation and reporting;
• cost behaviour and classification;
• management planning and decision making;
• information and decision making — short and long run;
• performance reporting and evaluation;

**Recommended reading**

**BC604 Financial Structures and Policy**
2 hours per week • Hawthorn • Prerequisite: a pass or preclusion from BC503 Introduction to Financial Management
A subject in the Graduate Diploma course in Business Administration
Objectives
The general objective is to develop an understanding of financial theory so that the student can evaluate the firm’s investment, financing and dividend decisions in keeping with an objective of maximising shareholder wealth, together with providing students with the means of applying analytical techniques to solve a wide variety of problems involving financial decisions.

Content
In particular, the topic coverage includes:
- financial statement analysis;
- financial markets and investment opportunities;
- predicting corporate failure
- working capital management;
- concepts of valuation;
- cost of capital;
- sources of finance;
- capital structure and leverage;
- business combinations.

Recommended reading
Bruce, R., McKern, B., Pollard, I. and Skully, M. Handbook of Australian Corporate Finance. 5th edn, Sydney, Butterworths, 1994

BC612 Forecasting and the Planning Process
2 hours per week • Hawthorn • Prerequisite: this is a capstone subject and assumes that students have completed all compulsory subjects • Assessment: individual tutorial presentation individual assignments from other courses.

Objectives
- To provide the participant with an opportunity to integrate knowledge gained from the other subjects taken within the course by giving participants a proper perspective of the role and importance of the modelling and forecasting function of a corporate entity.
- To introduce the major concepts and issues involved in the development of a corporate plan and to develop the role of modelling together with the decision making process in the formulation of such a plan.
- To allow participants, via a project within a particular industry, to experience the process of corporate planning — from the critical generation of the various forecasts through to the final implementation.
- To develop, from the corporate plan, a series of lower level plans e.g. product development plan, capital budgeting plan, using applicable database sources and relevant forecasting methodologies.

Content
- Corporate planning, the basics;
- analysis of current position, development of corporate goals/objectives, determination and analysis of corporate strategies, development of corporate plan through selection of appropriate strategies, integration plan for planning subsets;
- information requirements;
- management information systems concepts, data base implications, data sources, historic and projections, environmental considerations;
- application areas;
- market analysis, financial modelling, budgeting and technological implications.

Recommended reading
No set text. A selection of readings from the reference material.

BC701 Accounting for Management
2 hours per week • Hawthorn • Prerequisite: nil
• Assessment: assignments, presentations, tests
A subject in the Master of Business Administration

Objectives
The aim of this subject is to develop the student’s ability to effectively use accounting information in the management of a business.

More specific objectives include:
- developing a framework of key concepts necessary for the interpretation and use of accounting information;
- developing the student’s ability to identify and use relevant information for particular management functions and tasks;
- developing the student’s understanding of how accounting information requirements vary with the nature of the business.

This subject will be designed and taught so as to incorporate the MBA’s emphasis on the places of innovation, technology and internationalism in business, and will link closely with other subjects in the MBA.

Content
The outline of content below contains both a general outline of content, which can be applied to any organisation, and an indication of how this content will be related to organisations influenced by the themes of technology, innovation and internationalism that underlie the MBA program.

General outline of content:
- introduction to the role of accounting in management and key concepts needed for an understanding of that role — cash flow, revenue, expenses, income, assets, liabilities, accounting reports and financial statements;
- assessing performance — analysing profitability, liquidity and ifeaverage and their relationship to the nature of the business;
- cash flow analysis;
- costing, budgeting and control;
- information and decision making;
- management accounting and the new manufacturing environment.
**Recommended reading**


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**BE110 Microeconomics**

*3 hours per week* • Hawthorn • Prerequisite: nil • Assessment: examination assignment

A subject in the Bachelor of Business

**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 of the market 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**


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**BE220 Macroeconomics**

*3 hours per week* • Hawthorn/ Mooroolbark (semester 2) • Prerequisite: BE110 Microeconomics • Assessment: multiple choice tests, assignments, examination

A subject in the Bachelor of Business

**Objectives**

To provide business students with an understanding and appreciation of macroeconomic concepts, issues and policies pertaining to the Australian economy.

**Content**

This subject introduces students to the key macroeconomic concepts, issues and policies. Emphasis is on current issues and policies. To fully appreciate the current Australian economic and business environment, some theoretical background is necessary and this is provided in the course by the AD/AS model. This model is 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.

**Recommended reading**


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**BE221 Managerial Economics**

*3 hours per week* • Hawthorn • Prerequisite: BE110 Microeconomics also BQ110 Quantitative Analysis A or BQ111 Quantitative Analysis B • Assessment: examination/assignment

A subject in the Bachelor of Business

**Objectives and Content**

To show the relevance of microeconomic concepts to business decision-making.

This subject deals with topics such as decision making under conditions of uncertainty, demand analysis with emphasis on demand estimation, cost analysis and cost concepts for decision making, pricing decisions in theory and practice and the goals of the firm and their influence on decision making.

**Recommended reading**


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**BE222 Industry and Government**

*3 hours per week* • Hawthorn • Prerequisite: BE110 Microeconomics • Assessment: examination/assignment

A subject in the Bachelor of Business

**Objectives and Content**

This subject builds on the material covered in BE110 Microeconomics.

Students who are contemplating major studies in economics should include this subject and BE221 Managerial Economic Analysis in their course.

The subject deals with the performance of industry in contemporary economies with special reference to Australia. In particular, the subject considers the relationship between government and industry including regulatory and competition policy.

Performance criteria, the nature of the modern corporation...
(including transnational corporations) and specific approaches to industrial policy and regulation are discussed.

**Recommended reading**


**BE223 Industrial Relations**

3 hours per week • Hawthorn • Prerequisite: BE110 Microeconomics • Assessment: examination/assignment

A subject in the Bachelor of Business

**Objectives and Content**

This subject aims to equip students with an understanding of the Australian industrial relations systems, with particular emphasis on the Federal and Victorian jurisdictions. 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.

Specific Recommended reading will be provided at the beginning of the subject, however, the following Recommended reading will provide useful preliminary reading.

**Recommended Reading**


**BE224 Economic Evaluation**

3 hours per week • Hawthorn • Prerequisite: BE110 Microeconomics • Assessment: examination/assignment

A subject in the Bachelor of Business

**Objectives and Content**

This subject provides students with principles and techniques of economic evaluation for application in areas such as a review of the effectiveness of international competitiveness, corporate performance, budgetary programs, evaluation of major construction projects and capital equipment acquisition, and cost-effectiveness studies.

**Recommended Reading**


Hollick, M. *An Introduction to Project Evaluation*. Melbourne, Longman Cheshire, 1993

**BE226 Macroeconomic Policy**

3 hours per week • Hawthorn/Mooroolbark (semester 1)

• Prerequisite: BE220 Macroeconomics • Assessment: examination/assignment

A subject in the Bachelor of Business

**Objectives and Content**

This is a second year subject which builds on the material covered in BE220, the first year macro subject. The main objectives of the subject are to:

- broaden students’ understanding and appreciation of macroeconomic principles, current issues and policy;
- provide students with the necessary skills to evaluate macroeconomic policies and related debate.

Specific topics include: the measurement of macroeconomic performance; limitations of major aggregate indicators, sources of fluctuations in economic activity; major macroeconomic problems and macroeconomic management within an open economy.

The course will describe the deficiences in earlier macroeconomic theories which led to disaffection. The theories now in vogue, and importantly the policies based upon them, have their own limitations which will be explained.

**Recommended Reading**


**BE227 Environmental Economics**

3 hours per week • Hawthorn • Prerequisite: BE110 Microeconomics • Assessment: examination/assignment

A subject in the Bachelor of Business

**Objectives and Content**

The aim of this subject is to familiarise students with the economic techniques that can be applied to problems of environmental and natural resource management.

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**


BE331 Public Finance

3 hours per week ● Hawthorn ● Prerequisite: BE110 Microeconomics ● Assessment: examination/assignment

A subject in the Bachelor of Business

Objectives and Content

This subject involves the analyses of the economic rationale of government expenditure and revenue raising.

It will cover the following topics:

- an introduction to the welfare economics and public choice paradigms and their implications for public sector revenue and expenditure;
- taxation analysis; criteria for evaluating taxes and commonwealth and state tax systems; analysis of personal and corporate income tax consumption and capital gains and wealth taxes; subsidies to producers and consumers; taxes on the factors of production and proposals for reform of the Australian tax system;
- techniques for evaluating government expenditure programs (with particular emphasis on cost-benefit analysis).

Recommended reading

Brown, C.V. and Jackson, P.M. Public Sector Economics. 3rd edn, Oxford, Basil Blackwell, 1986

BE332 Economic Research

3 hours per week ● Hawthorn ● Prerequisite: BE110 Microeconomics and BE220 Macroeconomics ● Assessment: assignments

A subject in the Bachelor of Business

Objectives and Content

The intention in this subject is to broaden students’ familiarity with the nature and scope of research undertaken in economics, and to increase students’ ability to analyse and carry out economic research of a practical nature.

Topics may include methodology in economic research; data sources; collection, analysis and presentation of data; selected topics in applied economic research (economic model building, cost-benefit analysis, industry studies, aspects of industrial relations).

An integral part of this subject is a major research project. Students are expected to conduct an investigation and write a report on their research which will constitute a major proportion of the assessment in this subject.

Recommended reading

There is no single prescribed reference for this course, but extensive use is made of current journal articles.

BE333 Financial Institutions and Monetary Policy

3 hours per week ● Hawthorn ● Prerequisites: BE110 Microeconomics and BE220 Macroeconomics ● Assessment: examination, assignment, multiple choice test

A subject in the Bachelor of Business

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.

Recommended reading

Bruce, R. Handbook of Australian Corporate Finance. 4th edn, Sydney, Butterworths, 1991
The Reserve Bank Bulletin recent issues

BE334 International Trade

3 hours per week ● Hawthorn ● Prerequisite: BE110 Microeconomics and BE220 Macroeconomics ● Assessment: examination/assignment

A subject in the Bachelor of Business

Objectives

- To encourage students to recognise the importance of international trade to the Australian economy;
- to equip students to appreciate and evaluate the ways in which government and business can improve Australia’s international trade performance.

Content

The subject combines an examination of the nature of economic theory relating to international trade, trade restrictions and industry policy, 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
Australia's trade environment
- globalisation of world trade
- strategic trade policy and Australian competitiveness
- Australia in the East Asian region

**Recommended reading**

**BE335 International Finance**
3 hours per week • Hawthorn/Mooroolbark (semester 2)
- Prerequisite: BE110 Microeconomics and BE220 Macroeconomics
- Assessment: examination/assignment, multiple choice test/essay

A subject in the Bachelor of Business

**Objectives and Content**
The intention in this subject is to provide students with the theoretical and analytical skills necessary for the understanding and evaluation of international financial issues which are of importance to the Australian business community and government.

Topics covered include:
- the international financial environment;
- Australia's external position;
- exchange rate theories and systems;
- the operation of foreign exchange markets;
- international borrowing and lending system;
- international banking;
- international regulation.

This course is particularly relevant for students who may work in areas which have international financial or trade dealings.

**Recommended reading**

**BE336 Economics of Social Issues**
3 hours per week • Hawthorn • Prerequisite: BE110 Microeconomics and BE220 Macroeconomics • Assessment: assignment and examination or essays

A subject in the Bachelor of Business

**Objectives and 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.

In general, the subject endeavours to teach students the theory and principles needed to be able to analyse social issues from an economic perspective.

**Recommended reading**

Comprehensive reference lists will be provided.

**BE337 Economic Development**
This subject may be offered in 1997 depending on staff availability and student demand.
3 hours per week • Hawthorn • Prerequisite: BE110 Microeconomics and BE220 Macroeconomics • Assessment: assignments/written report.

A subject in the Bachelor of Business

**Objectives and Content**
This subject examines the forces behind economic growth and development.

Considerable use will be made of country profiles, statistical indicators and key social and economic trends. Case studies will be used to examine the successes and failures of a selection of countries in adopting specific policy initiatives to deal with development, poverty and market reforms.

**Recommended reading**
The Economist

**BE338 Comparative Labour Relations**
This subject will not be offered in 1997.

**BE339 Comparative Economic Systems**
This subject will not be offered in 1997.

**BE400 Economics Honours**
Students should seek advice from the appropriate Economics staff when formulating their discipline-specific course of study and their research project proposal.

To encourage a multi-disciplinary approach, students may, subject to approval, undertake selected honours level coursework subjects from other schools, divisions, or

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institutions provided that they show the relevance of these coursework subjects to their proposed area of research. Such arrangements are subject to the student having any necessary prerequisite studies and may be subject to any quotas imposed on these subjects by the offering school.

Students must submit their proposal to the Economics Honours Convener for approval prior to the commencement of their honours program. Approval for a student’s discipline-specific course of study and research project proposal shall be subject to the availability of any necessary resources and the availability of appropriate staff supervision.

Advanced Economics

Students will engage in a program of advanced study designed to enhance their ability to apply economic reasoning and economic techniques to issues of importance to business, government and society. The reading and seminar program will broaden and add depth to the student’s understanding of significant policy issues and will support the student in carrying out their economics research project.

Applied Economics Honours Research Project

Students will be required to undertake a substantial research project in an area of applied economics. No specific topic is prescribed, rather, students will be encouraged to formulate their own problems and hypothesis. Potential areas for research will reflect expertise within the department which could include international trade and finance, industrial relations, financial institutions and monetary policy and public finance, including the economics of the environment and social issues. Students will be required to make class presentations at progressive stages in their research. The research project will be presented in the form of a written dissertation of approximately 15,000 words in length.

Students intending to complete their degree with honours must apply for entry into the honours year by the end of their three year degree.

Note that entry into the honours year is competitive and the number of places is subject to a quota.

BE401 Economics for Business

2.25 hours per week • Hawthorn • Prerequisite: nil
Assessment: assignment/exam

A subject in the Graduate Certificate in Business Administration.

Objectives

To enable students to better interpret, analyse and evaluate economic news items. To actively involve students in the understanding and appreciation of economic issues and policies. To give students a better knowledge of the Australian and international economic environment for business. To provide students with a systematic framework for understanding and appreciating current economic issues.

Content

The subject consists of twelve two and a quarter hour sessions. These sessions will be divided roughly into a one and a half hour general content based, lecture led, informal discussion session pertaining to a specific course topic and a forty-five minute tutorial. Candidates will be introduced to principles and practices applying to the Australian economy. Students are welcome to bring relevant articles for discussion during the tutorial session. Time will also be allocated for syndicates to work on solving specific problems.

Recommended reading

This text covers the lecture content for the course. Students should read each topic prior to the relevant session. A comprehensive list of important references will be provided.

BE501 Economics

2 hours per week • Hawthorn • Assessment: to be advised

A subject in the Graduate Diploma course in Business Administration.

Content

No prior knowledge of economics is assumed. Applicants who have recently majored in economics at a tertiary level are advised to enrol for another postgraduate diploma subject.

The first half of the course is concerned with industry economics, covering in particular market structure, conduct and performance issues.

The second half of the course introduces students to key macroeconomic concepts, current issues and policies. It is applied in nature and frequent reference is made to current economic events as publicised in the mass media.

Topics covered by the course are drawn from markets, resource allocation and efficiency; production and costs; pricing and profit; industry economics including public policy aspects; economic indicators and economic cycles; aggregate demand and supply analysis; unemployment; inflation; international economic constraints; financial markets and government macroeconomics policies.

Recommended reading

A detailed reading guide will be issued at the start of the semester.

BE504 The Nature and Characteristics of Markets

2 hours per week • Hawthorn • Prerequisites: nil Credit will be given for a comparable subject successfully completed at the graduate level • Assessment: assignments 50%, final examination 50%
Objectives
This subject will provide an introduction to aspects of microeconomics which will promote an understanding of the nature and characteristic of markets. Students will become familiar with analytical methods which enable them to evaluate critically the policies and behaviour of households, firms and the government. An understanding of the dominant market factors affecting an organisation is essential to the development of appropriate forecasting techniques.

Content
- introduction to the market system, basic market theory; demand analysis; production and costs; market structures; trade and protection.

Reference

BE701 Economics for Management
2 hours per week ● Hawthorn ● Prerequisite: nil ● Assessment: A subject in the Master of Business Administration

Objectives
The basic objective of this subject is to provide an understanding of economic issues relevant to management and the application of economic concepts to effective decision making.

Specific objectives include:
- to provide an understanding of the economic environment in which business operates;
- to develop skills in interpreting economic reports and policy statements and in evaluating the implications of government policies for managerial decisions;
- to encourage appreciation of the linkages between different economies and the impact of changes in the international economy on specific markets and industries.

Content
Topics to be covered include:
Economics and efficiency
- critical economic concepts for management.
Management, industry and government
- market structure, conduct and performance;
- performance indicators instruction combination of formal lectures, tutorials and practical sessions as required. Computer laboratory facilities for both micro and mainframe computers will be used during the practical sessions. It is envisaged that from time to time, practitioners will be brought in as guest lecturers for this subject;
- policies for improved performance;
- government and industry policy;
- adapting to structural change.

The macroeconomic environment
- key macroeconomic variables;
- sources of information on economic performance;
- influences on the level of economic activity;
- economic fluctuations.

The international environment
- trade and capital flows;
- the determination of exchange rates;
- managing foreign exchange exposure;
- international financial markets;
- implications of the international economy for managerial decision making.

Recommended Reading
Drake, P.J. and Nieuwenhuysen, J.P. Economic Growth for Australia, Melbourne, Oxford University Press, 1988
Economic Roundup, The Treasury, Selected Publications, The Economist
Reserve Bank of Australia (Selected Bulletins and Special Reports)

BH110 Organisations and Management
3 hours per week ● Hawthorn/ Mooroolbark ● Prerequisite: nil ● Assessment: examination/ assignments
A subject in the Bachelor of Business

Objectives and Content
The objectives of this subject are
- to enable students to gain an understanding of the issues facing managers in organisations and the context in which they operate;
- to develop students’ abilities to apply organisation theory to organisation situations;
- to help students better appreciate the context of work and their own roles as organisation members.

Opportunities are provided to help the student develop research skills through independent inquiry; and to appreciate the value of independent study as well as the value of learning to be an effective group member.

Recommended reading
As advised at the start of the semester.

BH220 Organisational Behaviour 1
3 hours per week ● Hawthorn ● Prerequisite: BH110
Organisations and Management Assessment: assignments/presentations
A subject in the Bachelor of Business

Objectives and Content
The major aim of this subject is to give students a sound knowledge and personal understanding of the impact of human behaviour on work in groups and organisations.

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. Some class sessions may be conducted in the Experiential Learning Centre where activities may be recorded for student use. Assessment will be used to complement the student’s growing understanding of the subject through the use of both individual and group assignments.

**Recommended reading**
Dunford, R. *Organisational Behaviour: An Organisational Analysis Perspective*. North Ryde, N.S.W., Addison-Wesley, 1992

**BH221 Human Resource Management 1**
3 hours per week • Hawthorn • Prerequisite: BH110
Organisations and Management • Assessment: individual reports, discussions, journals, class participation
A subject in the Bachelor of Business

**Objectives and Content**
The human resources of an organisation are one of its major assets and the focus of this subject is on the understanding and management of those resources through the application of appropriate techniques, functions and management approaches.

The objectives are to:
- Enable students to understand the nature and importance of human resources as an organisational asset and;
- to provide a knowledge of the theories, techniques and approaches to dealing with people-related problems and issues.

The subject covers:
- 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 relations.

This subject may include some class work in the Experiential Learning Centre, where activities may be observed and/or recorded. The Code of Ethics requires students to sign a consent document at the beginning of the semester. Any further queries about this matter should be directed to the subject convener.

**Recommended reading**

**BH222 Organisation Design**
3 hours per week • Hawthorn • Prerequisite: BH110
Organisations and Management • Assessment: mid term test/group based research project
A subject in the Bachelor of Business

**Objectives**
This subject is designed to create an understanding of appropriate organisational design for different types of organisations which operate within contrasting economic, social, political and cultural settings.

Within this context, the objectives are to enable students to identify some of the design choices that can be made and the considerations relevant to these choices; to understand the main problems that arise in designing structures and jobs, and to develop skills in the analysis of problems through the use of research and theory of organisation design and involvement in the investigation of at least one organisation.

**Content**
The subject covers five main areas of study:
The contextual dimensions of organisation
- the external environment;
- strategies and goals.

Organisation structure and design
- the design of jobs and work structures;
- organisation bureaucracy, size and growth;
- organisation technology;
- functional, divisional and matrix structures.

Design influences on dynamic processes
- information and control;
- organisational change.

Integrating the total system.
Organisational research.

**Recommended reading**
BH223  **Dynamics of Diversity in the Workplace**

3 hours per week  ●  Hawthorn  ●  Prerequisite BH110

Organisations and Management  ●  Assessment: individual, paired, group work

A subject in the Bachelor of Business

**Objectives**
The aim of this subject is to enhance the student's sensitivity to and awareness of issues of managing diversity in the workplace.

A number of key concepts such as culture, the dynamics of diversity and implications for business be explored.

**Recommended reading**
As advised at start of semester.

BH228  **Manufacturing Management 1**

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

A subject in the Bachelor of Business

**Objectives and Content**
This subject reviews integrated manufacturing systems and the manufacturing management function production, production planning and control, maintenance, quality control, etc.

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 Ps of Japanese manufacturing technique, VAM, world class manufacturing, JIT production system and theory Z.

BH330  **Organisation Behaviour 2**

3 hours per week  ●  Hawthorn  ●  Prerequisite: BH220

Organisation Behaviour  ●  Assessment: Individual learning contract, special interest session, essay, group presentation

A subject in the Bachelor of Business. It builds on the material covered in BH220 Organisation Behaviour

**Objectives**
- To encourage students to take initiative in designing, implementing and evaluating a personalised learning program in the field of Organisation Behaviour.
- To enable students to explore, practise and test those behaviours that have relevance for their current life situation or future career, via the challenge of creating an effective networked organisation in the class.

**Content**
The subject departs from traditional formats in that it is student centred, group based and active. Study in the first half of the semester will focus on the class group itself, functioning as an organisation in its own right: its composition, resources, collective skills and patterns of relationships. Students will also form peer learning groups which will meet each week to assist students in developing their learning contracts. In the second half, students will be expected to organise and conduct sessions for the rest of the class based on their special interests in the field of Organisation Behaviour and/or on the topic for their learning contract.

**Recommended reading**


Other materials will be distributed in class.

BH331  **Human Resource Management 2**

3 hours per week  ●  Hawthorn  ●  Prerequisite: BH221 Human Resource Management and at least one other O.B. subject stage 2  ●  Assessment: individual learning contracts and training skills sessions

A subject in the Bachelor of Business

**Objectives and Content**
This subject will extend some of the knowledge and skills of HRM 1 with some emphasis on training and development aspects, and major workplace issues and changes.

The subject covers:
- strategic planning and human resources management;
- change:
  - workforce planning and adjustment redundancy, redeployment and career management;
- basic training, coaching and helping skills;

This subject may include some class work in the Experiential Learning Centre, where activities may be observed and/or recorded. The code of ethics requires students to sign a consent document at the beginning of the semester. Any further queries about this matter should be directed to the subject convener.

**Recommended reading**

Smith, A., Training and Development in Australia, Sydney, Butterworths 1992


BH332  **Enterprise Bargaining**

3 hours per week  ●  Hawthorn  ●  Prerequisite: at least two Stage 2 Organisation Behaviour subjects, with BE223 Industrial Relations strongly recommended as an additional subject  ●  Assessment: individual and group assignments

A subject in the Bachelor of Business

**Objectives and Content**
This subject is an exploration of the emerging practice of enterprise bargaining in Australia.
The subject will:

- examine the rapidly changing industrial context and framework within which enterprise bargaining takes place;
- critically examine the local and overseas experiences in this field to develop models of 'best practice';
- develop some of the skills, especially negotiation and consultation skills, required to formulate enterprise agreements;
- provide opportunity for students to plan and develop an enterprise agreement in a simulated or real organisation, and to develop the capacity for judgment which these processes require.

**Recommended reading**

Owing to the relatively recent occurrence of enterprise bargaining in Australia, no set text is as yet prescribed. Up-to-date articles from varied sources will be recommended throughout the subject.

**BH333 Managing Quality in Organisations**

*3 hours per week* • Hawthorn • Prerequisite: at least three Stage 2 OB/HRM subjects • Assessment: individual and group assignments and projects

A subject in the Bachelor of Business

**Objectives and Content**

This subject is a 'capstone' subject which helps integrate much of the material which might have been taken as part of an OB/HRM major or minor. Recognising that all Australian manufacturing and service industries increasingly need to attend to delivering quality outcomes, this subject will:

- develop an understanding of 'quality' in the current Australian context, public and private sectors;
- examine recent local and overseas practices in the quality assurance and enhancement field to develop an understanding of 'best practice';
- provide opportunity for students to plan, implement and manage a quality program, using either the classroom as organisation approach, or an actual organisational project.

**Recommended reading**

Wide reading will be encouraged. No set text has yet been specified.

**BH334 Asian Business (Korea/Thailand)**

*3 hours per week* • Hawthorn • Prerequisite all first year subjects completed • Assessment: assignment

This subject is an elective in the Bachelor of Business

**Objectives**

The objective of this subject is for students to gain a thorough understanding of the culture of a particular country and of the impact of this on business practices in that country. In 1995/96 the countries visited will be Korea and Thailand. Travel costs to be borne by students.

**Content**

This 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 this subject, 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 at 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.

**Recommended reading**

Because of the nature of the subject no recommended reading is set. Comprehensive reference lists will be provided at the first seminar.

**BH336 Manufacturing Management 2**

*3 hours per week* • Hawthorn • Prerequisite: Nil • Assessment: a combination of personal assignments, group assignments, class participation and/or exam

A subject in the Bachelor of Business

**Objectives and 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.

**BH337 Managing Technology and Innovation**

*3 hours per week* • Hawthorn • Prerequisite: BH336 • Assessment: a combination of personal assignments, group assignments, class participation and/or exam

A subject in the Bachelor of Business

**Objectives and Content**

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. 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 an analysis. The techniques acquired in this subject are applied to the
production of a commercial feasibility analysis, heavily emphasising 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.

Recommended reading

BH400 Organisation Behaviour Honours
Students intending to complete their degree with honours must apply for entry into the honours year by the end of their three year degree.

Note that entry into the honours year is competitive and the number of places is subject to a quota.

BH403 Managing People and Organisations
2 hours per week
Hawthorn
Prerequisite: nil
Assessment: Case study Group Project
A subject in the Graduate Certificate in Business Administration.

Objectives and Content
- To help participants identify their preferred ways of understanding organisations and people and to expand their repertoire of 'frames' for analysis and problem solving in their roles as managers.
- To employ behavioural theory as it applies to the analysis of situations involving the management of people at work.
- To distinguish between the processes of people interactions and the content with which they are working.
- To apply knowledge gained to practical work problems of managing human beings individually and in groups.
- To impress awareness of self and predict the likely impact of personal style on others.
- To develop an ability to utilise concepts in the analysis of organisational dynamics, and to use these perspectives to better lead and manage change.

Recommended reading

BH414 Management Organisation and People
Refer to BH604.

BH505 The Social Psychology of Organising
2 hours per week
Hawthorn
Prerequisite: nil
Assessment: individual and group assignments and presentations
A subject in the Graduate Diploma in Organisational Behaviour

Content
- The subject is concerned with
- different ways (metaphors) for looking at and thinking about how we organise;
- the interrelationship between behaviour and structure, both conscious and unconscious;
- the individual and collective investigation of the strengths and weaknesses of differing forms of organisation;
- expanding the ability of participants as thinkers and actors within organisations.

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Recommended reading

BH506  Group and Interpersonal Psychology
2.5 hours for two semesters • Hawthorn • Prerequisite: nil
• Assessment: two written assignments There is no written formal examination. Because of the experiential nature of this subject, a minimum 80% attendance is required
A subject in the Graduate Diploma in Organisational Behaviour

Objectives
- The objectives are
  - to introduce psychological concepts and techniques relevant to personal, interpersonal and group behaviour;
  - to help participants understand their own perceptions, values and attitudes, and to gain insight into how these may influence behaviour;
  - to increase options for workplace behaviour through an increased awareness of group dynamics
  - methods used are largely cooperative and practical rather than didactic and theoretical. Active group participation is therefore necessary.

Content
Semester one will involve students in the study of group processes and their effects on individual and interpersonal processes and relations. Students will approach the study of these phenomena through reading, discussion and experiential learning within the class.
Semester two will build on earlier work. In particular the understanding of group and interpersonal dynamics is applied to understand processes within the workplace.
Students in pairs make a series of visits to an external organisation.

Recommended reading
Extensive reading and resources will be given as appropriate.

BH508  Organisational Psychology I
2 hours per week • Hawthorn • Prerequisite: no prior knowledge of administrative theory is assumed, but working experience in a business, public service, or any other form of organisation is essential • Assessment: individual and group
A subject in the Graduate Diploma in Business Administration

Content
This subject complements BH609 Organisational Psychology II which is taken in the second year. The overall theme of the subjects is the ‘learning organisation’ which serves to connect and integrate them. It is intended that they be viewed as a developing whole.
OP I focuses on individual and group processes in the context of organisational dynamics. The class itself will be a learning organisation within the context of the GDBA system.
Assessment will involve action learning projects about team dynamics and a work based concern. Theory will be applied to practice.
Sub-themes of leadership, managing, changing and ethics will be continually explored.

Textbooks

Recommended reading
Bolman, L. and Deal, T., Modern Approaches to Understanding and Managing Organisations. San Francisco, Calif., Jossey Bass, 1984

BH604  Management, Organisation and People
12.5 credit points • Duration • 25 hours per week over 1 semester • Prerequisites - nil • Instruction: lectures/discussion/experiential exercises/audio visual simulations (management behaviour laboratory) • Assessment: group report and presentation (45%) individual journals/group dynamics paper (55%)

Objectives
- develop a systematic awareness of organisational processes and problems, and a managerial perspective in students
- introduce theoretical models which are applied to problems in order to strengthen the skills of impartial analysis of organisational issues
- develop an understanding of human behaviour in organisations and to develop interpersonal skills as a crucial element in this learning experience
- help students apply their learnings as organisational members in the workplace - both in their roles as managers, and as support staff.

Subject Content
- the nature of organisations
  - roles
  - team work and inter-group dynamics
  - self-awareness
  - leader/follower relationship
  - motivating/building commitment
  - conflict and negotiation
  - power and influence
- the manager from a Human Resources perspective

Text

References
Prerequisite: BH606
organisation
people
Dunford, M., Morgan, G., Hirschorn, L., Frost, Wesley, 1991
Practice and Values, sequenced with the following subject
Behaviour.

Objectives and Content
The subject introduces students to current theory and
practice associated with organisation culture as a prelude to
managing conflict and change. It examines the fundamental
elements and dynamics of organisation culture. Participants
are required to analyse an organisation in terms of its culture
and assess, given that culture, how conflict and change might
be more effectively managed. The subject is tightly
sequenced with the following subject BH606 Leadership and
Change in Organisations.

Recommended reading
Participants will be given extensive handouts and these will be
used as a basis for class discussion and accompanying experiential
activities.

BH607 Leadership and Change in
Organisations
4 hours per week • Hawthorn • Prerequisite: BH505, BH606
Assessment: fieldwork project in small groups (cultural
analysis)
A subject in the Graduate Diploma course in Organisation
Behaviour

Objectives and Content
This subject has three specific points of focus:
• leadership and systems theory;
• leadership and psychodynamics;
• leadership and transformation.
It is assumed that leaders need to know about the influences
which create change and the processes necessary to produce
a transformation rather than a rearrangement. This will be
linked to change. Exploration will be made of static states,
disequilibrium, transformation and flow states. Change
agent skills will also be explored.

Recommended reading
Participants will be given extensive handouts.

BH609 Organisational Psychology II
2 hours per week • Hawthorn • Prerequisite: BH508
Organisational Psychology I. • Assessment: individual and
group
A subject in the Graduate Diploma course in Business
Administration

Objectives and Content
This subject complements BH508 Organisational
Psychology I which is taken in the first year. The overall
theme of the subject is the ‘learning organisation’ which
serves to connect and integrate them. It is intended that they
be viewed as a developing whole.

OP II emphasises organisation theory, dynamics and images.
The focus is on the individual and organisational dynamics.
The class itself will be a learning organisation within the
context of the GDBA system.
Assessment will involve action learning projects relevant to the
workplace. Theory will be applied to practice. The subject
will recognise the systemic interdependence of organisational dynamics with BM603 Business Policy.

Sub-themes of leadership, managing, changing and ethics
will be continually explored.

Recommended reading
Bolman, L. and Deal, T., Reframing Organisations, Jossey Bass,
San Francisco, Calif., 1991
Morgan, G., Images of Organization, Beverly Hills, Calif., Sage,
1986

BH706 Management I (People and
Organisations)
2 hours per week • Hawthorn • Prerequisite: nil
Assessment: to be advised
A subject in the Master of Business Administration
As part of the subject, all candidates must successfully
complete an introductory four day residential seminar
concerned with the behaviour of people in small groups and
providing an orientation to the learning process, the course
themes, the staff and expectations of work and outcomes.

Objectives
• Strategic management requires the direction and control
of means as well as ends. This subject is concerned with
the effective management of the human and
organisational means aspect of a strategic plan.
• People, their behaviour in organisations, and their
management within organisations, are fundamental to
the success of any business. The basic objective of this
subject is to provide knowledge and practical skills
necessary for managing people and a knowledge of the
implications of organisational design options. The
course will examine how to develop proactive attitudes
towards innovation, technology and internationalism in
business and organisational structures for the
articulation of these attitudes.

Specific objectives include:
• to provide a conceptual framework for the analysis of
the behaviour and management of people in
organisations;
• to enable students to analyse and understand behaviour
and problems of people, both in small groups and in
whole organisations;
• to consider organisational design options and their
impact on the effective implementation of strategies;
• to place the skills and themes of the MBA into a human

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and organisational context;
- to develop the skills of managing people.

**Content**
- The subject is designed so that the many facets of the behaviour of people in organisations can be explored without losing sight of the essential interdependence of the sub parts. Within this framework will be included topics such as
- the concept of organisation design, and its implications for structure, job design and the interface between people, technology, and the organisation;
- the role of management, including varied leadership styles and their likely consequences, the management of effective work groups;
- working with the communication process, managing conflict and developing a positive self-image;
- the impact of the local and international environment on Australian business; comparisons with the management of people in other countries and cultures (especially Asian);
- an introduction to the practical role of the personnel function in organisations.

**Recommended reading**

**BH707 Strategic Change**

12.5 credit points • Duration - 4 hours per week over 1 semester • Prerequisites: completion of the Graduate Diploma in Management Systems or equivalent • Instruction: lectures/seminars/case studies/workshops • Assessment: individual assignment and seminar (60%) / group assignment (40%)

**Objectives**
The subject builds upon the knowledge and skills developed in earlier subjects to develop ways of understanding the factors to implement change (especially strategic) effectively within an organisation. Raising awareness of the need to manage change and conflict, the associated complexities and ambiguities and the consequences of various processes of managing them.

**Content**
Topic covered in this subject include:
- culture and organisational analysis; analysing organisational situations, including the need for change and identifying barriers to successful implementation
- evaluating alternatives for bringing about desired change and selecting the most effective implementation approach
- leadership, consulting skills and the role of the systems manager as a change agent
- group dynamic and group development

**Textbooks**
No single text covers the subject material

**References**

**BH708 Processes of Inquiry and Research Organisation Behaviour, Part 1 (Intercultural Understanding)**

2 hours per week • Hawthorn • Prerequisite: nil • Assessment: essay 50% and research project 50%
A subject in the Masters in Organisation Behaviour

**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**

**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 30%, development of questionnaire 50% and test and evaluation of questionnaire 20%
A subject in the Masters in Organisation Behaviour

**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: role analysis report
A subject in the Masters in Organisation Behaviour

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
This 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 Masters in Organisation Behaviour

Objective
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

BH804 Reading Unit 1
2 hours per week • Hawthorn • Prerequisite: eligible for enrolment in the Professional Doctorate or Masters by coursework in Organisational Behaviour • Assessment: to be advised
This subject may at times be offered for conceptual and or experiential bridging into postgraduate studies in organisation behaviour.

BH805 Reading Unit 2
2 hours per week • Hawthorn • Prerequisite: eligible for enrolment in the Professional Doctorate or Masters by coursework in Organisational Behaviour • Assessment: to be advised
This subject may at times be offered for conceptual and or experiential bridging into postgraduate studies in organisation behaviour.

BI711 Foundations of International Business
3 hours per week • Hawthorn • Prerequisite: nil • Assessment: Assignments / Final Examination
A subject in the Masters of International Business

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 facing international business managers into the 21st Century. Whilst eclectic and global in coverage the unit also seeks to focus on the topical from the context of Australia's international outlook and perspectives.

Content
International business; historical development; macro-economic factors; international trade; balance of payments accounts and international monetary systems; global investment factors; international organisational, cultural, political and technological environment; competition and competitive advantage; managing international business; strategic decisions and implementation issues; Australia's international context and a critical analysis of Australia's international competitive advantage; identification of future trends and opportunities.

Recommended reading

BI712 International Marketing
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 Masters of International Business

Objectives
- To provide a framework for international marketing and for the role of the marketeer in an international setting.
- To raise awareness of the opportunities in international trade (particularly export) and to examine some of the obstacles.
- To examine some of the most unusual aspects of the economic environment of the international operator.
- To enable students to understand the special nature of international marketing and the social and cultural difference in the international environment that

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influences its operations.

- To explore and examine the various international market entry strategies available to companies seeking to develop internationally.
- To determine optimal marketing mix strategies in relation to opportunities identified in international markets.
- To apply the concepts and tools inherent in (a) to (f) in the pursuit of solutions to "real life" market place situations.

Content

The challenges and opportunities of international marketing and the threats; political and legal environment of international marketing; marketing planning for international markets; market analysis and entry strategies; marketing mix decisions; implementation and project management

Recommended reading


BI713 Business Language and Cultural Context A

BI723 Business Language and Cultural Context B

3 hours per week for 2 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.

A subject in the Masters of International Business

Credit may be granted for comparable units completed at an appropriate academic level.

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 organisation relevant to the language being studied; writing of papers and research assignments.

Recommended reading

To be advised.

BI715

BI825 International Business Project (Minor Thesis)

3 hours per week plus 1 hour supervisor contact or equivalent per week (average) over four semesters  Hawthorn  Prerequisite: nil  Assessment: (f) reports and presentations (ii) a final thesis of 18-20,000 words

Subjects in the Master of International Business

Objective

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

- BI715 Research Methodology
- BI721 International Trade and Finance
- BI825 Data Collection and Analysis

Preparation of Written Project

The final report, to be submitted at the completion of stage 4 will contain between 18-20,000 words.

Research methods seminars will be conducted for candidates during the first semester of the program.

BI721 International Trade and Finance

3 hours per week  Hawthorn  Prerequisite: BI601 Foundations of International Business  Assessment: to be advised

A subject in the Masters of International Business

Credit may be given for a comparable unit completed at an appropriate academic level.

Objectives

- The intention in this unit is to provide students with the theoretical and analytical skills necessary for the understanding and evaluation of international financial issues which are of importance to the Australian business community and government and specifically:
- to provide an understanding of the nature and significance of international trade to the Australian economy;
- to increase awareness of current international trade issues of importance to the Australian business community and government;
- to equip students to appreciate and evaluate the ways in which government and business can improve Australia's international competitiveness; and
- to provide the practical skills necessary to pursue that competitiveness.

Content

This unit provides an applied study of international finance and trade and how it is arranged with special reference to Australia. Topics covered include:-
Australia's external position (balance of payments - concepts, trends and outlook, external debt, foreign exchange markets, exchange rate determination, fixed versus floating exchange rate mechanisms, foreign exchange risk management); the international financial system (events since 1945, international financial centres, current outlook and problems); the basis of international trade (gains from trade, explanations of trade patterns); Australia's trade pattern (trade restrictions, arguments for protection, costs of protection, policy instruments); trade, growth and economic development (regional integration, GATT); policies relating to trade and growth (Australia's trade and industry policies, past approaches to industry assistance, current issues and problems); improving Australia's international competitiveness.

Recommended reading
To be advised.

81722 International Marketing Research
3 hours per week  • Hawthorn  • Prerequisite: 81602 International Marketing and an understanding of undergraduate level statistical methods.  • Assessment: (i) Computer tasks (ii) An assignment (iii) Final examination.
A subject in the Masters of International Business
Credit may be granted for equivalent work at an appropriate academic level.

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 either quantitative 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

81811 International Financial Management
3 hours per week  • Hawthorn  • Prerequisite: Nil; though a basic understanding of the Accounting discipline is assumed.
ie. balance sheet, profit and loss, cash flow statements, ratio analysis. Students without this knowledge may be required to undertake an additional bridging unit in this area.
• Assessment: Assignments and examination.
A subject in the Masters of International Business
Credit may be given for a comparable unit completed at an appropriate academic level.

Objectives
- The current push is for Australian businesses to think and trade in an international dimension. There are aspects of managing business finance which must be considered and applied by any business operating internationally, whether large or small. This unit is designed to facilitate students' appreciation of the difficulties and benefits of operating internationally, from a financial viewpoint. To achieve this, the objectives of this subject are for students to:
  • gain a conceptual and practical framework within which the key financial decisions of a company operating internationally can be analysed;
  • gain an understanding of the use of the financial analysis techniques appropriate in solving international financial problems and how to apply them;
  • understand the principles of asset and liability management in an international context; and
  • gain an understanding of the financing techniques appropriate for international trade and application of these techniques.

Content
Introduction; multinational corporations; exchange rates; the international monetary system; measuring and managing international trade risk; financing foreign trade; international portfolio investment; managing funds in international trade; international portfolio investment: corporate strategy and foreign investment; accounting aspects of multi-national corporations; taxation aspects of international finance; taxation aspects of multi-national operations; international partnerships and joint ventures.

Recommended reading
To be advised.

81812 Legal Aspects of International Business
3 hours per week  • Hawthorn  • Prerequisite: Nil; though a basic understanding of the principles of and issues in Business Law is assumed.  • Assessment: To be advised.
A subject in the Masters of International Business
Credit may be given for a comparable unit completed at an appropriate academic level.

Objectives
The purpose of the units is to consider the legal aspects of international trade emphasising the following topics:
  • 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.

Recommended reading
To be advised.

BI813 International Management
3 hours per week • Hawthorn • Prerequisite: Nil, though a basic understanding of organisation theory and behaviour is as assumed. • Assessment: 3 pieces of work for the unit, 2 as individuals and 1 as a member of a syndicate group
A subject in the Masters of International Business
Credit may be given for a comparable unit completed at an appropriate academic level.

Objectives
This unit aims to develop in students:
- a sound understanding of comparative cultural perspectives on human resource management and their respective impacts on conducting international business;
- 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.

Recommended reading
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.

BI821 Global Information Strategies
3 hours per week • Hawthorn • Prerequisite: Nil; though a basic understanding of computer information technology in the context is assumed. • Assessment: Group assignment
Individual research report
A subject in the Masters of International Business
Credit may be given for a comparable unit completed at an appropriate level.

Objectives
- This unit examines both the opportunities for the strategic application of information technology (IT) in the context of the international organisation and international trends in the communication of information.
- The subject will examine the role of information technology in the context of multinational firms and the more general globalisation of business. For multinational firms, information technology and international networks overcome the geographical and temporal barriers among the different organisational parts and ensure coordination of activities. Approaches towards understanding the strategic importance of information technology will also be studied and particular attention will be given to inter organisational systems and the resultant changing relationships with business partners.
- This subject also examines international market, policy and cultural trends in many fields of communications with special attention on the telecommunications industry. It will examine many complex forces for change, particularly the increasing international trend towards privatisation, mega-amalgamation, liberalisation and deregulation. The various schools of thought and practices related to industry innovation and development in the context of telecommunications and information technology will also be studied.

Content
International information systems; the distributed enterprise; inter organisational systems; IT strategy for a multinational corporation; international market, policy and cultural trends in telecommunications; innovation and development in the information industry.

Recommended reading
**Bi822 International Logistics Management**

3 hours per week  Hawthorn  Prerequisite: Bi602 Bi801.  
Assessment: (i) Assignments  (ii) Final Exam  

A subject in the Masters of International Business  
Credit may be given for a comparable unit at an appropriate academic level  

**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**  

**Bi823 International Business Policy**  
3 hours per week  Hawthorn  Prerequisite: All units in Stages 1, 2 & 3 of the Masters program.  
Assessment: (i) Assignments  (ii) Case Study Presentations  

A subject in the Masters of International Business  
This is a core and capstone unit and no credit will normally be given.  

**Objectives**  
This unit is studied in the context of a dynamic global environment of social and technological change. All basic business skills must be integrated for strategic planning and therefore learning from all other units this final unit will be applied.  

Special objectives of this unit are:  
- to consolidate the strategic planning process and the range of techniques used in international business planning as studied during the course;  
- to develop skills in using a variety of frameworks for making strategic decisions;  
- to emphasise the importance of the current development phase of the industry in which an enterprise operates as a basis for appropriate strategy development;  
- to develop skills in organising for effective business planning and for the implementation of the business planning process; and  
- to consider these issues and techniques, and their implication, in the international context.  

**Content**  
Strategic management - a global perspective; the ethical dimension in international strategic decision making; determining the international business mission; situation analysis in the international environment; international ESC Gap analysis; international strategy and competitive advantage; selecting an international business strategy; project management in the international environment; implementation and review, evaluation and control.  

**Recommended reading**  

**BL110 Legal Environment of Business**  
3 hours per week  Hawthorn/Mooroolbark  Prerequisite: nil  
Assessment: To be advised  

A subject in the Bachelor of Business  

**Objectives and Content**  
This subject introduces students to our legal system. The general objectives are:  
- to introduce students to basic legal concepts;  
- to develop an understanding of the nature and function of law, in particular the interrelationship of law, business and society;  
- to introduce students to important areas of business law including company, contract, tort and administrative law.  

After an introductory topic on the concepts, techniques and institutions of the Australian legal system, the subject is divided into two major themes. Two case studies on the role of law in promoting business activity are undertaken. These are drawn from contract and company law. Case studies on the role of law in controlling business activity are next undertaken. These are drawn from tort law and regulatory legislation.  

**Recommended reading**  
Latham, P. Australian Business Law. (13th edn), North Ryde, CCH Australia, 1993  

**BL220 Contract Law**  
3 hours per week  Hawthorn/Mooroolbark  Prerequisite: BL110 Legal Environment of Business  
Assessment: test, assignment and exam  

A subject in the Bachelor of Business  

**Objectives and Content**  
The general aim of this subject is 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.

**Recommended reading**


**BL221 Company Law**

3 hours per week • Hawthorn • Mooroolbark • Prerequisite: **BL110 Legal Environment of Business** • Assessment: to be advised.

A subject in the Bachelor of Business

This subject is compulsory for students in the accounting stream; optional for others.

**Objectives and Content**

The intention here is to undertake a comparative analysis of the form of business organisations. This involves an introduction to partnership and company law.

**Recommended reading**


Guidebook to Australian Company Law. 10th edn, North Ryde, CCH, 1995

**BL222 Marketing Law**

3 hours per week • Hawthorn • Mooroolbark • Prerequisite: **BL110 Legal Environment of Business** • Assessment: test, assignment and final examination or major research project

A subject in the Bachelor of Business

**Objectives and Content**

The subject involves an examination of the legal controls imposed on the manufacture, labelling, packaging, distribution, promotion, pricing, and retailing of goods and (where applicable) services.

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.

**Recommended reading**


Healey, D. *Australian Trade Practices Law*. 2nd edn, North Ryde,

CCH Australia Ltd., 1993

Healey, D. and Terry, A. *Misleading or Deceptive Conduct*. North Ryde, CCH Australia Ltd., 1991


Goods Act 1958 (Vic)

Goods (Sales and Leases) Act 1981 (Vic)

Consumer Affairs Act 1972 (Vic)

Fair Trading Act 1985 (Vic)

Trade Practices Act 1974 (Commonwealth)

**BL223 Information Technology & Communications Law**

2 hours per week • Hawthorn • Prerequisite: **BL110 Legal Environment of Business** • Assessment: 4-5 000 word paper

A subject in the Bachelor of Business

**Objectives**

The aim of the subject is to enable students to critically explore the application of law to information technology and communications.

**Content**

Students will examine the following topics:

- introduction to Australian legal system;
- the computer and society;
- introduction to intellectual property;
- computers and copyright;
- other forms of protection;
- law of defamation

**Recommended reading**


**BL224 Retailing Law**

3 hours per week • Hawthorn • Prerequisite: **BL110 Legal Environment of Business** • Assessment: test, assignment, final examination or major research project

A subject in the Bachelor of Business

**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.

**Recommended reading**
Clarke, B. and Kapnoullas, S. *Law for Retailers in Australia*, Data Legal, 1995


**Goods Act 1958 (Vic)**

**Consumer Affairs Act 1972 (Vic)**

**Fair Trading Act 1985 (Vic)**

**Trade Practices Act 1974 (Cth.)**

**BL225 Tourism Law**

3 hours per week  ● Hawthorn  ● Prerequisite: BL110 Legal Environment of Business  ● Assessment: to be advised.

A subject in the Bachelor of Business

**Objectives**
To introduce the student to areas of law specifically relevant to the tourism and travel industry, and the practical application of such laws. This subject will be of particular use to students undertaking services marketing.

**Content**
Topics covered include contract law, consumer protection, insurance, international conventions for carriers, travel agents, legislation, passport and other travel controls, business structures and business protection.

**Recommended reading**


Heilbronn, G.N. *Travel and Tourism Law in Australia and New Zealand.* Sydney, Federation Press, 1992


Travel Agents Act 1986 (Vic.)

**BL330 Advanced Company Law**

3 hours per week  ● Hawthorn  ● Prerequisite: BL221 Company Law  ● Assessment: to be advised.

A subject in the Bachelor of Business

**Objectives and Content**
The subject is designed to acquaint students with various contemporary issues in company law, especially relevant to a future practice in public accounting. The course examines current topics in such areas as the regulation of company law, company direction and management, company conflict and company misfeasance. Recently the course has focused substantially on corporate law simplification.

**Recommended reading**

**BL331 International Business Law**

3 hours per week  ● Hawthorn  ● Prerequisite: BL220 Contract Law or BL222 Marketing Law  ● Assessment: to be advised.

A subject in the Bachelor of Business

**Objectives and Content**
The purpose of the subject is to consider the legal aspects of international business law.

The emphasis of the subject is on the following topics:
- introduction to international law concepts;
- basics of international contracts;
- jurisdiction to determine disputes;
- international conventions;
- international treaties;
- international intellectual property.

**Recommended reading**

**BL332 Employment Law**

3 hours per week  ● Hawthorn  ● Prerequisite: BL110 Legal Environment of Business  ● Assessment: To be advised.

A subject in the Bachelor of Business

**Objectives and Content**
The general objective is to assess the impact of law upon the relationship of employer and employee. The following matters are analysed in this subject:
- the contract of employment – formation of the contract of employment including discrimination and compulsory unionism, distinguishing an employee from an independent contractor, the terms of the contract of employment, common law remedies for wrongful termination:
- the arbitration system – the structure of the *Australian Arbitration System,* the constitutional context, the system in operation in settling disputes and making awards, enterprise bargaining;
- industrial conflict – penal powers under the *Arbitration System,* deregistration, common law liability for industrial action, statutory liability for *industrial* action;
- the Victorian Employee Relations Act.

**Recommended reading**

**BL333 Finance Law**

3 hours per week • Hawthorn • Prerequisite: BL220 Contract Law • Assessment: To be advised.

A subject in the Bachelor of Business

**Objectives and Content**
The objective of this subject is to examine the law relating to selected financing and security practices. Areas of study include bills discount facilities, cheques, fixed and/or floating charges, mortgages and guarantees. A practical approach is taken to the legal issues analysed.

**Recommended reading**
No one text provides a suitable coverage of all the issues. Course materials and reading texts will be made available to students

**BL334 Asian Business Law**

3 hours per week • Hawthorn • Prerequisite: BL110 Legal Environment of Business • Assessment: research paper or examination

A subject in the Bachelor of Business

**Objectives and Content**
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.

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 and Hong Kong.

**Recommended reading**
Taylor, V. (Ed) *Australian Perspective of Asian Legal System*, Sydney, Butterworths, 1996

References to specific countries will be made available to students

**BL400 Business Law Honours**

Students should seek advice from the appropriate Business Law staff when formulating their discipline-specific course of study and their research project proposal.

To encourage a multi-disciplinary approach, students may, subject to approval, undertake selected honours level coursework subjects from other schools, divisions, or institutions provided that they show the relevance of these coursework subjects to their proposed area of research. Such arrangements are subject to the student having any necessary prerequisite studies and may be subject to any quotas imposed on these subjects by the offering School.

Students must submit their proposal to the Business Law Honours Convenor for approval prior to the commencement of their honours program. Approval for a student's discipline-specific course of study and research project proposal shall be subject to the availability of any necessary resources and the availability of appropriate staff supervision.

**Advanced Studies in Business Law**
Students will undertake a program of advanced study designed to support their research project proposal. This will involve the application of legal reasoning and legal techniques to issues which are of importance to business, government and society. The program will consist of supervised readings and seminars.

**Business Law Honours Research Project**
Each student will be required to undertake an individual program of advanced study in one or more areas of business law in his or her preferred area of specialisation. Potential areas of research should reflect expertise within the School which includes law relating to contracts, companies, marketing, retailing, employment, tourism, international marketing, finance, computers, Asian business law and European business law. Students will be required to make presentations at progressive stages of their research. The research project will be presented in the form of a written dissertation of approximately 15,000 words in length.

*Note that entry into the honours year is competitive and the number of places is subject to a quota.*

**BM110 The Marketing Concept**

3 hours per week • Hawthorn/Mooroolbark • Prerequisite: nil • Assessment: examination, assignments, presentation, class exercise
A subject in the Bachelor of Business

**Objectives and Content**
This subject explores basic business and marketing concepts from a variety of perspectives. The objective is the understanding of key concepts upon which to build a framework for the integration of a variety of ideas on business-customer exchanges and the role of the marketing function.

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.

Particular emphasis is given to the role marketing plays in the organisation's process of adaption to its environment, relationships between organisations and their clients, and in the formulation of management policies that impact on other functions such as accounting, operations, and research.

At the end of the subject, the successful student will have acquired an understanding of key concepts upon which to build a framework for the integration of a variety of ideas on business-customer exchanges and an understanding of the role of the marketing function. This understanding of
marketing and marketing people will aid in the understanding of other disciplines in the Bachelor of Business as well as providing a strong philosophical foundation for the vocational study of marketing.

**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

**BM220 Market Behaviour**

*3 hours per week*  
*Hawthorn*  
*Prerequisite: BM110 The Marketing Concept*  
*Assessment: examination & assignments*

A subject in the Bachelor of Business

Instruction in a subject of this nature requires active participation. The theoretical aspects of consumer behaviour are supplemented by practical problems through the use of case studies and fieldwork exercises.

This subject is a mandatory requirement for a major sequence in marketing.

**Objectives**

The objective of this subject is to study the process of choice in both consumer and business-to-business purchasing contexts, along with its determinants and its implications for marketing strategy. At the completion of the subject, students should have acquired an understanding of:

- the process of human decision making;
- The three main influences on consumer choice  
  - the individual consumer  
  - environmental influence  
  - market strategy
- the main influences impacting on business to business purchasing decisions
- the DMU (Decision Making Unit) or buying centre
- organisational factors and constraints

Specific aims:

- to allow second-stage students to explore basic human behaviour concepts and theories, as they relate to purchasing decisions in both consumer and business to business marketing areas
- to emphasise the practical marketing implications of those behavioural concepts, by the study of  
  - consumers as individuals and in groups  
  - decision-making processes (consumer and organisational)  
  - communication across groups  
  - communication and promotion forms
- to provide base behavioural knowledge levels, which allow further development of marketing knowledge in later stage subjects.

**Recommended reading**

Hawkins, Neal and Quester, *Consumer Behaviour*, Irwin, 1994

**BM222 Marketing Planning**

*3 hours per week*  
*Hawthorn*  
*Prerequisite: BM110 The Marketing Concept*  
*Corequisite: BM220 Market Behaviour*  
*Assessment: examination/assignments*

A subject in the Bachelor of Business

This subject is a mandatory requirement for a major sequence in marketing.

**Objectives and Content**

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 strategy formulation, implementation and control. It focuses on the marketing planning process as a key tool in an organisation's interaction with its environment.

In the highly competitive, volatile and turbulent business world of the mid-90s it is particularly important for Australian companies to carefully analyse their strategic planning, sharpen their business analysis skills and see beyond the geographical or product based boundaries of the markets in which they currently compete. 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 acquire 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 BM110;
- 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 developing marketing strategy; and the program decisions needed to implement the overall marketing strategy;
- to further build students' analytical and communication skills.
A case study with a strongly practical emphasis and discussion of prescribed articles form a major part of the course. The emphasis on business report writing is continued, with more complex reports required. The major assignment requires creation of an actual marketing plan for a real 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 mission and marketing audit;
- Analytical tools;
- Tools in marketing planning;
- Developing marketing objectives;
- Marketing programs;
- Product, promotion, distribution and price planning.

Recommended reading
Jain, S.C. *Marketing Planning and Strategy*, 4th edn, Cincinnati, Ohio, South Western, 1993

Other supporting material will be prescribed when appropriate. It is expected that extensive use will be made of library resources.

**BM223 International Marketing**

*3 hours per week*  
- Hawthorn  
- Prerequisite: BM222 Marketing Planning  
- Assessment: examination/assignment

A subject in the Bachelor of Business

Note: This subject is equivalent to BM332 International Marketing. Students who have studied BM332 will not be permitted to study this subject.

**Objectives**

The purpose of the subject is threefold. Firstly, it aims to bring the students to a new awareness of the need to *globalise* the Australian economy by increasing its international competitiveness. Secondly, it exposes the students to the special features of a global competitive environment and to examine the key success factors for Australian companies in the international arena. Thirdly, it aims to introduce students to the fundamentals of the international marketing task.

Specific aims:
- to examine the Australian global competitiveness in the 1990s with the aim of helping students to understand the reasons and consequences of the globalisation of the Australian economy in general, and Australian companies in particular;
- to examine the *international strategic diamond* and the key success factors of international involvement;
- to examine the major elements in an international environment using the PEST (political, economic, socio-cultural and technological) framework, and to incorporate the analysis in the international marketing planning process;
- to examine the *EPRG schema* (ethnocentric, polycentric, regiocentric, geocentric) in the formulation of international marketing strategies.
- to study the issues related to customisation (standardization of the international marketing mix)
- to explore criteria and methods used in selecting overseas markets and choosing optimal marketing entry modes

**Recommended reading**

**BM330 Product Management**

*3 hours per week*  
- Hawthorn  
- Prerequisite: for marketing major BM222 Marketing Planning and BQ227 Marketing Research  
- Assessment: assignment and test

A subject in the Bachelor of Business

This subject is a mandatory requirement for a major sequence in marketing.

**Objectives**

Students enrolling in this subject come prepared with an understanding of basic marketing concepts, from first year studies which 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. Specific objectives address the subject from the management approach, with a lesser emphasis on other approaches such as economic, technical or purely creative. These areas are not ignored but they are 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 products ‘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**


BM331  **Services Marketing and Management**

3 hours per week  ● Hawthorn  ● Prerequisite: for marketing major BM222 Marketing Planning and BQ227 Marketing Research 2 OR for marketing minor BM222 Marketing Planning

- Assessment: examination, assignments, class presentation

A subject in the Bachelor of Business

This subject is a mandatory requirement for a major sequence in marketing.

**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**

- distinctive aspects of service marketing;
- market research in services environment;
- service encounter management
- understanding and developing design for existing and new services
- communication and services;
- demand management;
- understanding the meaning of quality and its determinants
- relationship marketing;
- managing service culture;
- implementing the service strategy;
- international services and its future;

**Recommended reading**


BM333  **Communications Strategy**

3 hours per week  ● Hawthorn  ● Prerequisite: BM222

- Marketing Planning and BQ226 Marketing Research 1  ● Assessment: examination, assignment, class presentations

This subject is an elective subject for Bachelor of Business.

**Objectives**

This is not a course about how to create advertisements. Rather it draws together the various marketing units and looks at:

- the various strategies employed when communicating with customers; and
- provides students with the necessary skills to develop and evaluate effective communication strategies

**Content**

- topics include:
- the communication process;
- planning the communication budget;
- inside an advertising agency;
- advertising media issues;
- public relations and publicity;
- sales promotion;
- direct marketing;
- international advertising;
- evaluating the effectiveness of the communication strategy.

**Recommended reading**


BM336  **European Business Studies**

3 hours per week  ● Hawthorn  ● Prerequisite: BM223

- International Marketing  ● Assessment: final test, assignments

A subject in the Bachelor of Business

**Objectives**

The objective of this subject is to enable students to advance and apply their marketing knowledge to a number of European national markets, and to do so within the context of Australia's relative capacity to market products to these regions.

**Content**

The subject explores the differences and similarities that exist between some of the European business cultures and business environments and our own, and their practical meaning for a marketer. Students are encouraged to apply their newly acquired knowledge in examining the options in marketing Australian products or services in Europe. In particular, they are required to select the market which would have the highest sales potential for their product/service and choose the optimal market entry mode. The countries to be covered will be selected from a pool of six countries: Germany, Great Britain, France, Hungary, Italy and Poland. The emphasis is on understanding the business culture and environmental elements of the European countries selected as an essential precondition to the successful marketing of Australian products to European markets.

European Business Studies aims to develop a number of practical international marketing skills of critical significance for graduates' international business careers.

**Recommended reading**


BM338  Asian Pacific Business Practice
3 hours per week  Hawthorn  Prerequisite: BM223
International Marketing  Assessment: three assignments, class presentation
A subject in the Bachelor of Business

Objectives
To equip students with an understanding of the current economic development in the major Asian Pacific nations (ASEAN-6, NIEs-3, China, Australia, New Zealand, Canada, Japan and the United States) and the growing business opportunities and linkages in this region.

Specific aims:
- to give the students an understanding of the current states of economic development in the major Asian Pacific economies;
- to understand the uncontrollable factors (political-legal, economic, sociocultural, and technological) affecting business in the major market groups in the Asian Pacific;
- to study the emergence of a fourth economic driving force, namely the overseas Chinese entrepreneurs, in the Asian Pacific and its implications for Australia;
- to study the emergence of a ‘Greater Chinese Economic Zone’ (China, Hong Kong and Taiwan), and its potential effects on the region;
- to study the dominance of Japan and its effects on the Asian Pacific economy;
- to learn about business practices (etiquette, negotiation style, Confucianism, family business groups) prevailing in Asia-Pacific.

Recommended reading

Textbooks
Australia’s Bilateral Trade and International Investment. Canberra, Department of Foreign Affairs and Trade, 1992
Ch’ng, D., The Overseas Chinese Entrepreneurs in East Asia, Sydney, Committee for Economic Development of Australia (CEDA), 1993

BM339  Marketing Channel Management
3 hours per week  Hawthorn  Prerequisite: BM222
Marketing Planning and BM226 Marketing Research 1  Assessment: examination/assignment
A subject in the Bachelor of Business

Objectives
The objective is to provide an overview of retailing from a management perspective by providing a range of specialist skills not covered in other subjects but which are particularly relevant to retailing in Australia in the 1990s.

Content
Topics include:
- the retail environment in Australia;
- major changes occurring in retailing overseas;
- planning the retail marketing mix;
- the role of research in retailing;
- location decisions;
- the role of the retail buyer;
- retail buyer behaviour;
- merchandising strategies;
- franchising.

Recommended reading
Bowersox and Cooper, Strategic Marketing Channel Management, McGraw-Hill, 1992

BM400  Marketing Honours
Students should seek advice from the appropriate Marketing staff when formulating their discipline-specific course of study and their research project proposal.

To encourage a multi-disciplinary approach, students may, subject to approval, undertake selected honours-level coursework subjects from other schools, divisions or institutions provided that they show the relevance of these coursework subjects to their proposed area of research. Such arrangements are subject to the student having any necessary prerequisite studies and may be subject to any quotas imposed on these subjects by the offering school.

Students must submit their proposal to the Marketing Honours Convener for approval prior to the commencement of their honours program. Approval for a student’s discipline-specific course of study and research project proposal shall be subject to the availability of any necessary resources and the availability of appropriate staff supervision.

Advanced Studies in Marketing
Students will undertake a program of advanced study which will consist of supervised readings and seminar participation which is designed to broaden and add depth to the student’s understanding of contemporary marketing issues relevant to Australia and its global competitiveness. The reading and seminar program will support the student in carrying out their marketing research project.

Marketing Honours Research Project
Students will be encouraged to undertake a substantial research project in marketing. Potential areas for research will
reflect staff expertise within the department and could include market behaviour, marketing strategy and planning, communication, marketing research and business policy. Research projects will be supervised within a group seminar setting and students will be required to participate in class presentations as they progress in their research program. Students will be expected to submit their research project in the form of a written dissertation of approximately 15,000 words in length.

Students intending to complete their degree with honours must apply for entry into the honours year by the end of their three year degree.

Note: entry into the honours year is competitive and the number of places is subject to a quota.

**BM401 Marketing Management**

*5 hours per week* • Hawthorn • Prerequisite: nil • Assessment: To be advised.

**Objectives**

This subject covers the same body of knowledge and the same approach as the subject BM501 Marketing Management I in the Graduate Diploma in Business Administration.

The program introduces students to the role of marketing as part of the overall business function, and consists of a series of lectures dealing with the fundamentals of marketing, marketing planning, consumer behaviour and approaches to looking for market opportunities.

**Content**

Consumer behaviour — consumption and expenditure patterns, the buying process; market segmentation. Product/service policy — life cycle and adoption process, planning; differentiation, packaging and branding. Pricing policy — cost, demand, resources considerations; competition. The communications mix — advertising, promotion, personal selling. Distribution policy — channel selection, physical distribution. Introduction to marketing strategy.

**Recommended reading**


Current business journals

**BM501 Marketing Management 1**

*2 hours per week* • Hawthorn • Prerequisite: nil • Assessment: assignment/examination

A subject in the Graduate Diploma in Business Administration and Graduate Diploma in Market Modelling

**Objectives**

The subject introduces students to the role of marketing as part of the overall business function and encourages them to apply their knowledge and skills to the environment of their own organisation.

**Content**

Specific topics include the fundamentals of marketing, marketing planning, consumer behaviour, aspects of product and service policy, the marketing mix. An introduction to market research.

**Recommended reading**


Details of further reading will be provided at the first session.

**BM601 Marketing Management 2**

*2 hours per week* • Hawthorn • Prerequisite: BM501 Marketing Management 1, and BE501 Economics • Assessment: assignment/examination

A subject in the Graduate Diploma in Business Administration

**Objectives and Content**

This subject builds upon the knowledge that students have gained from Marketing Management 1, especially in respect of the marketing concept, the marketing planning process and the elements of the marketing mix.

The overall objective of the subject is to give the candidates a practical understanding of the principles and process of marketing planning, including the formulation of marketing strategy and the implementation of action programs. This is to be achieved at two levels: firstly, for a company operating within a dynamic domestic market; and secondly, for a company engaging in, or contemplating involvement in the international marketing environment.

Specific aims

**Domestic Marketing**

- to introduce candidates to the principles and process of marketing planning within a competitive domestic environment;
- to align the marketing objectives to the corporate mission;
- to equip candidates with the ability to utilise primary and secondary data in marketing planning;
- to examine a selection of techniques (eg. the product-market matrix, the BCG, etc) for marketing strategy formulation;
- to investigate the pitfalls of marketing planning practices.

**International Marketing**

- to introduce candidates to the principles and process of marketing planning in a dynamic global environment;
- to examine the role of the Australian economy within the global context;
- to examine the macroeconomic factors (political-legal, economic, socio-cultural, and technological) which affect marketing planning in a foreign marketing environment;
- to examine the different strategic options for marketing strategies in the foreign operations;
- to investigate the pitfalls of international marketing planning.

**Recommended reading**


Topic references will be given in class for the specific marketing applications covered.
BM602 Strategic Management
12.5 credit points • Duration: 3 hours per week • Prerequisite: BH604 Management, Organisation and People. • Instruction: lectures, seminars, case studies • Assessment: individual assignment (40%), group case studies (30%), exams (30%)

objectives
To introduce the student to the theoretical and practical aspects of strategic management.

Content
This subject will help the student embrace the role of strategic management in contemporary competitive business environments, examine the relevant decision processes and apply some of them to case studies and other assignments. The student acquires a practical understanding of the how the strategic planning process works, how corporate objectives are developed and how these are translated into strategic plans.

Emphasis is shared between:
- theoretical considerations, including the emerging business management paradigm of competence-based competition
- experiential exercises aimed at enhancing the students capacity to relate to various strategic management issues
- discussion of practical issues as demonstrated in case studies, and
- assignments that create an opportunity for the students to conduct a professional evaluation of the strategic planning process and of the competitive position of business and industries.

Text

References
Porter, M. Competitive Advantage Free Press, 1985

BM603 Business Policy
2 hours per week • Hawthorn • Prerequisite: Business Policy is taken in the final semester of the Graduate Diploma in Business Administration • Assessment: group, individual

A subject in the Graduate Diploma in Business Administration

Objectives
This subject is studied in the context of a dynamic global environment of social and technological change. All basic business skills must be integrated for strategic planning and the other GDBA subjects will thus be utilised.

Specific objectives of this subject are:
- to introduce the strategic planning process and the range of techniques used in business planning;
- to develop skills in using a variety of frameworks for making strategic decisions;
- to emphasise the importance of the current development phase of the industry in which an enterprise operates as a basis for appropriate strategy development;
- to develop skills in organising for effective business planning and for the implementation of the business planning process.

Content
Topics to be covered include:
- the nature of corporate objectives, hierarchy and conflict of objectives, personal dimensions of objectives, management by objectives;
- analytical frameworks for business planning and their bearing on the content of business plans and the process of planning;
- defining the business, the central strategic issue of ‘What business are we in?’
- the search for opportunity including scenario analysis;
- industries and their evolution: competitive advantage;
- planning for entry into new industries and new markets;
- the business plan.

Recommended reading
Details will be provided at the first session

BM606 Marketing Research Methods
2 hours per week • Hawthorn • Prerequisite: BQ500 Research Methodology, BM501 Marketing Management 1 or equivalent subjects • Assessment: To be advised.

A subject in the Graduate Diploma in Market Modelling

Objectives and Content
This subject introduces the theory and practice of research in a marketing environment. Students will be instructed in using appropriate research methods and techniques to provide information for marketing decision-making. The importance of research to strategic and tactical problems will be emphasised.

Topics to be covered are: the importance of research to marketing; the research brief and proposal; defining the marketing research problem; specifying research objectives; determining the research design; information sources; qualitative research; quantitative data collection methods; measurement and scaling procedures; sample designs; field work and data collection; data analysis; report preparation and result presentation.

Recommended reading
Details will be provided at the first lecture.
BM701  Marketing for Management

2 hours per week  ●  Hawthorn  ●  Prerequisite: nil  ●
Assessment: group and individual assignment

This subject is compulsory (conversion students excepted)

Objectives
The principal objectives of this subject are to provide a strategic orientation to the study of marketing management and to ensure that candidates obtain a firm foundation in marketing concepts.

Having completed the unit, candidates should have the marketing skills necessary to deal with the opportunities and threats which organisations need to cope with and take advantage of in a highly competitive both domestic and globally.

Content
Topics to be covered include:
● the strategic marketing planning process;
● market information systems and market research;
● international marketing strategies and global thinking in product, price, distribution and promotional strategies.

Recommended reading

Details of further reading will be provided at the first session.

BM801  Business Planning

2 hours per week  ●  Hawthorn  ●  Prerequisite: all subjects in the first 3 terms of course  ●  Assessment: To be advised.

A subject in the Master of Business Administration

This subject is compulsory (conversion students excepted)

Objectives
This subject is studied in the context of a dynamic global environment of social and technological change. All basic business skills must be integrated for strategic planning and the other MBA subjects will thus be utilised.

Specific objectives of this subject are:
● to introduce the strategic planning process and the range of techniques used in business planning;
● to develop skills in using a variety of frameworks for making strategic decisions;
● to emphasise the importance of the current development phase of the industry in which an enterprise operates as a basis for appropriate strategy development;
● to develop skills in organising for effective business planning and for the implementation of the business planning process.

Content
Topics to be covered include:
● the nature of corporate objectives, hierarchy and conflict of objectives, personal dimensions of objectives, management by objectives;
● analytical frameworks for business planning and their bearing on the content of business plans and the process of planning;
● defining the business, the central strategic issue of "What business are we in?";
● the search for opportunity including scenario analysis;
● industries and their evolution: competitive advantage;
● planning for entry into new industries and new markets;
● the business plan.

Recommended reading

BP003  Marketing Pathways

3 hours per week  ●  Hawthorn  ●  Prerequisites: A completed TAFE Associate Diploma of Business (Marketing) with one elective being International Marketing & a credit grade average must be achieved in the following subjects: Buyer Behaviour, Marketing Research, Strategic Marketing, International Marketing. Corequisite: highly recommended BQ227 Marketing Research 2  ●  Assessment: tutorial paper/fieldwork assignment/examination

A subject in the Bachelor of Business

This subject has been designed for TAFE students who are successful in gaining entry to the Bachelor of Business and wish to complete a major in marketing. The Pathways Marketing subject is available to students who have successfully completed the Associate Diploma of Business (Marketing) with one of the electives being International Marketing.

Marketing Pathways embraces four areas of study:
● Market Behaviour
● Market Research I
● Marketing Planning
● International Marketing

This subject has been specifically designed to account for prior learning in the Associate Diploma of Business (Marketing). Accordingly, credit for this subject on the basis of other prior learning cannot be granted.

Objectives
The aim of this subject is to introduce a marketing bridging subject which will enable students entering the University from TAFE with the Associate Diploma of Business (Marketing) to receive credit transfers into a business degree
under the Pathways project.

Formal recognition of previous studies, by transfer of defined credit subjects, allows students to enter new courses at the right levels.

Specifically this subject aims to:
- provide a program which develops in students the ability to use information sources such as indexes, abstracts, archives and databases, to collect and analyse data;
- develop further the skills of oral presentation and report writing and to work as a member of a project team;
- increase the practicality of business education by introducing students to business situations. A fieldwork assignment has been planned for students to develop and formulate a marketing plan for a company of their choice;
- provide exposure to a global business environment;
- focus and reinforce the fundamentals of marketing, market behaviour, marketing research, marketing planning and international marketing through critical evaluation of articles and mini case studies;

Content
Specific topics include:
- Marketing Strategy and Planning;
- Marketing Situational Analysis;
- Designing Marketing Strategy 1;
- Designing Marketing Strategy 2;
- Marketing Research • Buying and Using Research;
- Product Strategy;
- Pricing Strategy;
- Distribution Strategy;
- Promotion Strategy;
- Marketing Organisation and Control
- Australia's Competitiveness. What is a Global strategy?

Students who successfully complete BP003 Marketing Pathways will receive an exemption from BM220 market Behaviour, BQ226 Market Research 1, BM222 Marketing Planning and BM223 International Marketing.

Recommended reading
Cateora, P. R., International Marketing, 7th Edn., Homewood, Ill, Irwin, 1990.
Cravens, Strategic Marketing, 4th edn., Homewood, Ill., Irwin, 1994
Magazines such as Marketing, BRW, Australian Business, marketing journals etc., contain useful up-to-date material.

BQ110E Quantitative Analysis A (Enabling)
BQ110 Quantitative Analysis A
BQ111 Quantitative Analysis B

3 hours per week • Hawthorn • Prerequisites: students without appropriate Year 12 mathematics, or its equivalent, must take BQ110E Quantitative Analysis A (Enabling) consisting of three hours per week for one semester followed by BQ110 Quantitative Analysis A consisting of three hours per week for one semester. Students with appropriate Year 12 mathematics, or its equivalent, must take the subject BQ111 Quantitative Analysis B consisting of three hours per week for one semester • Instruction: lecture/tutorial • Assessment: BQ110E, examinations; BQ110, examination, assignment; BQ111, examinations, assignment

A subject in the Bachelor of Business

The content of BQ111 is the same as the combined content of BQ110E and BQ110, but the time allocation differs.

Objectives
Ensure that all students attain a higher level of numeracy and are able to develop a method of approach which can be applied in subsequent areas of their course.

Provide students with a knowledge of particular mathematical and statistical techniques that will foster a greater understanding of the quantitative procedures required in various disciplines within the Division.

Content
The subject has distinct business modelling emphasis and is applied in nature with interpretation and presentation forming an integral part of the subject.

Topics covered will normally include the following:
- presentation of statistical data;
- measures of central tendency and dispersion;
- introduction to probability and probability distributions;
- sampling and sampling distributions;
- estimation and confidence intervals;
- hypothesis testing;
- index numbers;
- correlation and linear regression
- time series analysis including introduction to the mathematics of finance.

Recommended reading
Comprehensive student notes and references will be made available.

BQ220 Business Forecasting

3 hours per week • Hawthorn • Prerequisite: BQ111 Quantitative Analysis B or (BQ110E + BQ110) Quantitative Analysis A • Assessment: individual assignments

A subject in the Bachelor of Business

Objectives
- Give a practical introduction to current business
forecasting techniques;
- introduce students to the statistical tools available on integrated packages such as MS Excel;
- uses case studies to demonstrate the use of forecasting in a business environment.

**Content**
Techniques covered will include time series analysis, moving averages, exponential smoothing, regression and autocorrelation analysis.

**Recommended reading**

**BQ221 Marketing Data Management**
3 hours per week  • Hawthorn  • Prerequisite: BQ111 Quantitative Analysis A or (BQ110E + BQ110) Quantitative Analysis A  • Assessment: syndicate assignment, examination
A subject in the Bachelor of Business

**Objectives and Content**
This subject forms an important part of the market analyst's tool kit. The subject has been designed to equip students with the techniques and skills required to access and analyse information relevant to the market research activities of both private and public companies. The approach taken in this subject is a practical one and therefore considerable use will be made of PC-based business modelling software packages.

This subject will:
- introduce students to a number of data archives, public access databases and videotext-type information sources;
- develop the necessary skills to access information sources using data management and statistical software on microcomputer and in a mainframe computer environment;
- extend students' knowledge of the statistical methods that are necessary for the analysis of primary and secondary data.

**Recommended reading**

**BQ222 Business Demography**
3 hours per week  • Hawthorn  • Prerequisite: BQ111 Quantitative Analysis B or (BQ111E + BQ110) Quantitative Analysis A  • Assessment: examination/assignment
A subject in the Bachelor of Business

Students intending to complete a major or minor in marketing are strongly recommended to include this subject as part of their studies.

**Objectives**
- Provide an introduction to the major demographic processes which impact on the changes to human populations;
- explore the market implications of population characteristics both in Australia and internationally for products and services;
- provide an environment in which students learn to use specialised demographic software.

**Content**
- The subject will normally cover the following areas: sources of demographic data, measurement and business implication of the demographic processes of mortality, fertility and migration, population estimates and projections, cohort analysis and spatial analysis.

**Recommended reading**

**BQ225 Economic Techniques for Business**
3 hours per week  • Hawthorn  • Prerequisite: BE110 Microeconomics & BQ110. BQ110E or BQ111 Quantitative Analysis B & A
Note: This subject is equivalent to BQ221 Marketing Data Management & BQ227 Marketing Research 2

The aim of this unit is to equip students with the techniques and skills generally used in Economics and market research in business. The course will cover a wide variety of techniques with an emphasis on analysis and interpretation of information rather than underlying mathematical theory.

**Recommended reading**

**BQ226 Marketing Research 1**
3 hours per week  • Hawthorn  • Prerequisite: BM110 The Marketing Concept, BM220 Market Behaviour and (BQ110E + BQ110) Quantitative Analysis A or BQ111 Quantitative Analysis B  • Corequisite: BM222 Marketing Planning  • Assessment: presentation, assignment, examination  • Note: This subject is equivalent to BM221 Marketing Research - students who have studied BM221 will not be permitted to study this subject
A second year subject in the Bachelor of Business

This subject is a mandatory requirement for a major sequence in marketing.

**Objectives and Content**
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 partial conduct of a major research assignment, and an evaluation of student experiences. Students will design and test a quantitative data collection instrument and develop the necessary skills to use...
SPSS for Windows software to analyse the data gathered.
The subject leads into BQ227 Marketing Research 2 where
students actually undertake the major fieldwork and/or
analyse the data collected from this subject.

**Recommended reading**

Dillon, W.D., Madden, T.J., Firtle, N.H., *Marketing Research in a*
*Marketing Environment*, 3rd edn, Irwin, 1994

Beverley Hills, Calif, Sage 1985

Hill, 1993

deep, Upper Saddle River, N.J., Prentice Hall, 1993


**BQ227 Marketing Research 2**

*3 hours per week • Hawthorn • Prerequisite: BQ226*

*Marketing Research 1 • Assessment: syndicate assignment, examination*

A subject in the Bachelor of Business

This subject is a mandatory requirement for a major sequence in marketing.

Students who have completed SM278 are precluded from this subject.

**Objectives and Content**

This subject builds on the preliminary work undertaken in the subject Marketing Research 1. It takes the research task from the initial data analysis and verification stage through to the report phase.

This subject will:

- focus on the implementation of the survey instrument developed in BQ226 so as to demonstrate the marketing research process;
- require students to carry out marketing research fieldwork, including developing a sampling plan, pilot testing and interviewing;
- focus on editing data entry and validation of the marketing research data collection;
- require students to develop a data analysis plan for reporting the results of the study;
- develop the necessary skills to use an appropriate statistical software package in order to analyse survey and experimental data;
- enable students to present the findings of the research topic both orally and in written form.

**Recommended reading**

Norusis, MJ. *SPSS for Windows 6.1 Guide for Data Analysis*, SPSS

Cliffs, N.J., Prentice Hall, 1993

Note: This subject is equivalent to BQ221 Marketing Data
Management. Students who have studied BQ221 or BQ223 will not
be permitted to study this subject.

**BQ228 Management Decision Techniques**

*3 hours per week • Hawthorn • Prerequisite: BQ111*

*Quantitative Analysis B or (BQ110E + BQ110) Quantitative Analysis A • Assessment: examination/assignment*

A subject in the Bachelor of Business

Students intending to complete a major or minor in accounting are strongly recommended to include this subject as part of their studies.

**Objectives**

- Provide students with an awareness of a 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 PC-based business modelling software packages.

Areas of study will normally include:

- an introduction to total quality management and quality control techniques using control charts and acceptance sampling;
- 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;
- an introduction to post-optimal analysis;
- the evaluation of risk in the business environment through computer-based software.

**Recommended reading**

Render, B. and Stair, R.M. *Quantitative Analysis for Management*,
5th edn, Boston, London, Allyn and Bacon, 1994

Anderson, M.O. and Lievano, R.J. *Quantitative Management: An*

Heizer, J. and Render, B. *Production and Operations Management:*
*Strategical and Tactical Decisions*. 4th edn, Englewood Cliffs, N.J.,
Prentice Hall, 1995

**BQ330 Market Modelling**

*3 hours per week • Hawthorn • Prerequisite: Prerequisite*

*BQ111 Quantitative Analysis B or (BQ110E + BQ110) Quantitative*
*Analysis A • Assessment: individual assignment*

A subject in the Bachelor of Business

**Objectives**

- Introduce students to business modelling;
- Provide a framework for decision making;
- Introduce students to modelling with integrated
packages such as MS Excel;

- Demonstrate market modelling through extensive use of case studies.

**Content**

The material covered will include decision models, formulation, defining variables, sensitivity analysis, documenting models, using spreadsheets as decision support tools, implementation and maintenance.

**Recommended reading**


**BQ331 Survey Research Methods**

3 hours per week ● Hawthorn ● Prerequisite: BQ111

Quantitative Analysis B or (BQ110E + BQ110) Quantitative Analysis A ● Assessment: examination/assignment

A subject in the Bachelor of Business

Students intending to complete a major or minor in marketing are strongly recommended to include this subject as part of their studies.

**Objectives**

- To extend students ability to analyse data arising from surveys using appropriate statistical and data analysis software;
- to design survey instruments for different data collection strategies;
- to introduce students to the complexities of alternative sample designs.

**Content**

The subject will normally cover the following areas: the analysis of survey data using SPSS for Windows; sample design; data collection methods; fieldwork administration; survey costing; data editing and data entry options, measurement issues; developing research briefs

**Recommended reading**


**BQ335 Quality Mechanisms and Measures**

3 hours per week ● Hawthorn ● Prerequisite: BQ111

Quantitative Analysis B or (BQ110E + BQ110) Quantitative Analysis A ● Assessment: to be advised

**Objectives and content**

Survival in the nineties for providers of goods and services requires products of the highest quality. Therefore it is beneficial for business students to learn about quality - its managerial philosophies and techniques. The focus of this subject will be on both qualitative and quantitative issues relation to quality control and improvement

**BQ400 Business Modelling Honours**

Students should seek advice from the appropriate Business Modelling staff when formulating their discipline-specific course of study and their research project proposal.

To encourage a multi-disciplinary approach, students may, subject to approval, undertake selected honours level coursework subjects from other schools, divisions, or institutions provided that they show the relevance of these coursework subjects to their proposed area of research. Such arrangements are subject to the student having any necessary prerequisite studies and may be subject to the availability of any necessary resources and the availability of appropriate staff supervision.

**Advanced Business Modelling Techniques**

Students will be required to investigate advanced theoretical business modelling techniques which support their research project proposal. In particular, students will be expected to demonstrate their understanding of these techniques by applying them to one or more business modelling case studies and presenting their findings via participation in a seminar program. Students may also be required to analyse specific business case studies, consult Recommended Reading, periodicals and conference proceedings and investigate the use of computer software packages as part of this subject.

**Business Modelling Honours Research Project**

Students will be required to undertake a substantial research project utilising business modelling techniques within their chosen area of speciality. The research project may involve the collection and analysis of data, an extension of the student's theoretical knowledge, the use of existing computer software packages or the production of computer software via programming. Students will be expected to report their research activity in the form of a written dissertation of approximately 15,000 words in length and will be required to progressively present their findings as part of a research seminar program.

Students intending to complete their degree with honours must apply for entry into the honours year by the end of their three year degree.

Note that entry into the honours year is competitive and the number of places is subject to a quota.

**BQ405 Research Methodology**

3 hours per week ● Hawthorn ● Prerequisite: nil

- Assessment: seminar participation, assignments

A subject in the Bachelor of Business Honours

**Objectives and Content**

- Research Methodology aims to equip students with the necessary research skills to conduct research studies for higher degrees. It is designed to facilitate the development of independent learning skills. Students will be presented with research methodologies appropriate to their discipline as well as those most commonly used in other disciplines. Throughout this
subject students will make extensive use of library resources.

Research Methodology topics normally covered include:
- Posing research questions
- Selection and definition of problems
- Formulation of Hypotheses
- Measurement of Concepts
- Library research methods
- Qualitative research methods
- Survey research methods
- Experimental research methods
- Analysis and Interpretation of Research Results
- Presenting a project outline and report writing techniques
- Report Writing Techniques

Recommended Reading
Emory, C.W. and Cooper, D.R. Business Research Methods, 4th edn, Homewood, Ill., Irwin, 1991

BQ500 Research Methodology
2 hours per week • Hawthorn • Prerequisite: nil
• Assessment: examination/assignment
A subject in the Graduate Diploma in Market Modelling

Objectives
- To equip students with the necessary research skills to conduct studies for higher degrees.
- To facilitate the development of independent learning.
- To enhance students knowledge and use of computer software.

Content
The subject contains the following major themes: Posing research questions and the measurement of concepts; an introduction to the type of research; the preparation of a research plan; data analysis and interpretation; the preparation of a research report.

Recommended Reading

BQ507 Market Modelling I
2 hours per week • Hawthorn • Prerequisites: nil
• Assessment: individual assignments
A subject in the Graduate Diploma in Market Modelling

Objectives
- Objectives Introduce students to business modelling.
- Provide a framework for decision making.
- Introduce students to modelling with integrated packages such as MS Excel.
- Demonstrate market modelling through extensive use of case studies.

Content
The material covered will include decision models, formulation, defining variables, sensitivity analysis, documenting models, using spreadsheets as decision support tools, implementation and maintenance.

Recommended Reading

BQ509 Business Modelling
3 hours per week • Hawthorn • Prerequisite: nil
• Assessment: syndicate assignments
A subject in the Graduate Diploma course in Business Administration

Objectives
Give students an understanding of the role of quantitative analysis in the decision-making process. The skills acquired are used in other subjects of the course as well as giving an appreciation of quantitative techniques via practical applications.

Content
Students are required to select four modules out of six possible modules to complete this subject. The modules included are demography, linear programming, forecasting, inventory management, quality control and survey data analysis. User-friendly computer packages are employed throughout the subject wherever possible, reflecting their importance and usefulness.

Recommended Reading
Render, B. and Stair, R.M. Quantitative Analysis for Management. 5th edn, Boston, Allyn & Bacon, 1994

BQ606 Business Demography
2 hours per week • Hawthorn • Prerequisite: nil • Assessment: examination/assignment
A subject in the Graduate Diploma in Market Modelling

Objectives
- Provide an introduction to the major demographic processes which impact on the changes to human populations;
- To explore the marketing implications of population dynamics both in Australia and internationally for products and services;
- To provide an environment in which students learn to use specialised demographic software.

Content
- The subject will normally cover the following areas: sources of demographic data, measurement and business implication of the demographic processes of mortality, fertility and migration, population estimates and projections, cohort analysis and spatial analysis.
Recommended Reading
Bureau of Immigration, Population and Multicultural Research, Australia’s Population Trends and Prospects (current and previous years).

BQ607 Market Modelling II
2 hours per week • Hawthorn • Prerequisites: nil
• Assessment: individual assignments
A subject in the Graduate Diploma in Market Modelling

Objectives
• Introduce students to business forecasting techniques.
• Build Marketing Decision Models using MS Excel.

Content
• Forecasting techniques covered will include time series analysis, moving averages, exponential smoothing, regression and judgmental analysis. Marketing models used will analyse factors such as demand, price and advertising.

Recommended Reading

BQ703 Technological Forecasting
2 hours per week • Hawthorn • Prerequisites: Completion of the Graduate Diploma in Management Systems or equivalent assessment • Assessment: individual assignments
A subject in the Master of Business (Information Technology)

Objectives
Introduce students to qualitative business forecasting techniques, in particular, the methods used in conducting a technological forecast in an information technology environment.

Content
The course will give an introduction to the necessary concepts for technological forecasting including the necessary traditional quantitative and qualitative forecasting approaches.

Recommended Reading

BS141 Introductory Law
5 credit points • 2 hours per week • Hawthorn
This is a first year subject of the Bachelor of Applied Science (Environmental Health)

Content
Sources of law, problems with the law, the tiers of Australian Government Commonwealth, State, Local Government. The Parliamentary Process. Constitutional constraints affecting environmental and public health legislation.

Delegated legislation:
- relevance to environmental health officers,
- advantages and disadvantages,
- reviewing through Parliament and the courts.

The Australian court system, court personnel and tribunals with specialised jurisdictions.

The civil and criminal trial process.

Judges as a source of law - precedent and legal reasoning.
Case studies of particular relevance will be examined negligence (consumer protection); nuisance (environmental controls); and strict liability (hazardous materials).

Judges as a source of law - the main judicial approaches to statutory interpretation (plain meaning or policy), the context of words in a statute, the audience, the purpose.
Particular rules; meanings limited to class or association, gaps in a statute, inconsistent provisions, conflict with property rights, penal provisions.

BS2530 Environmental Health Law
10 credit points • 4 hours per week • Hawthorn
This is a second year subject of the Bachelor of Applied Science (Environmental Health)

Content
- Legislation relevant to the environmental health officer in local government the Health Act, enabling legal provisions, e.g. nuisance, infectious disease, building, accommodation, incidental controls;
- the Food Act - controls on food premises, preparation and sale of food, etc. Warranties, third party procedure, defence of reasonable precautions. Provisions with respect to prosecution;
- incidental powers and controls by virtue of the Local Government Act will also be considered;
- legislation relevant to the environmental health officer in state government authorities;
- Health Department – in addition to the Health Act and the Food Act, further relevant legislation with respect to drugs and health services will be considered;
- Environment Protection Authority. Consideration of the Environment Protection Act, state environment protection policies and regulations thereunder;
- relevant judgements on the application/interpretation of the legislation will be studied.
BS2540  Legal Procedure and Evidence
10 credit points • 4 hours per week • Hawthorn
This is a second year subject of the Bachelor of Applied Science (Environmental Health)

Content
The legal process of prosecution — choosing the appropriate court, who may prosecute, the rule against ambiguous allegations; what must be specified in the information and summons; rules with respect to service and proof of same.

Time limits. Adjournment;
The civil and criminal trial process. Differences in trial procedures for summary and indictable offences. Pleas, examination of witnesses, powers of the court;
The rules of evidence statutory and judicial developments, the burden and standards of proof, hearsay, documents, admissions, improperly obtained evidence, competent and compelled witnesses, expert witnesses, judicial notice and other relevant evidentiary issues will be considered;
In the context of mock trials, which will commence from the initial interview of a complainant, particular problems relating to both procedure and evidence, sampling and entry powers will be considered;
Particular problems caused by the concept of legal personality when prosecuting the corporate defendant and whether criminal sanctions are appropriate will be examined.

BS428  Administration and Management
5 credit points • 2 hours per week • Hawthorn
This is a fourth year subject of the Bachelor of Applied Science (Environmental Health)

Content
An introduction to management theory and practice, with special reference to government agencies, which will build on the industry based learning experiences of Environmental Health students.
The course will study recent changes in local government namely amalgamation, compulsory competitive tendering, enterprise bargaining, financial and resource management, and administrative procedures. The role of the environmental health officer will be examined in the light of these organisational changes.

BS447  Administrative Law
7.5 credit points • 2 hours per week • Hawthorn
This is a fourth year subject of the Bachelor of Applied Science (Environmental Health)

Content
To consider 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.
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.

BS513  Business Studies—Accounting
7.5 credit points • 2 hours per week • Hawthorn
A subject in the Bachelor of Applied Science (Maths and Computer Science)

Content
The purpose of this course is to provide students with a workable knowledge of the accounting principles and concepts, with an understanding of how accounting information is reported and used in decision-making.

On completion of this subject the students should be able to:
• Outline the major internal and external users of accounting information;
• Explain how accounting information may be used to assist in making business decisions;
• Be able to prepare accounting reports - balance sheet, and profit and loss statements;
• Prepare a bank reconciliation statement and understand its role in cash control;
• Prepare a cash budget and cash flow statement;
• Select and use financial ratios to analyse the profitability and financial stability of a business entity.

Recommended reading

BS619  Business and Management
10 credit points • 4 hours per week • Hawthorn
This is a fourth year subject of the Bachelor of Applied Science (Applied Chemistry and Biochemistry)

Content
• Business administration, business communications and industrial relations. Industrial motivation and job satisfaction. Leadership in organisations;
• the business environment — the effects of social, legal, economic, political and technological factors. Industrial innovation;
• financial decision making — cost factors, sales forecasts, profitability, potential return on investment and associated risks, capital investment planning, budgeting.
• the function of research and development in the chemical and biochemical industries;
• safety and legal liability (towards oneself and others) in the chemical and biochemical industries.

BS626  Behaviour in Organisations
5 credit points • 3 hours per week • Hawthorn
• Assessment: tests and assignments

Content
The objectives of the subject are to enable students to:
• understand the nature and importance of human resources as an organisational asset;
obtain a better understanding of themselves, their impact on people and the way other people;

• influence their own behaviour;
• explore the implications of both work groups and informal groups in organisations;
• consider the impact of alternative organisation designs on organisational effectiveness and
• understand the role of managers and the impact of alternative managerial style on organisational effectiveness.

BS721 Business and Management
20 credit points • 4 hours per week • Hawthorn
See BS619 for details.

BT111 Introduction to Information Systems
Duration: four hours per week • Prerequisites: Nil • Instruction: lecture/tutorial/lab
• Assesment: examination (60%) and assignments (40%)

Aims
On completion of this unit, the student should have an understanding of computer systems and their uses in our society. The student should also be able to pick out an appropriate system for his/her use and understand the fundamentals of programming.

Content
• basic components of a computer system: input, processing, output
• (including communication), and storage
• use of common applications software: a wordprocessor and spreadsheet
• stages involved in building a system
• differences between a file manager and a database management system
• design and implementation of a simple database
• basic constructs used in writing programs; writing simple programs using dBase IV
• types of processing and common processing operations
• differences between a transaction processing system, management information system and decision support system
• main functions of managers in an organisation and the use of information technology
• to achieve the goals of the manager and the organisation
• ethical issues arising from the use of information technology
• protection of information systems from computer crime, natural disasters, and human error

Textbooks

Wilde, W.D. and Baxter, J.E. Standards of Presentation, Swinburne Press, 1991

References

BT112 Business Programming 1
Duration: four hours per week • Prerequisites: Nil • Instruction: lecture/tutorial/lab • Assesment: examination (60%) and assignments (40%)

Aims
The main aim of this subject is to introduce students to the programming concepts most widely used in business and organisational computing. It is assumed that students may not previously have had any programming experience.

Content
An overview of modern business computing sets the context and introduces the structure, declarative and event driven approaches.

Some of the ideas of object orientated programming are also discussed.

The remainder of the subject provides a thorough introduction to the structured programming approach including sequence, selection and iteration. Students will be exposed to these ideas through examples drawn from several different programming languages

Textbooks
To be advised

References

BT220 Data Analysis and Design
Duration: 3.5 hours per week • Prerequisite • BT111
Introduction to Information Systems • Instruction: lecture/laboratory • Assesment: examination (80%) and assignment (20%)

Aims
This subject aims to extend basic information technology user skills to the development of a simple automated data base update and retrieval system to solve a well-bounded business problem.

Content
Appropriate automated tools will be used to assist in the design and generation of a simple inquiry and update system. The emphasis is on gaining an understanding of the problem in its business context, and the need for adequate documentation of the system and management of this data to ensure that the information produced by the data base system is relevant and accurate. Students will use conceptual data analysis methods to produce a logical data model.
**Textbooks**

**References**

**BT221 Business Computing**

*Duration:* three hours per week  ●  *Prerequisites:* BT111 Introduction to Information Systems, BT220 Data Analysis & Design  ●  *Instruction:* lecture/laboratory  ●  *Assessment:* examination (60%) and assignment (40%)

**Aims**
The subject aims 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 on from the BT111 Introduction to Information Systems 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.

**Content**
Business computing is studied from the user's point of view rather than from that of the Information Systems Department.

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.

**Textbooks**

**References**
A detailed reading guide will be issued for each topic and will include articles from industry journals and newspapers. Also included will be:

**BT223 Information Systems 1**

*12.5 credit points*  ●  *Duration:* 3.5 hours per week  ●  *Prerequisite:* BT111 Introduction to Information Systems  ●  *Instruction:* lecture/laboratory  ●  *Assessment:* examination (65%) and assignment (35%)

**Aims**
This subject expands skills learnt in previous units and relates them to the analysis, design and implementation of a straightforward transaction processing system with more of an emphasis on the procedural aspects. Basic information technology user skills and data analysis skills are extended to the analysis of business problems with a view ultimately to building of an information system to support the business functions.

**Content**
Emphasis is on gaining an understanding of a problem in its business context and 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 will be applied. Particular topics include:
- modelling organisational data; modelling organisational activities; setting implementation priorities; estimation; database design; forms, screen and report design; process design; development strategies; implementation and installation; evaluation.

**Textbooks**

**References**
Whitten, J., Bentley, L., and Barlow, V. *Systems Analysis and Design Methods*, 3rd ed., Irwin, 1994

**BT228 Business Programming 2A**

*12.5 credit points*  ●  *Duration:* 3.5 hours per week  ●  *Prerequisites:* BT111 Introduction to Information Systems, BT112 Business Programming 1  ●  *Instruction:* lecture/tutorial/laboratory  ●  *Assessment:* examination (60%), assignments (20%) and test (20%)

**Aims**
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 files

Textbooks
Cobol course notes.

References
Grauer, R. Structured Cobol Programming, USA, Wiley,1994

BT229 Business Programming 2B
12.5 credit Points ● Duration: 3.5 hours per week ● Prequisites: BT111 Introduction to Information Systems, BT112 Business Programming 1 ● Instruction: lecture/tutorial/laboratory ● Assessment: examination (50%), assignments (30%)and test (20%)

Aims
This subject builds upon the programming skills and concepts learned in Business Programming I.

The objective is to give students an understanding of sound software engineering principles through programming in a block structured language (currently C). The emphasis is on developing and maintaining information systems applications using modular techniques.

Content
Topics covered include the following:
- program structure
- data structure
- algorithm design
- data validation
- arrays and tables
- sequential files
- reporting
- indexed files
- strings
- testing

Textbook

References


BT331 System Architecture 1
12.5 12.5 credit points ● Duration: 3.5 hours per week ● Prequisites: BT220 Data Analysis & Design, BT112 Business Programming 1 ● Instruction: lecture/tutorial ● Assessment: examination (70%) assignments (30%)

Aims
Given a problem relating to a computer system, the student will be able to communicate with an expert to effect a solution.

Content
- concepts of basic computer hardware and their functions during operation
- an understanding of software architecture of a computer, the capabilities of the operating system and its dependence on hardware
- basic concepts and components involved in data communications
- the goals and structure of the ISO reference model for computer network protocols
- the data communication services and facilities provided by the common carriers
- Benefits of data communications for an organisation and the management of this function.

Textbook

References
Halsall, F. Data Communications, Computer Networks and OSI, Addison-Wesley Publishing Company, 2nd ed., 1990
Housley, T. Data Communications and Teleprocessing Systems, Prentice-Hall, 1989
Ramon, E. and Schroeder, A. Contemporary Data Communications ● A Practical Approach, Maxwell-Macmillan, 1994

BT332 System Architecture 2
12.5 credit Points ● Duration: four hours per week ● Prequisites: BT331 System Architecture 1, BT339 Database Management Systems 1, BT228 Business Programming 2A or BT229 Business Programming 2B ● Instruction: lecture/tutorial/laboratory ● Assessment: examination (70%) and assignment (30%)

Aims
The objective is to develop the students’ understanding of operating systems and networking. Knowledge gained in Systems Architecture 1 is extended to include mulituser timesharing operating systems, heterogeneous systems and the client-server environment.
Content
The following topics are included:
Operating systems characteristics, operating systems history, kernel mode, interrupts, distributed systems, layers, microkernel architecture, layered architecture, open systems, standards, UNM history and character, UNIX commands, command line syntax, job control, pipes, backgrounding, file management, text processing, paged virtual memory, booting procedure, process management system calls, logical file system organisation, UNM file types, architecture of Windows, flow of control by message passing, cooperative multitasking, segmented paged memory management, memory protection and sharing, DLLs, client-server communication, TCP/IP, network addressing, Internet services, Novell LAN.

Textbook
To be advised

References
Glass, G. UNIX for Users and Programmers, Prentice-Hall 1993
King, A. Inside Windows 95, Microsoft Press, 1994, Chaps 2-4
Kroll, E. The Whole Internet, O'Reilly & Associates, 1992
Comer, D. The Internet Book, Prentice-Hall, 1995
Tsai T.C. A Network of Objects, Van Nostrand Reinhold, 1995

BT333 Information Systems 2
12.5 credit points  Duration: 3.5 hours per week  Prerequisites: BT223 Information Systems I and BT339 Database Management Systems I  Instruction: lecture/tutorial  Assessment: examination (70%) and assignments (30%)

Aims
Information systems which meet the business needs of organisations must be based on a thorough understanding of the information needs (what needs to be known?) and the business processes (what needs to be done?). Traditional methods of analysis, design and implementation (covered in earlier units) are perceived by many to be inadequate to handle the large and complex systems of the future. Instead, object oriented methods are seen to be more likely to succeed with these types of systems. However, object oriented methods require a completely different way of modelling and implementing the business requirements.
This unit examines one of these object oriented methods (as per Rumbaugh et al.) in detail and demonstrates how to analyse and transform the business requirements into an object oriented model for system design. Other approaches by Jacobson et al. and Coleman et al. will also be included.

By the end of this unit, students will be expected to be able to apply correctly these approaches to analysis to produce an object oriented model for a given case study.

Content
Introduction, object oriented paradigm, object modelling;
Dynamic modelling;
Functional modelling;
Rumbaugh’s object oriented method with user cases;
The fusion method;
Case studies.

Textbook

References
Booch, G. Object Oriented Analysis and Design, 2nd ed., Benjamin Cummings, 1994

BT334 Information Technology Strategies
12.5 credit points  Duration: 3 hours per week  Prerequisites: any two stage 2 computing subjects  Instruction: lecture/tutorial  Assessment: research paper (100%)

Aims
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 course 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
• 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

Textbook

References
To be advised.
BT335 Business Software Engineering
12.5 credit Points • Duration: 4 hours per week • Prerequisite: BT339 Database Management Systems I • Instruction: lectures/laboratory • Assessment: examination (60%) and assignments (40%)

Aims
On completing this subject, students will be able to describe the process and goals of information systems design, competently apply design techniques to a simple system, use at least one CASE software product, describe design techniques for CASE environments, and discuss some current issues in systems design.

Content
In this subject, students are introduced to design concepts, principles and methods relevant to the design of software for information systems. In particular, design methods suited to projects where Computer-Aided Software Engineering (CASE) will be used are studied and applied. The unit includes a major project component in which CASE software will be used.

Textbook

References
Barker, R. Case and Method Tasks and Deliverables, Wokingham, Addison-Wesley, 1990
Barker, R. Case and Method Entity Relationship Modelling Wokingham, Addison-Wesley, 1990
Barker, R. Case and Method Function and Process Modelling, Wokingham, Addison-Wesley, 1992

BT338 Information Systems Project
12.5 credit Points • Duration: 4 hours per week or equivalent • Prerequisites: BT331 System Architecture I, BT339 Database Management Systems I, BT228 Business Programming 2A or BT229 Business Programming 2B, BT221 Business Computing • Instruction: Seminars, supervised reading, and individual consultation as required • Assessment: written report and presentation 100%

Aims
This subject provides 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. They will deepen and broaden their 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

References

BT339 Database Management Systems I
12.5 credit Points • Duration: 4 hours per week • Prerequisites: BT112 Business Programming I, BT220 Data Analysis & Design, BT223 Information Systems 1
• Instruction: lecture/lab/tutorial • Assessment: examination (60%) and assignment (40%)

Aims
The major objective of this unit is 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. Students will be given 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.

Textbook

References
Date, C.J. An Introduction to Database Systems, Addison-Wesley, 6th ed. 1995
Krohn, M. Using the Oracle Toolset, Addison-Wesley, 1993

BT340 Business Computing Applications
12.5 credit points • Duration: 3.5 hours per week • Prerequisites: BT221 Business Computing • Instruction: lecture/tutorial/laboratory • Assessment: a major group assignment (40%) and one final exam (60%)

Aims
The unit covers the relationships and distinctions between the different types of application systems within the business environment, with major emphasis on computer-based information systems. The unit explores in detail typical business systems and involves spreadsheet, DBMS and EIS and MIS software.

Content
- particular features and requirements of various business information systems applications: marketing, manufacturing, financial and human resources computer-based systems

Swinburne University of Technology 1997 Handbook 315
the design of good quality entry forms, screens and reports
- the essential elements of an Executive Information System, and other decision support systems
design, implementation and manipulation of files using electronic spreadsheet, DBMS and EIS and MIS software
mastery of an Executive Information System/MIS package

**Textbook**

**References**

**BT341  Knowledge Based Systems**
12.5 12.5 credit points  
- Duration: 3.5 hours per week over 1 semester  
- Prerequisites: **BT339 Database Management Systems 1**  
- Instruction methods: lecture/laboratory/tutorial  
- Assessment: examination (65%) and assignments (35%)

**Aims**
In this subject the students develop an understanding of the nature and uses of expert systems in business. The subject involves practical work using the expert system building tools.

**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

**Textbook**

**References**
Zahedi, F. *Intelligent Systems for Business, Expert Systems with Neural Networks*, Belmont, California, 1993

**BT342  Database Management Systems 2**
12.5 credit Points  
- Duration: 4 hours per week over 1 semester  
- Prerequisites: **BT228 Business Programming 2A** or **BT229 Business Programming 2B, BT339 Database Management Systems 1**  
- Instruction: lecture/lab/tutorial  
- Assessment: examination (60%) and assignment (40%)

**Aims**
The overall objective of the subject is to build upon the concept and skills gained in Database Management Systems 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.

**References**
Date, C.J. *An Introduction to Database Systems*, Addison-Wesley, 6th ed. 1995
Bell, D and Grimson, J. *Distributed Database Systems*, Addison-Wesley, 1992

**BT363  Database Management Systems 3**
12.5 Credit Points  
- Duration: 4 hours per week over 1 semester  
- Prerequisites: **BT228 Business Programming 2A** or **BT229 Business Programming 2B, BT339 Database Management Systems 1**  
- Instruction: lecture/lab/tutorial  
- Assessment: examination (60%) and assignment (40%)

**Aims**
The overall objective of this subject is to build upon the concepts and skills gained in Database Management Systems 1, by exploring a number of current issues, advanced topics and future directions with a view to providing students with a broader and deeper understanding.

**Content**
- A series of topics selected from:
  - Alternative transaction models
  - Object oriented, object-relational and extended relational systems
  - Database standards bodies, current and future standards

**References**
Zahedi, F. *Intelligent Systems for Business, Expert Systems with Neural Networks*, Belmont, California, 1993
Prerequisite: completion

Students should seek advice from the appropriate Information Systems Honours Convener for approval prior to the commencement of their honours program. Approval for a student's discipline-specific course of study and research project proposal shall be subject to the availability of any necessary resources and the availability of appropriate staff supervision.

Advanced Studies in Information Systems

Students will be required to undertake a substantial research project, investigating an aspect of information systems theory or practice, which may be selected to suit the student's preferred area of specialisation. Students will be expected to report their research activity in the form of a written dissertation of approximately 15,000 words in length and will be required to progressively present their findings as part of a research seminar program.

Students intending to complete their degree with honours must apply for entry into the honours year by the end of their three year degree.

Note that entry into the honours year is competitive and the number of places is subject to a quota.
BT502  Current Issues in Information Systems

3 hours per week • Hawthorn • Prerequisite: completion of stage 2A of Management stream • Assessment: Group and individual presentations and assignments • This subject is equal to two semester subjects
A subject in the Master of Information Systems (Management Stage 2B)

Objectives
In this subject, some of the most recent developments and trends in computer applications and technologies are examined to:

• encourage students to appraise critically state of the art developments and evaluate them for relevance to their own environment;
• communicate recent systems design techniques;
• provide an awareness of the anticipated directions within the computer industry.

Content
Topics covered include:

• systems analysis and design for the fourth and fifth generation systems;
• prototyping strategies;
• integrating personal and corporate computing;
• knowledge based systems.

Recommended reading
In addition to numerous periodicals and journals, the following texts will serve as a guide:


BT550  Introduction to Information Systems

12.5 credit points • Duration: four hours per week over 1 semester • Prerequisites: Nil
Instruction: lecture/tutorial/lab • Assessment: examination (60%) and assignments (40%)

Aims
On completion of this unit, the student should have an understanding of computer systems and their uses in our society. The student should also be able to pick out an appropriate system for his/her use and understand the fundamentals of programming.

Content

• basic components of a computer system: input, processing, output (including communication), and storage
• use of common applications software: a word processor and spreadsheet
• stages involved in building a system
• differences between a file manager and a database management system

• design and implementation of a simple database
• basic constructs used in writing programs; writing simple programs using dBase IV
• types of processing and common processing operations
• differences between a transaction processing system, management information system and decision support system
• main functions of managers in an organisation and the use of information technology to achieve the goals of the manager and the organisation
• ethical issues arising from the use of information technology
• protection of information systems from computer crime, natural disasters, and human error

Textbooks
Wilde, W.D. and Baxter, J.E. Standards of Presentation, Swinburne Press, 1991

References

BT551  Business Programming 1

12.5 credit points • Duration: four hours per week over 1 semester • Prerequisites: Nil
Instruction: lecture/tutorial/lab • Assessment: examination (60%) and assignments (40%)

Aims
The main aim of this subject is to introduce students to the programming concepts most widely used in business and organisational computing. It is assumed that students may not previously have had any programming experience.

Content
An overview of modern business computing sets the context and introduces the structure, declarative and event driven approaches.

Some of the ideas of object orientated programming are also discussed.

The remainder of the subject provides a thorough introduction to the structured programming approach including sequence, selection and iteration. Students will be exposed to these ideas through examples drawn from several different programming languages

Textbooks
To be advised

References
BT561  Data Analysis and Design

12.5 credit points  •  Duration: 3.5 hours per week over 1 semester  •  Prerequisite: BT550 Introduction to Information Systems  •  Instruction: lecture/laboratory  •  Assessment: examination (80%) and assignment (20%)

Aims
This subject aims to extend basic information technology user skills to the development of a simple automated data base update and retrieval system to solve a well-bounded business problem.

Content
Appropriate automated tools will be used to assist in the design and generation of a simple inquiry and update system. The emphasis is on gaining an understanding of the problem in its business context, and the need for adequate documentation of the system and management of this data to ensure that the information produced by the data base system is relevant and accurate. Students will use conceptual data analysis methods to produce a logical data model.

Textbooks

References

BT562  Business Computing

12.5 credit points  •  Duration: three hours per week over 1 semester  •  Prerequisites: BT550 Introduction to Information Systems, BT361 Data Analysis & Design  •  Instruction: lecture/tutorial/laboratory  •  Assessment: examination (60%) and assignment (40%)

Aims
The subject aims 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 on from the BT550 Introduction to Information Systems 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.

Content
Business computing is studied from the user's point of view rather than from that of the Information Systems Department.
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.

Textbooks

References
A detailed reading guide will be issued for each topic and will include articles from industry journals and newspapers. Also included will be:

BT563  Information Systems 1

12.5 credit points  •  Duration: 3.5 hours per week over 1 semester  •  Prerequisite: BT550 Introduction to Information Systems  •  Instruction: lecture/laboratory  •  Assessment: examination (65%) and assignment (35%)

Aims
This subject expands skills learnt in previous units and relates them to the analysis, design and implementation of a straightforward transaction processing system with more of an emphasis on the procedural aspects. Basic information technology user skills and data analysis skills are extended to the analysis of business problems with a view ultimately to building of an information system to support the business functions.

Content
Emphasis is on gaining an understanding of a problem in its business context and 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 will be applied. Particular topics include:
- modelling organisational data; modelling organisational activities; setting implementation priorities; estimation; database design; forms, screen and reports design; process design; development strategies; implementation and installation; evaluation.

Textbooks

References
Whitten, J., Bentley, L. and Barlow, V. *Systems Analysis and Design Methods*, 3rd ed., Irwin, 1994
**BT564 Business Programming 2A**

12.5 credit points  ● Duration: 3.5 hours per week over 1 semester  ● Prerequisites: BT550 Introduction to Information Systems, BT551 Business Programming 1  ● Instruction: lecture/tutorial/laboratory  ● Assessment: examination (60%), assignments (20%) and test (20%)

**Aims**
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

**Textbooks**

**References**
Grauer, R. *Structured Cobol Programming*, USA, Wiley, 1994

**BT565 Business Programming 2B**

12.5 credit points  ● Duration: 3.5 hours per week over 1 semester  ● Prerequisites: BT550 Introduction to Information Systems, BT551 Business Programming 1  ● Instruction: lecture/tutorial/laboratory  ● Assessment: examination (50%), assignments (30%) and test (20%)

**Aims**
This subject builds upon the programming skills and concepts learned in Business Programming 1.
The objective is to give students an understanding of sound software engineering principles through programming in a block structured language (currently C). The emphasis is on developing and maintaining information systems applications using modular techniques.

**Content**
Topics covered include the following:
- program structure
- data structure
- algorithm design
- data validation
- arrays and tables
- sequential files
- reporting
- indexed files
- strings
- testing

**Textbook**

**References**

**BT570 System Architecture 1**

12.5 credit points  ● Duration: 3.5 hours per week over 1 semester  ● Prerequisites: BT561 Data Analysis & Design, BT551 Business Programming 1  ● Instruction: lecture/tutorial  ● Assessment: examination (70%) assignments (30%)

**Aims**
Given a problem relating to a computer system, the student will be able to communicate with an expert to effect a solution.

**Content**
- concepts of basic computer hardware and their functions during operation
- an understanding of software architecture of a computer, the capabilities of the operating system and its dependence on hardware
- basic concepts and components involved in data communications
- the goals and structure of the ISO reference model for computer network protocols
- the data communication services and facilities provided by the common carriers
- Benefits of data communications for an organisation and the management of this function.

**Textbook**

**References**
Housley, T. *Data Communications and Teleprocessing Systems*, Prentice-Hall, 1989
BT571 System Architecture 2

12.5 credit points • Duration: four hours per week over 1 semester • Prerequisites: BT570 System Architecture 1, BT576 Database Management Systems 1, BT564 Business Programming 2A or BT565 Business Programming 2B • Instruction: lecture/tutorial/laboratory • Assessment: examination (70%) and assignment (30%)

Aims
The objective is to develop the students' understanding of operating systems and networking. Knowledge gained in Systems Architecture 1 is extended to include multiuser timesharing operating systems, heterogeneous systems and the client-server environment.

Content
The following topics are included:
Operating systems characteristics, operating systems history, kernel mode, interrupts, distributed systems, layers, microkernel architecture, layered architecture, open systems, standards, UNIX history and character, U N M commands, command line syntax, job control, pipes, backgrounding, file management, text processing, pagged virtual memory, booting procedure, process management system calls, logical file system organisation, UNIX file types, architecture of Windows, flow of control by message passing, cooperative multitasking, segmented pagged memory management, memory protection and sharing. DLLs, client-server communication, TCP/IP, network addressing, Internet services, Novell/LAN.

Textbook
To be advised

References
Glass, G. UNIX for Users and Programmers, Prentice-Hall 1993
King, A. Inside Windows 95, Microsoft Press, 1994, Chaps 24
Krol, E. The Whole Internet, O'Reilly & Associates, 1992
Corner, D. The Internet Book, Prentice-Hall, 1995
Tsai T.C. A Network of Objects, Van Nostrand Reinhold, 1995

BT572 Information Systems 2

12.5 credit points • Duration: 3.5 hours per week over 1 semester • Prerequisites: BT563 Information Systems 1 and BT576 Database Management Systems 1 • Instruction: lecture/tutorial • Assessment: examination (70%) and assignments (30%)

Aims
Information systems which meet the business needs of organisations must be based on a thorough understanding of the information needs (what needs to be known?) and the business processes (what needs to be done?). Traditional methods of analysis, design and implementation (covered in earlier units) are perceived by many to be inadequate to handle the large and complex systems of the future. Instead, object oriented methods are seen to be more likely to succeed with these types of systems. However, object oriented methods require a completely different way of modelling and implementing the business requirements.

This unit examines one of these object oriented methods (as per Rumbaugh et al) in detail and demonstrates how to analyze and transform the business requirements into an object oriented model for system design. Other approaches by Jacobson et al, and Coleman et al will also be included.

By the end of this unit, students will be expected to be able to apply correctly these approaches to analysis to produce an object oriented model for a given case study.

Content
Introduction, object oriented paradigm, object modelling;
Dynamic modelling;
Functional modelling;
Rumbaugh's object oriented method with user cases;
The fusion method;
Case studies.

Textbook

References
Booch, G. Object Oriented Analysis and Design, 2nd ed., Benjamin Cummings, 1994

BT573 Information Technology Strategies

12.5 credit points • Duration: 3 hours per week over 1 semester • Prerequisites: any two stage 2 computing subjects • Instruction: lecture/tutorial • Assessment: research paper (100%)

Aims
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 course 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
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

Textbook

References
To be advised.

BT574 Business Software Engineering

12.5 credit points • Duration: 4 hours per week over 1 semester • Prerequisite: BT576 Database Management Systems 1 • Instruction: lectures/lab • Assessment: examination (60%) and assignments (40%)

Aims
On completing this subject, students will be able to describe the process and goals of information systems design, competently apply design techniques to a simple system, use at least one CASE software product, design describe techniques for CASE environments, and discuss some current issues in systems design.

Content
In this subject, students are introduced to design concepts, principles and methods relevant to the design of software for information systems. In particular, design methods suited to projects where Computer-Aided Software Engineering (CASE) will be used are studied and applied. The unit includes a major project component in which CASE software will be used.

Textbook

References
Barker, R. Case and Method Tasks and Deliverables, Wokingham, Addison-Wesley, 1990
Barker, R. Case and Method Entity Relationship Modelling, Wokingham, Addison-Wesley, 1990

BT575 Information Systems Project

12.5 credit points • Duration: 4 hours per week over 1 semester or equivalent • Prerequisites: BT570 System Architecture I, BT576 Database Management Systems 1, BT564 Business Programming 2A or BT563 Business Programming 2B, BT562 Business Computing • Instruction: Seminars, supervised reading, and individual consultation as required • Assessment: written report and presentation 100%

Aims
This subject provides 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. They will deepen and broaden their 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

References

BT576 Database Management Systems 1

12.5 credit points • Duration: 4 hours per week over 1 semester • Prerequisites: BT551 Business Programming 1, BT561 Data Analysis & Design, BT563 Information Systems 1 • Instruction: lecture/lab/tutorial • Assessment: examination (60%) and assignment (40%)

Aims
The major objective of this unit is 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. Students will be given 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.

Textbook

References
Date, C.J. An Introduction to Database Systems, Addison-Wesley, 6th ed. 1995
Krohn, M. Using the Oracle Toolset, Addison-Wesley, 1993

BT577 Business Computing Applications

12.5 credit points • Duration: 3.5 hours per week over 1 semester • Prerequisite: BT562 Business Computing • Instruction: lecture/tutorial/laboratory • Assessment methods: a major group assignment (40%) and one final exam (60%)

Aims
The unit covers the relationships and distinctions between the different types of application systems within the
business environment, with major emphasis on computer-based information systems. The unit explores in detail typical business systems and involves spreadsheet, DBMS and EIS and MIS software.

Content

- particular features and requirements of various business information systems applications: marketing, manufacturing, financial and human resources computer-based systems
- the design of good quality entry forms, screens and reports
- the essential elements of an Executive Information System, and other decision support systems
- design, implementation and manipulation of files using electronic spreadsheet, DBMS and EIS and MIS software
- mastery of an Executive Information System/MIS package

Textbook


References

Schultheis and Sumner, Management Information Systems, 2nd ed., Irwin, USA, 1992

BT578 Knowledge Based Systems

12.5 credit points  •  Duration: 3.5 hours per week  •  Prerequisite: BT576 Database Management Systems 1  •  Instruction: lecture/lab/tutorial  •  Assessment: examination (65%) and assignments (35%)

Aims

In this subject the students develop an understanding of the nature and uses of expert systems in business. The subject involves practical work using the expert system building tools.

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

Textbook


References

Zahedi, F. Intelligent Systems for Business. Expert Systems with Neural Networks, Belmont, California, 1993

BT579 Database Management Systems 2

12.5 credit points  •  Duration: 4 hours per week over 1 semester  •  Prerequisites: BT564 Business Programming 2A or BT565 Business Programming 2B, BT576 Database Management Systems 1  •  Instruction: lecture/lab/tutorial  •  Assessment: examination (60%) and assignment (40%)

Aims

The overall objective of the subject is to build upon the concept and skills gained in Database Management Systems 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.

References

Pratt, P.J. and Adamski, J. Database Systems and Design, South Western. 3rd ed. 1994
Date, C.J. An Introduction to Database Systems, Addison-Wesley, 6th ed. 1995
Bell, D and Grimson, J. Distributed Database Systems, Addison-Wesley, 1992

BT580 Database Management Systems 3

12.5 credit points  •  Duration: 4 hours per week over 1 semester  •  Prerequisites: BT564 Business Programming 2A or BT565 Business Programming 2B, BT576 Database Management Systems 1  •  Instruction: lecture/lab/tutorial  •  Assessment: examination (60%) and assignment (40%)

Aims

The overall objective of this subject is to build upon the concepts and skills gained in Database Management Systems 1, by exploring a number of current issues, advanced topics and future directions with a view to providing students with a broader and deeper understanding.
Content
A series of topics selected from:
- Alternative transaction models
- Object oriented, object-relational and extended relational systems
- Database standards bodies, current and future standards including SQL3
- DBMS benchmarking
- Alternative DBMS architecture.

References

BT601 Systems Project Management
12.5 credit points • 3 hours per week over 1 semester • Prerequisites: Nil • Instruction: lectures/seminars/workshops • Assessment: assignment (50%) research report (50%) • A subject in the Master of Information Systems

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
- project teams and their behavioural development
- project leadership
- project planning and control
- project administration
- progress and quality reviews
- systems development productivity techniques
- the implications of changing systems
- implementation of systems projects

References

BT602 Information Systems Management
12.5 credit points • 3 hours per week over 1 semester • Prerequisite: nil • Instruction: classes/seminars/workshops/case studies • Assessment: syndicate case studies (40%) individual research report (60%) •

Objectives
The subject addresses a number of topics and issues related to the theory and practice of Information Systems Management.

References
BT703  Introduction to Business Software

2 hours per week  ● Hawthorn  ● Prerequisites: nil  ● Assessment: to be advised

A subject in the Master of Business Administration

This subject is compulsory (conversion students expected)

Objectives

The aim of this subject is to:

- introduce students to information technology concepts with particular emphasis on decision support systems;
- enable students to appreciate, and gain practice in the application of a range of PC-based analysis methods as a means of providing information for management decision making;
- enable students to confidently use a number of key software packages which can be utilised in other areas of the course.

Content

Software and hardware components of decision support systems

- Decision support system concepts
- Recent software developments
- Hardware facilities available
- Specific application software available for decision support analysis
- Recent developments in decision support software
- Mainframe vs PC based decision analysis

Decision support software

Spreadsheets

- An appreciation of the nature and role of modelling in the decision making process, e.g., financial, forecasting, simulation.
- Choosing the right type of decision analysis tool for a specific application.
- Using Lotus 1-2-3 for decision analysis. Students will be expected to acquire the necessary skills needed to build their own models.

Graphics

- The presentation of information in a graphic format, including output from modelling packages.
- Using presentation graphics software for effective communication.

Data bases

- Using corporate data as source material for micro-based decision support tools.
- Data base packages as a decision support facility. Students will be expected to acquire the necessary skills needed to build and query their own data bases.
- Availability and accessing of public data bases.

Recommended reading

As this subject is primarily concerned with the use of application software and current developments in using microcomputers, textbooks form a minor component of reference material. Software documentation, user manuals and current journal articles will provide the major reference material for the subject. It is required that students have access to a PC for work undertaken outside formal session times.

BT706  Information Technology Effectiveness

12.5 credit points  ● 2 hours per week  ○  w 1 semester  ●  Prerequisites: BT701 Systems Project Management  ●  Instruction: lectures/seminars/workshops  ●  Assessment: Assignment (50%) and Research Report (50%)

A subject in the Master of Information Systems

Objectives

This subject focuses on the effective management of IT resources.

On completion of this subject students will have developed an understanding of the financial management of the IT department, the management of productivity and quality in software development and the application of metrics to the management of IT.

Content

Topics covered in these three areas include:

- Financial management
- Cash flow, chargeout, budgets and capital expenditure evaluation;
- Quality
- An overview of total quality management, factors affecting productivity and quality in S/W development, approaches to controlling quality, quality standards, measurement of quality;
- Metrics
  Measuring IT performance quality, operations and productivity measured at both strategic and tactical levels, evaluating IT investments including IT infrastructure.

Textbooks

No single text covers the subject material.

References


BT711  Information Systems Requirements

12.5 credit points  ● 2 hours per week  ○  w 1 semester  ●  Prerequisites: Nil  ●  Instruction: lecture/tutorial  ●  Assessment: group project 50% and individual assignment 50%

A subject in the Master of Information Systems

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

BT712 Systems Strategies
12.5 credit points • 2 hours per week over 1 semester • Prerequisites: nil • Instruction: lecture/tutorial • Assignment: assignment/project work (100%) A subject in the Master of Information Systems

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.

BT713 Automated Development Methods
12.5 credit points • 2 hours per week over 1 semester • Prerequisite: BT711 Information Systems Requirements or IT954 Information Systems Requirements • Instruction: lectures/seminars • Assessment: individual research/project (100%) A subject in the Master of Information Systems

Objectives
This subject addresses a number of topics and issues related to the theory and practice of CASE technologies and the design and development of information systems. Students will be given 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

Textbooks
No single text covers the subject material

References
Hares, J. Information Engineering for the Advanced Practitioner, Addison-Wesley, 1992
Spurr, K. and Layzell (Eds) CASE on Trial, Wiley, Chichester, 1990

BT714 Information Systems Dynamics
12.5 credit points • 2 hours per week over 1 semester • Prerequisite: BT711 Information Systems Requirements or IT954 Information Systems Requirements • Instruction: lectures • Assessment: assignment (100%) A subject in the Master of Information Systems

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
The subject is approached from the following perspectives: requirements engineering, conceptual modelling, object-oriented analysis and design. Material from current practice and current research is used. Implementation aspects of dynamic requirements such as relational database triggers and user interfaces are covered.

Recommended Reading
Martin, J. and Odell, J., Object-Oriented Methods: A Foundation, Prentice Hall, 1995
 Rumbaugh, J. et al., Object-Oriented Modeling and Design, Prentice Hall, 1992

BT715 Automated Systems Development Project
50 credit Points • 4 hours per week over 2 semesters or equivalent • Prerequisites • Completion of 4 approved Stage 2 subjects • Instruction: Supervised reading, laboratory and field work, and individual consultation as required • Assessment: Deliverable items (requirements and specification documents, system and user manuals, the working system itself, and an evaluation of its effectiveness in satisfying the requirements) 100% A subject in the Master of Information Systems

Objectives
To gain experience in the automated systems development process; to develop an information system.

Content
The project may be undertaken either individually or as part of a small group where appropriate. All stages of the development process will be covered, culminating in the production of a working system.

References
To be advised.

BT727 Technological Forecasting and Innovation
12.5 credit points • 2 hours per week over 1 semester • Prerequisites: completion of Stage 2A of Management Stream • Instruction: lectures and seminars • Assessment: Major case study submitted in form of management report (100%) A subject in the Master of Information Systems

Objectives
• identify the appropriate approach to adopt for a
forecasting problem (ie. 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 a 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
Topics include 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. Advantage will be taken of local and visiting speakers. The selection of technologies for examination is subject to developments at the time that the subject is offered. It is anticipated that technologies in such areas as communications and knowledge based introduction and measuring the success of new technology.

Recommended Reading

BT731 Project 1
25 credit Points • 4 hours per week over 1 semester or equivalent • Prerequisites - nil • Instruction: Supervised reading, field work and individual consultation as required • Assessment: written report and presentation 100% A subject in the Master of Information Systems

Objectives
To provide a flexible program of study which allows the student to undertake a special project. This would require research into a topic which is relevant to the course but alternative to the prescribed subjects in Stage 2 of the Master of Information Systems degree.

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.

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

BT732 Project 2
25 credit Points • 4 hours per week over 1 semester or equivalent • Prerequisites - nil • Instruction: Supervised reading, field work and individual consultation as required • Assessment: written report and presentation 100% A subject in the Master of Information Systems

Objectives
To provide a flexible program of study which allows the student to undertake a special project. This would require research into a topic which is relevant to the course but alternative to the prescribed subjects in Stage 2 of the Master of Information Systems degree.

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. The thesis will be examined by at least two examiners.

References
There is no prescribed text. Students will be directed to appropriate books and journal articles.
CE102 Engineering Design

10 credit points • 4.5 hours over (1 sem) • Hawthorn
- Instruction: lectures, tutorials, laboratory work
- Assessment: examination 70%, lab and assignment 30%

A first year subject in the Bachelor of Engineering

Objective
To introduce the basis of engineering design and the fundamentals of engineering statics and strength of materials.

Content
Introduction to engineering; historical perspective, engineering systems, engineering method, modelling of systems.
The design process; specification, modelling, analysis, synthesis, prototype, proof testing, performance, economy, environmental impact.
Function and form of structural systems. Loads on structures, load paths. Forces, moment of a force, concurrent and coplanar force systems, resultant and equilibrant forces. Reactions; free body diagrams. Concepts of equilibrium; general equations of equilibrium, equilibrium equations for a two dimensional system. Development of internal actions to maintain equilibrium; axial force, shear force, bending moment and torsion. Applications to static systems to find reactions and internal actions.
Beam Behaviour; statically determinate beams and bents. Shear force and bending moment diagrams. Stresses due to Bending. Deflection of beams (formulae only).
Column Behaviour; short column — long column concept; buckling as a phenomenon. Combined stresses, short column only.

Recommended reading

CE114 Applied Mechanics

7 credit points • 3 hours per week for (2 sem) • Hawthorn
- Instruction: lectures, tutorials, laboratory work
- Assessment: examination 80%, assessed work 20%

This is a first year subject in the Bachelor of Technology (Building Surveying)

Objectives
To develop in students an understanding of the basic principles of mechanics and their application to the behaviour of loaded members and simple systems.

Content
Basic concepts of structural mechanics are covered together with stress and strain, behaviour of simple structural members and basic deflection.

Recommended reading

CE173 Construction

13 credit points (sem. 1), 10 credit points (sem. 2) • 6 hours per week (sem. 1), 5 hours per week (sem. 2) • Prerequisite: nil
- Instruction: lectures, tutorials, field inspections, drafting classes
- Assessment: examination 80%, diary, reports, research project, folio of work 20%

This is a first year subject in the Bachelor of Technology (Building Surveying)

Objectives and Content
This subject aims to develop in students an understanding of the general principles of construction of single and double-storey residential buildings, and to teach the rudimentary aspects of free hand sketching and drafting.

Textbook

References
Australian Standard AS1100 Technical Drawings
Glossary of Building and Planning Terms
Notes on Science of Building V.G.P.S.

CE192A Statutory Control

7 credit points • 3 hours per week (sem. 1), 5 hours per week (sem. 2) • Hawthorn • Prerequisites: nil
- Instruction: lectures, tutorials, assignments
- Assessment: examination 80%, assignments 20%

This is a first year subject in the Bachelor of Technology (Building Surveying)

Objectives
To provide students with an understanding of the role and duties of a building surveyor and an introduction to acts and regulations.

Content
- This subject covers topics such as administration and law, local government; the role of the building surveyor; statutory functions related to Acts and regulations; the building surveyor as manager;
- liaison with other council departments, public authorities and private enterprise;
- basic principles of the regulations. General knowledge of related Acts, regulations, codes and standards;
- plan checking of domestic type applications for building permit.

Recommended reading
CE192B Introduction to Construction Law

4 credit points • 2 hours per week (sem. 1) • Hawthorn
• Instruction: lectures, tutorials • Assessment: examination 80%, assessed work 20%

This is a first year subject in the Bachelor of Technology (Building Surveying)

Objectives
To enable students to understand the origins of law and to provide building surveyors with a suitable legal background for the proper discharge of their duties.

Content

Recommended reading
The Law Handbook. Fitzroy Legal Service

CE196 Communications
5 credit points • 2 hours per week (2 sems) • Hawthorn
• Instruction: lectures, tutorials • Assessment: assessed work 100%

This is a first year subject in the Bachelor of Technology (Building Surveying)

Objectives
This subject introduces students to the techniques and strategies for developing and refining skills in written and oral communication, understanding social and urban issues relevant to the work of building surveyors, and the interpersonal relationship skills range aimed to assist students to extend their focus on self-learning and self-development.

Recommended reading
Wadsworth, D. (ed) Building Surveyor. Other Recommended reading to be advised during lectures.

CE204 Computer Application
5 credit points • 2 hours per week (sem. 1) • Hawthorn
• Instruction: lectures, tutorials, laboratory work • Assessment: assessed work 100%

This is a second year subject in the Bachelor of Technology (Building Surveying)

Objectives
To enable students to understand the operation and use of computers in industry. The subject covers introduction to microcomputers, operating systems. Overview of windows applications related to word processing, spreadsheets and CAD.

Recommended reading

CE206 Data Management
10 credit points • 5 hours per week • Hawthorn
• Prerequisites: SK180 Computing and EF101 Professional Skills • Assessment: assignments and examination

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

Objectives
To develop skills in all modes of communication, and an understanding of the operation and use of computing systems and their engineering applications.

To introduce the legal and financial data framework essential to engineering practice.

Content
Information gathering: comprehension and critical assessment of information; methods of problem analysis and solution; verbal; written and graphic communication.

Introduction to microcomputers: basic architecture; local area and wide area networks; terminology; hardware: CPU evolution; storage mediums; graphics cards; peripheral devices including plotters and printers; operating systems; role and function; review of MS-DOS; Microsoft Windows; graphical user interfaces; introduction to Internet; information databases.

Programming: review of programming languages; procedures; syntax and structures (non language specific); object oriented programming; introduction to expert systems; AI and neural networks.

Mathematical, data handling and word processing packages: overview; common features; user interfaces; solution of engineering problems using mathematical packages and spreadsheets; automating procedures using macros; computer aided drafting: basic drafting skills for structural and civil engineering.

Microeconomic principles: theory of production, price and cost; supply and demand analysis; the market system and competition; international trade; engineers and economic development.

Basic principles of accounting: financial statements; management accounting; product, process and project costing; budgets and budgetary controls; introduction to estimating and costing of engineering projects.

Sources and application of the law: the legal system; contract law and types of contract; remedies for breach of contract; liability for defective products and services; industrial and environmental regulations.

Recommended reading
CE216 Structural Mechanics

10 credit points • 4 hours per week • Prerequisites: CE102 Engineering Design • Assessment: assignments and examinations

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

Objectives
To develop an understanding of structural and material behaviour in statically determinate systems and to introduce the use of computer packages in the analysis of structural systems.

Content

Section properties: centroids, second moment of area, principal axes, stress and strain distributions in beam sections; elastic and plastic behaviour, elastic and plastic section modulus. Composite sections.

Short columns; combined stresses, Mohr’s stress circle. Euler buckling and long column behaviour.

Statically determinate structures: analysis for reactions, shear force, bending moment and axial force diagrams for beams and frames; analysis of trusses. Deflection of beams; standard formulae, use of principle of virtual forces for deflections in beams.

Materials technology: characteristics, components and types of steel, timber, masonry and concrete as a building material. Performance characteristics relative to structural behaviour. Design and testing of concrete mixes.

Computer applications: modelling and analysis of a range of structures relevant to the course using available software.

Recommended reading
Schodeck, Daniel L., Structures. Regents/Prentice Hall, 1992

CE217 Structural Engineering

10 credit points • 4.5 hours per week • Prerequisites: CE216 Structural Mechanics

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

Objectives
To develop an understanding of the analysis and behaviour of statically indeterminate beams and to introduce students to the structural design process, including aspects of the Loading code and the Concrete Structures Code.

Content
- Statically indeterminate structures: development of the slope deflection equations and introduction to matrix analysis of beams. Moment distribution method for continuous beams;
- design philosophies: limit state and permissible stress design; loading codes, design codes, design drawings, planning and building permits;
- concrete design: plain concrete, limit state design requirements, durability and fire resistance; detailing of reinforcement; design and detailing of beams and one way slabs (flexure and shear), short columns, single and strip footings and retaining walls;
- computer applications: modelling, analysis and design of a range of structures relevant to the course using available software.

Recommended reading
Aaard, J., Reinforced and Prestressed Concrete - A Compendium of Examples. 1995

CE237 Hydraulics

15 credit points • 2.5 hours per week (sem. 1) and 4.5 hours per week (sem. 2) • Hawthorn • Prerequisites: CE102 Engineering Design • Assessment: examination (63%), assignments, test and laboratory work (35%)

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

Objectives
- To teach students to apply fundamental laws of physics to the flow of water, in order to understand and analyse the steady flow of water through pipelines, channels, and a range of hydraulic structures;
- to improve students' abilities to communicate technical information, by means of concise calculation and brief reports;
- to develop students' abilities to learn from text books and technical notes.

Content
- Hydrostatics: fluid properties; pressure and thrust; buoyancy and stability of floating vessels.
- Fluid flow: continuity, conservation of energy (Bernoulli’s equation), impulse-momentum.
- Discharge control structures: orifices, orifice plate and venturi meter, weirs, sluice gates.
- Pipe flow: the Moody diagram; D’Arcy-Weisbach, Colebrook-White and empirical pipe formulas.
- Pipeline systems: series and parallel pipelines; equivalent pipelines; branched systems; pumped systems; pipeline networks.
- Channel flow; uniform flow; Manning formula; part-full pipes; specific energy; the hydraulic jump; gradually-varied flow.
- Pump selection: classification and principles of operation; pump and system characteristics.

**Recommended reading**

**CE243 Land Surveying**
8 credit points ● 4 hours per week (sem. 1) ● Hawthorn
- Instruction: lectures, tutorials, fieldwork ● Assessment: examination 80%, assessed work 20%
This is a second year subject in the Bachelor of Technology (Building Surveying)

**Objectives**
To enable students to understand basic land surveying techniques and legal aspects of surveys as related to building surveying practice.

**Content**
Principles and types of surveys and plans. Distance measurement, levelling, angle measurement, setting out. Cadastral surveying and laws related to surveying, check/relocation surveys, old law, transfer of Land Act 1958 and title office procedures.

**Recommended reading**

**CE246 Survey and Road Engineering**
20 credit points ● 5 hours per week ● Hawthorn
- Prerequisites: SP124/125 and SM111/112 and SK180 or equivalent subjects ● Assessment: practical work, assignments and examination
This is a subject of the Bachelor of Engineering (Civil)

**Objectives**
To develop in students a basic knowledge of Land Surveying theory and practice related to civil engineering.

To give students an understanding of the principles and practice of road design.

**Content**
Surveying theory: distance measurement including principles and use of electronic distance measurers; 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; setting out of engineering works; introduction to Cadastral surveying and Geographical Information Systems.

Computation: trigonometry; traverse reductions; areas, volumes.
Survey practice: principles and types of surveys; detail surveys including road surveying; use of engineering surveying instruments and software to produce computerised plans.

Geometric design of roads: terminology and design of road cross sections; basic principles of road design and computer-aided road design; theory, coordination and computations related to horizontal and vertical elements in road design; cut and fill balance; applications in design project.

**Recommended reading**
Swinburne School of Civil Engineering & Building. *CE246 Survey and Road Engineering*; (tutorials and practical notes). Swinburne University Press, 1995

**CE256 Structural Design**
9 credit points ● 4 hours per week (sem. 1) ● Hawthorn
- Prerequisites: CE114 Applied Mechanics, SM193
- Mathematics ● Instruction: lectures, tutorials
- Assessment: examination 70%, assessed work 30%
This is a second year subject in the Bachelor of Technology (Building Surveying)

**Objectives**
To familiarise students with the processes of design and checking of structural documentation, with particular emphasis on the main provisions and underlying principles of codes of practice for steel structures, timber structures and for glazing in buildings.

**Recommended reading**
AS1170.1 Loading Code
AS1288 Glazing in Buildings
AS1684 Timber Framing Code
AS1720 Timber Engineering Code
AS4100 Steel Structures Code

**CE276 Construction**
11 credit points (sem. 1) and 7 credit points (sem. 2)
- 5 hours per week (sem. 1), 3 hours per week (sem. 2)
- Hawthorn ● Prerequisite: CE173 Construction
- Instruction: lectures, tutorials, drafting classes, field work ● Assessment: examination 70%, diary, reports, research projects, folio of work 30%
This is a second year subject in the Bachelor of Technology (Building Surveying)

**Objectives**
To give students an understanding of the general principles and details of buildings with load-bearing walls up to three storeys and single storey, wide span structures with framed or load-bearing walls, and to expose the students to architectural and engineering drafting related to buildings.

**Recommended reading**
Concrete Code
Trade Catalogues
CE277  Temporary Structures
7 credit points (sems 1 & 2) • 3 hours per week for (sems 1 & 2)
• Hawthorn • Prerequisite: CE173 Construction • Instruction: lectures, tutorials, practical work, field work • Assessment: examination 70%, exercises 30%
Scaffolding - internal scaffolding examination and satisfactory completion of practical work and assignments. Formwork/Falsework - internal tests, assignments and site visit diary.
This is a second year subject in the Bachelor of Technology (Building Surveying)

Objectives
To give students an understanding of the general principles, structural details of scaffolding, falsework and formwork.

Content
Scaffolding - Part A
This covers the safe erection and use of the following scaffolding types:
• prefabricated systems;
• tube and fitting;
• miscellaneous including mobile and tower.
Practical erection and safe work practices in compliance with OH & S requirements.

Formwork - Part B
This section covers the temporary structures used in the construction of buildings.

Recommended reading
Occupational Health & Safety (PLANT) Regulations 1995
Australian Standard (Scaffolding) as 1576.3 Supplement 1-1991 Commentary on AS1576 Scaffolding Part 1: General Requirements
Formwork • Code of Practice
Formwork - A Practical Approach (McAdam)
Occupational Health and Safety Act 1985

CE283  Geomechanics
7 credit points • 3 hours per week (sem. 2) • Hawthorn
• Instruction: lectures, tutorials, laboratory work
• Assessment: examination 70%, reports 30%
This is a second year subject in the Bachelor of Technology (Building Surveying)

Objectives
To provide a building surveyor with the necessary knowledge of geomechanics to perform duties of inspection and approval of foundations and other earth works properly.

Content
Types of soil and rock, stresses in soils, strength of soils, field and laboratory tests, soil water, foundations introduction to bearing capacity, settlement and footing design. Approval of foundation. Inspections.

Recommended reading
Craig, R.F., Soil Mechanics. 5th edn, Chapman & Hall, 1995
Das, B.M., Principles of Geotechnical Engineering. 3rd edn, Boston, PWS, 1994
Standards Association of Australia. AS 1726 Site Investigation Code. Standards Association of Australia, 1993

CE286  Geomechanics 1
15 credit points • 2.5 hours per week (sem. 1) and 4.5 hours (sem. 2) • Hawthorn • Prerequisites: CE102 Engineering Design • Assessment: assignments and examination
This is a subject of the Bachelor of Engineering (Civil)

Objectives
To enable students to recognise the terrain shape, geology, and soils of a region, and the influence of these factors on civil engineering projects; construct simple geological cross sections; classify and classify rock and soil specimens; select shallow foundations for light loads taking into account shear strength, settlement, and expansive soil behaviour; carry out a basic site investigation for a domestic structure; estimate lateral earth pressures on retaining structures.

Content
Structure of the earth: tectonic plates and their movement; formation of rocks; rock types and their identification; elements of structural geology; measurement of dip angle and direction, strike; geological mapping; Victorian physiography.
Formation of soil types and their identification: physical properties of soil; soil classification systems.
Geostatic stresses and the effective stress law: shear strength of coarse and fine grained soils; shear strength determination in the laboratory and the field; bearing capacity of shallow footings subjected to concentric, eccentric and inclined loads; lightly loaded foundations on expansive soil; conducting a simple site investigation; immediate and consolidation settlement; earth pressure theory for rigid retaining walls; stability and sizing of retaining walls; sheet pile walls.

Recommended reading
Das, B.M., Principles of Geotechnical Engineering. 3rd edn, Boston, PWS, 1994
Standards Association of Australia. AS 1726 Site Investigation Code. Standards Association of Australia, 1993
Recommended reading

Building Code of Australia 1990, 2nd edn, Canberra, Australian
Uniform Building Regulations Co-ordinating Council, 1990

Publishing Office
Victoria Building Regulations
Relevant Australian standards

CE294B Town Planning

3 credit points • 2 hours per week (sem. 2) • Hawthorn

- Prerequisite: CE192 Statutory Control • Instruction: lectures, tutorials • Assessment: examination 70%, assessed work, assignments 30%

This is a second year subject in the Bachelor of Technology (Building Surveying)

Objectives

This subject introduces students to problems in planned development in urban and rural environments.

Content

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 GIS Systems for planning purposes.

Recommended reading


CE297 Management

5 credit points per semester • 2 hours per week (sens 1 & 2) • Hawthorn

- Prerequisite: CE196 Communications • Instruction: lectures, tutorials and field work • Assessment: examination 70%, assessed work 30%

This is a second year subject in the Bachelor of Technology (Building Surveying)

Content

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

CE306 Engineering Management

10 Credit Points • 4.5 hours per week • Hawthorn

Instruction: lectures, seminars • Assessment: examination 70%, assignments and presentations 30%

A third year subject in the Bachelor of Civil Engineering

Objectives

To introduce the processes of engineering management and the impact of industrial organisation, working conditions, legal and cost controls on engineering practice.

Content

Introduction to classical management theory: processes of management, management roles and functions, division of work, job analysis and design.

Organisational structures, informal groups.

Basic psychology: attitudes, motivation, leadership and morale; conflict resolution.

Organisational culture: influence and power in organisations; organisational change.

Supervision in engineering projects and enterprises.

Decision-making: policies, procedures and rules; delegation: authority, responsibility and accountability. Public, product and professional liability.

Australian industrial relations: employer and employee associations: causes, nature and settlement of industrial disputes; negotiation, conciliation and arbitration; awards and industrial agreement; productivity and enterprise bargaining. Employment by contract.

Compensation, salaries and wages; recruitment and training; physical working conditions; occupational health and safety; workers' compensation.

Elements of contract law and contract management.

Project and production monitoring: preparation of progress reports; elements of cost control; setting standards, performance measurement; corrective action.

Recommended reading

Samsom (Ed.), Management for Engineers. Longman-Cheshire, Melbourne, 1989

CE316 Structural Design 1

10 Credit Points • 4.5 hours per week • Hawthorn

Instruction: lectures, tutorials, laboratory work • Assessment: examination 100%

A third year subject in the Bachelor of Civil Engineering

Objectives

To introduce students to the behaviour and analysis of skeletal frames through approximate analysis, the plastic theory of structures and computer p

To introduce students to the design of steel and timber structures using Australian codes of practice.

Content

Approximate analysis of skeletal structures, checking computer analysis of structures.

Plastic theory of structural analysis; application to continuous beams and frames.

Introduction to the behaviour of steel structures. Steel design: principles, stability, design of tension members, compression members, beams, beam-columns, and simple connections.
Timber design: simple beam and column design. Computer applications: modelling, analysis and design of a range of structures relevant to the course using available software.

**Recommended reading**


Schodeck, Daniel L. *Structures*. Regents/Prentice Hall, 1992


**CE356 Civil Design**

10 Credit Points • 4.5 hours per week • Hawthorn

Instruction: lectures, tutorials, seminars • Assessment: examination 50%, assignment 30%

A third year subject in the Bachelor of Civil Engineering

**Objectives**

To provide an appreciation of the systematic approach to design, construction and maintenance of civil engineering systems, the comparative merits of common materials, and through case studies to develop basic skill in design practice.

**Content**

Engineering system reliability, failure modes, overdesign, fallsafe design, risk.

Introduction to the design process: problem formulation, system loads, environmental circumstances, customer service standards; problem analysis, design specification; developing alternative solutions, creativity; evaluating design options, decision criteria and processes; documenting chosen design, drawings, specifications, operating manuals, maintenance schedules.


Shallow foundation systems: interpretation of foundation investigations, choice of foundation depth, type and size, design of foundation system, effect on adjacent structures.

Drainage and flood mitigation systems: optional components, effects on surrounding areas, community use of floodways, water quality issues, system overload, system maintenance.

Local area traffic management: objectives of traffic management, alternative means of control, consultation and decision processes.

**Recommended reading**


**CE366 Road and Traffic Engineering**

10 Credit Points • 4.5 hours per week • Hawthorn

Instruction: lectures, tutorials, project sessions • Assessment: examination 70%, assignment 30%

A third year subject in the Bachelor of Civil Engineering

**Objectives**

To develop further the principles and skills relevant to the geometric design of roads, introduced in CE246.

To develop understanding of road construction practices.

To introduce students to traffic engineering, particularly traffic studies.

**Content**

Traffic engineering: traffic studies including traffic study planning, and field methods and analysis for speed and volume studies; introduction to traffic management including classification systems, management techniques for arterial and rural roads, and construction traffic management.

Drainage and road design: flow through pavements, pavement drainage; soil hydraulics including permeability, flow nets and anisotropic flow, with applications to slopes and retaining walls.

Geometric design of roads: transitions and superelevation, sections and drainage in cut and fill, computer aided design.

Road construction: construction sequence, types and use of plant, plant output, earthworks, erosion control, theory of compaction, in situ density measurement, pavement types, function of a pavement, stabilisation, construction and materials for flexible and rigid pavements.

**Recommended reading**


Das, B.M. *Principles of Geotechnical Engineering*. 3rd edn, PWS, Boston, 1994


**CE397 Industry Based Learning**

A third year subject in the Bachelor of Civil Engineering

**Objectives**

To complete 24 weeks of full-time paid employment in a civil engineering related industry.

To gain industry based learning experiences which integrate...
aspects of engineering practice and local industrial practice covering some aspects of products or services.

To work as an engineering trainee under the direction of a professional engineer and be an effective part of a multi-disciplinary team within the industry.

To develop and document professional engineering practice for all industry assignments and to communicate professionally in written and verbal forms.

To establish and refine personal development skills in training in order to develop engineering competence towards the professional level.

To implement and gain further understanding of engineering management skills and practices operating within engineering organisational structures.

To observe and appreciate significant trends in employment work groups and industrial relations.

Content
Work requirements are established by the employer in consultation with Swinburne University.

Recommended reading
As suggested by either the industry supervisor or the Swinburne academic supervisor to support the student's work and personal development.

CE404 Computer Applications
5 credit points • 2 hours per week • Hawthorn
Prerequisite: CE204 Computer Applications • Instruction: lectures, laboratory work • Assessment: assessed work 100%
This is a fourth year subject in the Bachelor of Technology (Building Surveying)

Objectives
This subject is designed to enable students to be aware of and use common programs for administrative and technical areas of building surveying.

Content
The subject covers external data bases, administrativesoftware, technicalsoftware and decision support software.

It is expected that the activities undertaken in this subject will be coordinated with other subjects in the course where computer applications are the usual tool to assist in problem solving.

Recommended reading
Zwart, P.R. Microcomputers in Local Government, 1986. ACADS Code of Practice. CPI

CE406 Water and Transport Engineering (Elective)
8 credit points • 4 hours per week • Hawthorn • Assessment: assignments and laboratory reports
This is a fourth year subject in the Bachelor of Engineering (Civil)

Objectives
To extend students' knowledge and skills in the areas of transport engineering and water engineering.

Content
Transport Engineering (28 hours)
Road traffic flow theories, human performance, vehicle characteristics. Arterial road traffic management.
Signals saturation flow, calculation of signal timing, layout of hardware, signal linking, traffic detection, filter turns, layout of hardware.
Road materials properties of and tests for road building materials, rheology of bitumens, skid resistance.
Railway engineering conventional railway track, track design and geometry, track construction. Light rail design.
Water Engineering (28 hours)
Reservoir yield.
Potable water treatment methods, theory of sedimentation and filtration.
Wastewater treatment and disposal methods and their applications, loading rates.

CE415 Structural Engineering
11 credit points • 5 hours per week • Hawthorn • Assessment: examination 50%, assessment by consultation 30%, laboratory and assignments 20%
This is a fourth year subject in the Bachelor of Engineering (Civil)

Objectives
To further develop students' understanding of structural mechanics. To extend students' knowledge of the principles of structural design in prestressed concrete and steel design. To introduce principles of masonry design. To provide practice in the application of these principles.

Content
Theory
Stress analysis stress-strain relations and the general equations of elasticity, plane strain and plane strain problems, yield criteria (Tresca, Von Mises), torsion of open cross sections.
Modelling of structures using finite element packages.
Influence lines.
Prestressed concrete analysis and design, including statically indeterminate structures and losses of prestress.
Design of steel portal frames modelling, analysis and design of elements and connections.
Masonry design plain and reinforced walls subject to vertical and lateral loads.
Fire engineering fire loads and containment, performance of structural materials, elements and systems under fire conditions, methods of providing fire resistance.

Practice
Exercises in prestressed concrete, steel portal frame and masonry design.
Use will be made of computer software where appropriate.
CE416 Structural Engineering (Elective).

8 credit points • 4 hours per week • Hawthorn • Assessment: assignments 100%

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

Objectives
To introduce advanced topics in structural engineering analysis and design with a particular emphasis on computer application.

Content
- Structural dynamics: free and forced vibrations of single and multi-degree of freedom systems.
- Introduction to the finite element method: general formulation of an element stiffness matrix; the constant strain triangle and higher order elements.
- Plastic analysis and design of multi-storey frames.
- Prestressed concrete: advanced topics, end anchorages, partial prestressing.
- Structural design with composite, cold formed steel and aluminium sections.

CE428 Mechanics of Solids
10 credit points • 4.5 hours per week • Hawthorn • Assessment: assignments 30%, examination 70% • Prerequisite: CE216

Structural Mechanics 1, CE217 Structural Engineering 1
A fourth year subject in the Bachelor of Civil Engineering

Objectives
To further develop an understanding of material behaviour and stress analysis as fundamental aspects of the engineering design and analysis process particularly with regard to structural engineering.

Content
Stress analysis: stress-strain relationships and the general equations of elasticity and compatibility; plane stress and plane strain problems; yield criteria, (Tresca, Von Mises); torsion: torque distribution diagrams, torsion in circular and thin walled sections; torsion of open cross sections; biaxial bending, shear centre, skew bending.
Energy theorems in structural analysis.

Recommended Reading

CE431 Water Engineering
5 credit points • 2 hours per week • Hawthorn • Assessment: examination 70%, assignments 20%, laboratory work 10%

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

Objectives
To enable students to apply principles of hydraulics to the design of water engineering systems.

Content
Theory
Water supplies: quantity and pressure requirements, supply mains, balancing storage, reticulation, fire services.
Sewerage reticulation estimation of flow rates, hydraulic principles, design of sewers.
Stormwater drainage: urban drainage systems, design using the Rational method and hydraulic grade line, stormwater detention, pumped storage systems.
Water quality parameters: criteria, types and source of pollution.

Laboratory work
Water quality experiments to demonstrate:
- the meaning of key water-quality parameters
- simple procedures suited to field measurement and monitoring.
Hydraulic experiments to demonstrate the performance of stormwater structures.

CE438 Environment and Services
10 credit points • 4.5 hours per week • Hawthorn • Assessment: assignments 40%, examination 60% • Prerequisite: CE236Hydraulics

Objectives
To introduce students to environmental concepts, and natural systems.
To develop an understanding of environmental effects of pollution, particularly from construction sites, and appropriate site management.
To develop engineering principles and design applications relevant to property services.

Content
Introduction to the environment: sustainability and diversity, ecological systems, natural cycles (e.g. hydrologic cycle), natural systems (watercourses, atmosphere, groundwater).
Environmental effects of construction: sources, effects of erosion and sediments, noise and vibration, and particulates; standards and regulation; monitoring (with particular emphasis on water quality).
Property services: drainage, water supply, fire fighting, sewerage.
Site management: site control and treatment of pollutants.
**Recommended reading**

**CE454 Structural Design**
8 credit points • 4 hours per week • Hawthorn
Prerequisite: CE256 Structural Design • Instruction: lectures, tutorials
Assessment: examination 60%, assessed work 40%

This is a fourth year subject in the Bachelor of Technology (Building Surveying)

**Objectives**
To familiarise students with the relevant codes of practice for concrete structures and for masonry structures.

**Content**

Concrete structures code. Masonry code.

**Recommended reading**
AS3600 Concrete Structures Code
AS3700 Masonry Code

**CE458 Design and Construction 1**
10 credit points • 4.5 hours per week • Hawthorn
Instruction: lectures • Assessment: individual presentations 50%, team reports 50% • Prerequisite: The student must be currently enrolled full time in Semester 8 or have substantially completed Semester 8.

A fourth year subject in the Bachelor of Civil Engineering

**Objectives**
To practise the students in the design of the elements of structures and civil works and to enable the students to appreciate the constructability of their designs and to enable students to recommend the best suited construction methods. Students will also be introduced to the quality management aspects of the design and construction process.

**Content**
A range of designs will be chosen which will require creative solutions. Assignments will be in the form of written reports, design computation models and drawings as appropriate.

Students will be given additional lectures in theory and practice aimed at coordinating the activities involved and in the use of quality management of the design construction process.

Students will also be introduced to research method and design to prepare them for the Investigation Project in the following semester.

**Recommended reading**


Standards Association of Australia:
AS 1170.1 • 1989 *Dead and live loads and load combinations*
AS 3600 • 1988 *Concrete Structures*
AS 4100 • 1990 *Steel Structures Code*
DR 94400 • *Residential Slabs and Footings*. Draft Australian Standard.

**CE461 Transport Engineering**
7 credit points • 3 hours per week • Hawthorn • Assessment: examination 80%, assignment 20%

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

**Objectives**
To enable students to become proficient in the areas of traffic engineering, flexible pavement design, and road geometry.

**Content**
Theory
Traffic engineering planning, analysis and presentation of results for traffic surveys. Design of at-grade intersections. One traffic survey and its analysis.

Flexible and rigid pavements principles, and structural design. Design of sprayed seals and reseal This unit includes computer analysis of pavement performances.

Road geometry speed parameters, sight distance, horizontal transition curves, auxiliary lanes, overtaking provision.

**CE468 Transport Engineering**
10 credit points • 4.5 hours per week • Hawthorn • Instruction: lectures, tutorials, project sessions • Assessment: assignments 40%, examination 60% • Prerequisites: CE246 and CE366

A fourth year subject in the Bachelor of Civil Engineering

**Objectives**
To develop analysis and design skills applicable to unsignalised and signalised intersections.

To introduce design of non-road modes of transport.

To introduce studies in safety.

**Content**
Intersections: 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, survey and layout design project.

Pavements: traffic types and calculation, principles of pavement design. analysis and design of flexible and rigid pavements, introduction to CIRCLY, assessment of pavement alternatives.

Studies in safety: introduction to safety audit and accident studies.

Rail and air transport: introduction to planning and design related to rail and airports.
Recommended reading

Underwood, R.T. Road Engineering Practice. 1st edn, Macmillan Education, Melbourne, 1995

CE470 Services
5 credit points • 2 hours per week • Hawthorn • Prerequisite: MM269 Services • Instruction: lectures, field excursions • Assessment: examination 60%, assessed work 40%

This is a fourth year subject in the Bachelor of Technology (Building Surveying)

Content

This subject deals with specialist services encountered in commercial and office buildings.

The following services are covered: air-conditioning, fire sprinklers, electrical services, specialist services, vertical systems lifts and escalators. And in the area of site drainage, elements of hydrology, applications to roof, surface and subsurface drainage, hydraulics of pressure conduits, total energy line, hydraulic grade line, graphical representation, pipe formulas, minor losses, pump selection.

Recommended reading

Bergen, R.H. Elements of Hydrology, Swinburne University Press, 1985
Patterson, J. Simplifies Design for Building Fire Safety, Wiley, New York 1993

CE476 Construction Engineering (Elective),
8 credit points • 4 hours per week • Hawthorn • Assessment: assignments 50%, verbal presentations 50%

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

Objectives

To introduce students to engineering practice in a range of construction activities.

Content

- Excavation excavation plant, drilling equipment, blasting rock, setting out of open excavations, support of open excavations.
- Road construction operations in road construction, quality control, plant output and selection, quarry operation, stabilisation of subgrades, roller compacted pavement, block pavement, geotextiles, layout of road works, administration of road works.
- Concrete production, delivery and inspection, crushed aggregate and sand plant, concreting plant, delivery systems, site inspection and quality control, formwork, curing, cold and hot weather concreting, shotcrete, precast concrete.
- Foundation construction dewatering, ground anchors, underpinning and shoring, footing and slab construction.
- Bridge construction methods for reinforced and prestressed concrete bridges, segmental bridge construction, girder launched construction.

CE477A Construction
7 credit points • 3 hours per week • Hawthorn
Prerequisite: CE276 Construction • Instruction: lectures, site inspections • Assessment: examination 60%, reports 40%

This is a fourth year subject in the Bachelor of Technology (Building Surveying)

Objectives

To give students an appreciation of the general principles and structural details for multi-storey structures.

Content

The subject covers structural systems, foundation types. Construction systems steel construction, concrete construction, including formwork and concrete placement. Excavations methods, equipment, trenching, rock excavation. Cladding and roofs cladding and roof materials and systems, curtain walls, glass and glazing sealants, thermal and acoustical performance, cleaning and maintenance trafficable and non-trafficable roofs, parapets, stormwater discharge. Partitions, walls and ceilings materials and details, acoustics, fire resistance and inspections of appropriate sites.

Recommended reading

Economical Steelwork AISC Various Australian Standards

CE477B Construction
7 credit points • 3 hours per week • Hawthorn
Prerequisite: CE276 Construction, CE477A Construction • Instruction: lectures, site inspections • Assessment: examination 60%, reports 40%

This is a fourth year subject in the Bachelor of Technology (Building Surveying)

Objectives

This subject is designed to give students an appreciation of the general principles, structural details of special structures.

Content

The topics are principles of structural action, materials, structural details, and methods of construction for precast and prefabricated structures, shells, folded-plate structures, cable and membrane structures, air-inflated structures, high-rise post-tensioned structures, and other special structures and inspections of appropriate sites.

Recommended reading

To be advised.
CE477C  Foundation Systems
7 credit points • 3 hours per week • Hawthorn •
Prerequisites: CE276 Construction, CE283 Geomechanics •
Instruction: lectures, laboratory work, field excursions •
Assessment: examination 60%, reports 40%
This is a fourth year subject in the Bachelor of Technology (Building Surveying)

Objectives
To extend students’ knowledge in the area of geomechanics.

Content

Recommended reading
AS2870-1 Residential Footing Code Standards - Australia
Das, B.M., Principles of Geotechnical Engineering, 3rd edn, Boston, PWS, 1994
Site Investigations Code

CE478  Fire Technology
5 credit points (sems 1 & 2) • 2 hours per week (sems 1 & 2) •
Hawthorn • Prerequisites: CE256 Structural Design, CE114 Applied Mechanics, CE256 Structural Design, MM269 Services •
Instruction: lectures, tutorials, field excursions • Assessment: examination 60%, assessed work 40%
This is a fourth year subject in the Bachelor of Technology (Building Surveying)

Objectives
This subject deals with the behaviour of fire in buildings, familiarises students with fire services and develops students’ understanding of the behaviour of elements and structures under fire.

Content
The subject covers causes of fire, products of fire, fire and smoke development, material behaviour under fire, fire loads and compartmentation. Fire and smoke detection and control. Human behaviour, evacuation procedures. Introduction to fire rated materials. Performance of structural members and assemblies under fire conditions. Australian Fire Codes. Fire tests and their application. Design of steel, concrete and timber members to resist fire. Protection of penetrations.

Recommended reading
AS1530, Methods for Fire Tests on Building Materials & Structure
AS1668, Mechanical Ventilation and Air Conditioning
Butcher, E.G. Designing for Fire Safer Chichester, Wiley, 1983

CE481  Geomechanics
7 credit points • 3 hours per week • Hawthorn • Assessment: examination 70%, laboratory 15%, assignment 15%
This is a fourth year subject in the Bachelor of Engineering (Civil)

Objectives
To enable students to design simple foundations considering both soil shear strength and settlement characteristics, to estimate the stability of soil slopes, and to apply the basic principles of site investigation.

Content
Performance of shallow foundations including immediate and consolidation settlement, bearing capacity for inclined and eccentric loads, lightly loaded (residential) foundations. Deep foundations including load capacity and settlement of single piles and pile groups. Slope stability slopes in cohesionless soils, cohesive soils, total and effective stress analysis, method of slices, computer analysis, use of stability charts, changes of slope stability with time, methods of stabilising slopes.

Site investigation including planning, sampling methods, insitu tests.

Recommended reading
AS1726-1981 SAA Site Investigation Code
AS2159-1995 Piling Code
AS2870-1986 Residential Slabs and Footings
Das, B.M., Principles of Geotechnical Engineering. 3rd edn, Boston, PWS, 1994

CE488  Geomechanics and Structures
10 credit points • 5 hours per week • Hawthorn •
Instruction: lectures, tutorials • Assessment: assignment 30%, examination 70% • Prerequisites: CE217 Structural Engineering 1
A fourth year subject in the Bachelor of Civil Engineering

Objectives
To further develop an understanding of structural behaviour and analysis techniques for skeletal structures.

Content
To extend the knowledge of reinforced concrete design.

To enable students to choose the most suitable type, and to size, individual and group pile foundations; to enable the student to analyse slope stability and to understand seepage through soil.

Principles of structural mechanics theories: classification of structures; the stiffness and flexibility methods of analysis in principle.

Slatistically indeterminate structures: flexibility method of analysis applied to beams, trusses and frames; moment distribution method applied to frames; matrix analysis of structures by the stiffness method; introduction to the finite element method of structural analysis.

Reinforced concrete design: design and detailing of two-way slabs supported along four edges, two way slab systems with
and without drop panels; long columns under uniaxial and biaxial bending; design of slabs (upper and lower bound method), cast in place walls and combined footings; an introduction to prestressed concrete design.

Geomechanics: selection of deep foundation type; sizing of the foundation; design of foundation system for individual piles and pile groups; earth dams: slope stability, sealing and cutoff procedures; seepage and protection from erosion and overtopping.

**Recommended reading**


**CE490 Construction Management**

5 credit points sem. 1 and 17 credit points sem. 2

- 2 hours per week (sem. 1), 8 hours per week (sem. 2)
- Hawthorn
- Prerequisite: CE297 Management
- Instruction: lectures, tutorials
- Assessment: examination 60%, assessed work 40%

This is a fourth year subject in the Bachelor of Technology (Building Surveying)

**Objectives**

To organisation and management theory, to provide an understanding of the processes applied to industrial relations in Australia. It deals with types of contracts and administration of contracts and provides basic concepts of measuring and estimating materials and costs.

**Content**

The subject covers four main areas of study.

- Management
- Organisation and management theory. Management problems in organisations and ways of dealing with them. Recruitment job specification and advertisement. (56 hours.)
- Industrial relations
- 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. (28 hours.)
- Contracts and specifications
- 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. (28 hours.)

**CE494 Industry Based Learning**

50 credit points • Assessment: report

A fourth year subject in the Bachelor of Civil Engineering

**Objectives**

To complete 24 weeks of full-time paid employment in a civil engineering related industry.

To gain industry based learning experiences which integrate aspects of engineering practice and local industrial practice covering some aspects of products or services.

To work as an engineering trainee under the direction of a professional engineer and be an effective part of a multi-disciplinary team within the industry.

To develop and document professional engineering practice for all industry assignments and to communicate professionally in written and verbal forms.

To establish and refine personal development skills in training in order to develop engineering competence towards the professional level.

To implement and gain further understanding of engineering management skills and practices operating within engineering organisational structures.

To observe and appreciate significant trends in employment work groups and industrial relations.

**Content**

Work requirements are established by the employer in consultation with Swinburne University.

**Recommended reading**

As suggested by either the industry supervisor or the Swinburne academic supervisor to support the student’s work and personal development.

**CE495 Engineering Management**

7 credit points • 3 hours per week • Hawthorn • Assessment: examination 40%, assignments 40%, class participation 20%

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

**Objectives**

To develop an understanding of some aspects of the theory and practice of business management and construction techniques.

**Content**

Business strategy

Setting of objectives, measurement of performance, introduction to the marketing function, sales, market research, segmentation, etc. Innovation and entrepreneurial aspects.
Business theories and practice
Modern theories of management and current practices. For example total quality management, value adding management, just-in-time.

Supervision and leadership, practical industrial relations, negotiating, arbitration and conciliation, occupational health and safety, selection and training, project teams and task forces.

Motivation, job enrichment, employee participation.

Time management, effective speaking, writing, reading, creative thinking, lateral thinking, technical communication skills.

Problem analysis, problem solving, decision making.

Construction techniques
Construction techniques industrial and commercial buildings, medium and high rise buildings in steel, reinforced and prestressed concrete, tilt-up construction formwork in timber and steel, climbing formwork table and slip forms.

Concrete technology materials, plant, mix design, high strength concrete, admixtures, delivery systems, formwork, placing, curing, testing.

CE496A Statutory Control
7 credit points (sem 1) and 4 credit points (sem 2) • 3 hours per week (sem. 1) and 2 hours per week (sem. 2) • Hawthorn • Prerequisite: CE294 Statutory Control • Instruction: lectures, tutorials • Assessment: examination 60%, reports 40%

This is a fourth year subject in the Bachelor of Technology (Building Surveying)

Objectives
To further develop students' understanding of the principles underlying the relevant regulations, acts, codes and standards and their application to major projects.

Content
Administration and law in-depth study of building surveyor's duties and his legislative responsibilities.

Functions the consultative role of the building surveyor in council and private practice.

Acts and regulations analysis of regulations and detailed study of total regulations and principles and a general ability to relate to all relevant codes and standards. Anomalies in the act and regulations and procedures to overcome these. Redrafting of regulations.

Plan checking and assignments assignments will cover aspects such as council reports and meetings, joint reports, fast track process, major building approvals, dealing with multi-storey buildings.

Recommended reading
Building Control Act Melbourne, Victorian Government Publishing Office
Victoria Building Regulations
Relevant Australian Standards

CE496B Statutory Planning
4 credit points • 2 hours per week • Hawthorn • Prerequisite: CE294 Statutory Control • Instruction: lectures, tutorials, field work • Assessment: project work 100%

Objectives
This subject deals with the regulatory and statutory aspects of urban planning.

Content
Topics covered are planning at the local and regional level. Planning law and legislation. Government town planning in Victoria. Planning appeals preparation for an appeal and participation in the appeals system. Urban landscape concepts relating to permit applications.

Recommended reading
Appropriate Planning Acts and Regulations

CE496C Professional Project
4 credit points (sem 1) and 10 credit points (sem 2) • 2 hours per week (sem. 1) and 4 hours (sem. 2) • Hawthorn • Prerequisites: CE294 Statutory Control, CE496A Statutory Control/Plan Checking 3, CE496B Statutory Planning • Instruction: project work • Assessment: verbal presentation 30%, final report 70%

Objectives
To develop students' initiative and self-education skills through work in an investigations project in an area relevant to the course.

Recommended reading
As per other Statutory Control subjects

CE498 Geostructures and Rock Slopes
10 credit points • 4.5 hours per week • Hawthorn • Instruction: lectures, tutorials, laboratory, field inspections • Assessment: examination 50%, assignment 30%, talk 20% • Prerequisites: CE488 Geomechanics and Structures

Objectives
To enable the student to select and design appropriate geostructures for retaining walls, and horizontal structures, and to determine the stability of rock slopes.

Content
Stress-strain relationship of reinforced soil; factors affecting the performance and behaviour of reinforced soil; reinforcement type; reinforcement distribution; backfill material; design of vertical walls; design of sloping surfaces; effects of seismic loads and repeated loading; gabions; earth anchors; soil nailing; construction methods; durability.

Rock classification systems for continuous and discontinuous rock masses; plotting of discontinuities; assessment of the behaviour of discontinuities; stability estimation for plane and wedge failure; systems for stabilisation of rock masses.

Recommended reading
Das, B.M. Principles of Geotechnical Engineering. 3rd edn, PWS, Boston, 1994
CE505 Investigation Project

12.5 credit points • 4 hours per week • Hawthorn • Assessment: poster paper and verbal presentation 10%, final report 90%

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

Objectives
To develop students’ initiative and self-education skills through work on an investigation project in an area relevant to the course.

Content
Students will work individually or in small groups on selected projects under staff supervision and will be required to meet regularly with their supervisor. In general, projects will be staff initiated and may arise from staff research or from proposals put forward by industry or by cooperative employers. Students may also suggest projects which will require departmental approval before proceeding.

Each project will require a literature survey and a theoretical and/or experimental investigation. Results and conclusions will be presented as a progress report in the form of a poster paper and an oral presentation, and a final written report at the conclusion of the project.

CE507 Municipal and Transport Engineering (Major Elective)

9 credit points • 5 hours per week • Hawthorn • Assessment: examination, assignments/laboratory work

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

Objectives
To extend students’ knowledge and skills in the areas of transport engineering, water engineering and municipal engineering, including environmental considerations.

Content
Transport engineering (28 hours)
Freight transport shipping, harbours, dredging, cargo containers, inland waterways, belt conveyors, air freight, solids pipelines, ore handling, freight terminals, capacity, selection of mode, physical distribution.

Passenger transport fixed guideway, APT proposals, metro, airports, airport capacity, air traffic control, ferries, selection of mode.

Road engineering application of queueing theory, freeway geometry, traffic law, road hierarchy, road construction, signing, bikeways, traffic generation, parking, pedestrianised streets, computer packages for transport analysis.

Environmental considerations traffic noise, vehicle emissions.

Transport economics, transport administration, transportation planning.

Municipal engineering (42 hours)
Powers and duties of local government engineers responsibilities for new developments, roads and traffic, transport management, local area traffic management, street design, road maintenance, parking requirements and control, property and equipment, solid waste management, recreation, including consideration of financial planning and constraints.

Planning aspects of planning and building control relevant to local government. Environmental effects statements.

Surveying introduction to photogrammetry and remote sensing.

CE509 Investigation Project

10 credit points • 4.5 hours per week • Hawthorn • Assessment: tutorials/consultations • Assessment: research brief 10%, poster paper and talk 15%, report 75%

A fifth year subject in the Bachelor of Civil Engineering

Objectives
To develop students’ initiative and self-educative skills through work on an investigation project in a topic area relevant to the course.

Content
Students will work in small groups on selected projects under staff supervision. Projects will be generated either by staff from their own research interests or from proposals put forward by industry sponsors. Students can propose their own projects but need the approval of a staff member who is prepared to act as a supervisor.

Each project will require a literature review, the formation and testing of an hypothesis and the development of a research plan, presented as a research brief early in the semester and a theoretical and/or experimental investigation. Results and conclusions will be presented as a progress report in the form of a poster paper accompanied by an oral presentation, and as a final written report at the conclusion of the project.

Recommended reading

CE510 Structural Design 2

10 credit points • 4.5 hours per week • Hawthorn • Instruction: lectures, tutorials, project session • Assessment: design projects and assignments 30%, examinations 70% • Prerequisites: CE217 Structural Engineering 1, CE316 Structural Design 1

A fifth year subject in the Bachelor of Civil Engineering

Objectives
To further develop understanding of the design process particularly through applications to the behaviour and design of steel structures, timber structures and masonry elements.

Content
Determination of loads on structures subject to wind forces.

Design of steel structures: fabrication erection; corrosion; resistance to lateral loads; bracing systems; action under non-gravity loads; design of steel portal frames: modelling;
Design in timber and masonry: design of timber structures; nailed and bolted connections; glulam and LVL members; joint displacements; plate connectors and multi-nail connections; masonry design; plain and reinforced walls and columns subject to vertical and lateral loads.

**Recommended reading**


**CE516  Structural Engineering (Major Elective)**

9 credit points  5 hours per week  Hawthorn  Assessment: assignments/laboratory

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

**Objectives**

To broaden the students' understanding of the theory of structural behaviour and to consider some advanced topics in structural engineering.

**Content**

Energy methods in structural analysis work and energy, principle of virtual work, theorem of minimum potential energy, reciprocal theorems. Applications to buckling problems.

The behaviour of plates and shells; yield line theory and strip methods.

Advanced topics of structural engineering; structural dynamics, earthquake loading and analysis, fire engineering, floor systems, reinforcing systems, prestressing systems, foundation design, special structural forms.

**Recommended reading**


**CE518  Structural Engineering 2**

10 credit points  4.5 hours per week  Hawthorn  Instruction: lectures, tutorials  Assessment: assignments 40%, examination 60%  Prerequisite: CE488 Geomechanics and Structures

A fifth year subject in the Bachelor of Civil Engineering

**Objectives**

To broaden the understanding of the theory of structural mechanics and to consider some advanced topics in structural engineering. In particular to introduce aspects of structural dynamics, fire engineering and earthquake engineering and to enable the student to select and design foundations for heavily loaded structures.

**Content**

Introduction to structural dynamics: free and forced vibration of one degree-of-freedom systems; response spectra; analysis of multi degree-of-freedom systems; foundations for vibrating machinery.

Fire engineering: fire loads and containment; performance of structural materials; elements and systems under fire conditions; methods of providing fire resistance.

**Recommended reading**

Das, B.M. *Principles of Geotechnical Engineering*. 3rd edn, PWS, Boston, 1994
interaction; interaction of lightly loaded structures and expansive soil subgrades; foundations on expansive soils: deep soft soils, rock, deep foundations on rock, rock socketed piles, raft foundations; excavation adjacent to structures: settlement, protective works.

**Recommended reading**


Das, B.M. *Principles of Geotechnical Engineering*. 3rd edn, PWS, Boston, 1994


**CE520 Urban Planning and Environment**

10 credit points • 4.5 hours per week • Hawthorn •

**Instruction:** lectures, seminars and site visits • Assessment: assignments 100%

A fifth year subject in the Bachelor of Civil Engineering

**Objectives**

To provide a basic understanding of the systemic allocation and management of urban land in the context of sustainable development.

**Content**

Information: physical and social surveys; satellite technology; geographical information systems; land cover, tenure and use; census data.

Land use planning: historical origins; urban and regional structure; strategic planning; planning schemes; permits and conditions; developer-community agreements; local amenity; resolution of disputes; appeals.

Transport planning: travel demand; transport planning models; integration of land and transport systems; AMCORD concepts; noise and atmospheric pollution; public transport; freight transport.

Environmental and social assessment: environmentally sensitive design; ecological systems; environmental assessment; environmental legislation and policies.

**Recommended reading**


*Victoria Environment Protection Act*, 1970

Minister for Planning and Housing. *Guidelines for Environmental Impact Assessment and the Environment Effects Act*. Latest edn, Department of Planning and Housing, Melbourne, 1988

**CE533 Water Engineering (Minor Elective)**

6 credit points • 3 hours per week • Hawthorn • Assessment: examination 60%, assignments 40%

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

**Objectives**

To extend students' knowledge and skill; into unsteady, non-uniform flow phenomena. On completion, students should be able to apply these principles to the solution of practical problems.

**Content**

Flood estimation methods, flood routing through reservoirs and retarding storages, streamflow routing, graphical methods, application of computers in analysis and design.

Urban drainage major and minor systems, hydrologic and hydraulic performance of drainage systems for varying treatments, effects of urban redevelopment, on-site stormwater detention.

Underground water supplies steady state hydraulics, safe yield, artificial recharge, coastal groundwater hydrodynamics, non-steady state hydraulics. Theis' solution, degradation of arable lands by saline groundwater intrusion.

**CE539 Water Engineering**

10 credit points • 4.5 hours per week • Hawthorn •

**Instruction:** lectures, tutorials/laboratory sessions, project sessions • Assessment: assignments 40%, examination 60% •

**Prerequisites:** CE458 Hydraulics

A fifth year subject in the Bachelor of Civil Engineering

**Objectives**

To develop in students the ability to apply the principles of hydraulics, hydrology and water quality to the design of stormwater systems and the management of urban catchments.

To improve students' ability to communicate technical information, and review technical issues.

To develop students' appreciation of social objectives and environmental issues in urban catchment management.

**Content**

Water treatment: wastewater, potable water, stormwater, water conservation.

Groundwater hydraulics: steady-state well hydraulics; modelling salt intrusion and landfill seepage.

Flood estimation: unit hydrograph method; statistical rational method; flood routing through storages and streams.

Urban drainage systems: major/minor systems; hydraulic design.

Flood attenuation: flood retarding basins, on-site detention, grass swales.

Open channels: structures; erosion and sedimentation; bank treatment.

Water quality in urban catchments: pollution sources; multiple uses and quality standards; source controls; gross pollution traps; nutrient ponds.

**Recommended reading**

Institution of Engineers, Australia. *Australian Rainfall & Runoff*. 1987

**CE550 Design and Construction 2**

20 credit points • 4.5 hours per week for two semesters • Hawthorn • Instruction: lectures, case studies • Assessment: individual presentations 50%, syndicate presentations 50% •

**Prerequisites:** CE458 Design and Construction 1, and the student must be currently enrolled full time in Semester 9 or have substantially completed Semester 9.
A fifth year subject in the Bachelor of Civil Engineering

Objectives
To enable students to develop concepts for structures and civil engineering works and to design substantial elements of those structures: and to prepare schemes for the construction of such systems, with due consideration given to the environment, and to give students an appreciation of the construction industry in Australia and in Asia.

Content
A range of designs will be chosen which require creative solutions. Assignments will be in the form of written reports, design computations and drawings as appropriate. Students will be given additional lectures in theory and practice aimed at coordinating the activities involved in the construction industry in Australia and Asia.

Recommended reading

Standards Association of Australia:
- AS 1170.1 • 1989 Loading Code Part 1: Dead and live loads and load combinations
- AS 3600 • 1988 Concrete Structures
- AS 4100 • 1990 Steel Structures Code

CE553 Structural Design (Minor Elective)
6 credit points • 3 hours per week • Hawthorn
Assessment: examination 60%, assignments 40%
This is a fifth year subject in the Bachelor of Engineering (Civil)

Objectives
To extend students' knowledge and skills into structural design of special engineering structures.

Content
A selection of more advanced structural design projects chosen to emphasise the interpretation of current design codes and current design practices.

CE555 Civil Design
14.5 credit points • 5 hours per week • Hawthorn
Assessment: assignments 100%
This is a fifth year subject in the Bachelor of Engineering (Civil)

Objectives
To develop students' abilities to synthesise knowledge in a practical design situation.

Content
Projects will involve medium scale developments. Initially project feasibility is considered including its environmental and social impact. It is followed by design computations and drawings in fields of hydraulics, transport, structures and construction practice.

CE560 Environmental Engineering and Planning
7.5 credit points • 6 hours per week • Hawthorn
A fourth year subject in the Bachelor of Applied Science (Environmental Health)

Content
The hydrologic cycle. Rainfall measurement. Run-off processes.
Introduction to drainage system design. Open channel flow, estimation of total and peak flows.
Soil classification systems including laboratory and field identification and classification. Soil permeability and ground water flow.
Introduction to land use planning with particular emphasis on the role of the environmental health officer.
Structure and process of planning in Victoria including neighbourhood and regional planning.
Planning scheme surveys including environmental impact assessments.

CE562 Local Engineering Systems
10 credit points • 4.5 hours per week • Hawthorn
Instruction: lectures, seminars and site visits
Assessment: assignments 100%
A fifth year subject in the Bachelor of Civil Engineering

Objectives
To introduce techniques for the development and maintenance of civil engineering systems needed to support regional and local scale urban communities.

Content
Engineering information: system auditing; capacity and condition surveys of hydraulic and transport networks; standards of service; system reliability.
Asset management and maintenance: assessment of demand; budgeting; sources of funds; setting priorities in works programs; characteristics of building, pavement, drainage and sewerage maintenance systems; system redevelopment.
Traffic management: local area traffic management; area network management; traffic demand management; signal linking, traffic legislation and regulation; pedestrian and cycle networks.
Local area engineering: residential subdivisions; commercial centres; major carparks; integration of parks and waterways; recreation facilities; open space networks; landscaping and streetscaping.
Solid waste management: waste generation rates; systems of collection including equipment; transfer and separation of...
wastes; bioremediation; methods and economics of recycling; landfill siting and design; landfill construction; leachate and gas control; rehabilitation, after-use and monitoring.

**Recommended reading**
Selected video tapes
Selected municipal publications
Selected publications from Australian Road Research Board

**CE576 Construction Engineering (Major Elective)**

9 credit points • 5 hours per week • Hawthorn • Assessment:
class test 40%, assignments 30%, verbal presentation 30%

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

**Objectives**
To develop students’ knowledge of construction technology and the construction industry.

**Content**
- The construction industry organisation, economy and opportunities, entrepreneurial construction activities;
- plant output and performance of bulldozers, tractor scrapers, excavators, truck cycles;
- road and pavement construction. Quality assurance and total quality management in construction operations;
- deteriorating assets; assessment, management and remedial problems;
- construction opportunities in the developing region of S.E. Asia and China;
- major projects in Australia;
- bridge construction steel, reinforced and prestressed concrete bridges, segmental and girders launched construction;
- piles types, selection of precast, insitu, or steel piling, installation methods, load tests.
- tunnelling soft ground and rock tunnelling, tunnelling machines, tunnel linings, removal of excavated material, inlet and outlet structures;
- pipelines loads on precast and insitu pipelines due to different methods of excavation and backfilling, excavation and shoring, joints, laying techniques for precast pipelines;
- dams and embankments earth, rockfill and mass concrete gravity dams and embankments, arch dams, outlet works and spillways.

**Recommended reading**
Harris, F., Modern Construction Equipment and Methods. Longman Scientific, 1989
Reiss, F., Project Management Demystified. Spon 1992

**CE580 Soil Dynamics**

10 credit points • 4.5 hours per week • Hawthorn • Instruction: lectures, tutorials, laboratory sessions • Assessment: examination 50%, assignment 30%, talk 20% • Prerequisites: CE488 Geomechanics and Structures

**Objectives**
To enable the student to appreciate the effect of seismic forces on soil and the soil-structure system and to be able to predict the effect of vibrations on adjacent structures. The student will also have the ability to design foundations for vibrating machinery.

**Content**
Seismicity of the earth; seismic active zones; seismicity of Australia; seismicity of Victoria; seismicity of Melbourne; lessons from the Newcastle earthquake; predicting the effect of earthquakes in local regions; systems of measurement of earthquake effects, (Mercalli, Richter, etc); types of vibrations; effect of vibrations; types of waves; limits of effects on structures; resonant frequency of soils, structures and humans; vibrating machinery; damping of vibrations; foundations for vibrating machinery.

**Recommended reading**
Das, B.M., Principles of Geotechnical Engineering. 3rd edn, PWS, Boston, 1994
Okamoto, S., Introduction to Earthquake Engineering. University of Tokyo Press, 1973

**CE582 Geomechanics (Minor Elective)**

6 credit points • 3 hours per week • Hawthorn • Assessment: assignments/labouratory work 100%

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

**Objectives**
To extend students’ knowledge of geology and soil mechanics and introduce them to rock mechanics and give them an appreciation of the high level of experience and ‘art’ required to practice in the area of geomechanics.

**Content**
- Engineering geology of the Melbourne region;
- behaviour of lightly loaded structures on expansive soil;
- preventative and remedial measures to protect structures on expansive soils;
- moisture stabilisation for expansive soil sites;
- vibrations due to machinery and seismic shock;
- land full operations.

**Recommended reading**
CE589 Lightly Loaded Structures on Expansive Soils

10 credit points • 4.5 hours per week • Hawthorn
Instruction: lectures, laboratory sessions, field inspections
Assessment: examination 50%, assignment 30%, talk 20%
Prerequisites: CE488 Geomechanics and Structures

Objectives
To enable the student to understand the behaviour of expansive soils and their effect on lightly loaded structures supported by them. The student will also be introduced to passive and active intervention and rehabilitation systems.

Content
Mineralogy of expansive clay soils; distribution of expansive soils in Melbourne and Victoria; effect of expansive soils on structures such as low rise buildings, roads and pipelines; surface movement related to season, climate and drought; moisture change in unsaturated soils; soil suction and soil movement; gilgai formation; variability of clay soils at the macro level; effect of depth of clay; effect of the depth of the water table; effect of the presence of trees on soil movement; moisture barriers; lime flyash barriers; moisture recharge and active moisture stabilisation methods; foundations for structures in expansive soils.

Recommended reading
Das, B.M. Principles of Geotechnical Engineering. 3rd edn, PWS, Boston, 1994
Leeper, G.W., Uren, N.C. Soil Science. 5th edn, Melbourne University Press, 1993
HMSO. Soil Mechanics for Road Engineers. HMSO, 8th impression, 1968

CE590 Civil Engineering Management 2

10 credit points • 4.5 hours per week • Hawthorn
Instruction: lectures, seminars and project work
Assessment: assignments and presentations 70%, class tests 30%
Prerequisites: CE599 Civil Engineering Management 1

A fifth year subject in the Bachelor of Civil Engineering

Objectives
To demonstrate the practice of engineering management throughout the life cycle of civil engineering systems in both public and private enterprise.

Content
The role and impact of engineers in society; nature of Australian engineering organisations; professional societies and professional ethics; professional development. Research and development: processes of innovation and creative attitudes; forecasting technological change; identifying opportunities. Corporate plans: mission objectives and strategies; congruence of organisation and environment; strategic planning; business operations, profit and competition; management information systems. Finance of engineering operations: long term planning; sources of funds; equity and debt, venture capital; taxation; budgeting for capital and recurrent expenditure. Project management: project planning and organisation team building; materials management; overheads; contract planning and control; contract documentation; assessment of tenders; progress payments; arbitration. Operations and maintenance of engineering systems: depreciation as a budget element; timing of maintenance intervention; economic life of systems.

Recommended reading
National Committee on Construction Engineering. Guidelines for Successful Engineering Construction. The Institution of Engineers, Australia, Canberra, 1994

CE596 Engineering Management

8 credit points • 5 hours per week • Hawthorn
Assessment: class tests 35%, assignments 65%

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

Objectives
To make students aware of the role of the engineer in society and of effects of man on the environment.
To extend basic management concepts introduced earlier in the course into specific areas of management practice, and to give students a background into some common and important construction practices.

Content
The role of the engineer in society, professional institutions, professional ethics. Environmental engineering Global ecology, conservation versus development, sustainable use of renewable resources, control of use of non-renewable resources, values of natural systems, wilderness and landscape, environmental impact assessment, environmental rehabilitation. Project management Project management initiation of projects, feasibility studies. Contract documentation conditions of contract, bonds, specifications, schedule of quantities, contract drawings. Tendering procedures estimating, cash flow forecasting. Construction control critical path methods, cost control, construction documentation, claims, partial and final certificates. Industrial relations trade unions, negotiations, arbitration and conciliation. Contract disputes the role of the arbitrator, legal procedures, procedures for obtaining planning and building approval, permits, certification. Formwork design and certification of formwork.
Finance
Budgets management reporting systems, financial control of projects.
Cost-benefit analysis discounted cash-flow, present worth criteria, buying or hiring plant, life-cycle costing, project evaluation, profitability, evaluation of tenders, replacement of plant.

Legal aspects
The Australian legal system, commercial law regarding employers, employer liabilities. Contracts for the provision of engineering services by practices and employees, agreements involving resort to arbitration, property law concepts relevant to the practice of engineering, patents, copyright, trademarks and industrial design, the consequences in civil law for the careless provision of engineering services or advice (the tort of negligence). Companies, partnerships, trusts and joint ventures as vehicles or entities for the practice of engineering. Planning law acts and legislation relevant to major projects.

CE599 Civil Engineering Management 1
10 credit points • 4.5 hours per week • Hawthorn
Instruction: Lectures, seminars and project work • Assessment: assignments and presentations 50%, class tests 50%
Prerequisites: CE306 Engineering Management
A fifth year subject in the Bachelor of Civil Engineering

Objectives
To develop understanding and skill in techniques of project and product evaluation having regard to cost, timeliness and quality of engineering processes, and customer satisfaction.

Content
Economic evaluation of engineering projects: time value of money; discounted cash flow; life cycle evaluation; benefit-cost analysis; risk and sensitivity analysis.
Environmental impact and assessment of projects.
Integration of economic, environmental and social aspects in engineering decision-making; influence of politics and commerce.
Project scheduling using charts and network diagrams including PERT and CPM; scheduling of operations and maintenance of civil engineering systems; preventative maintenance, rehabilitation and replacement; engineering resources planning.
Quality concepts: total quality management; quality assurance as an outcome of quality control; costs of quality management; statistical quality control for engineering purposes; p value
Commercial law and the sale of goods and services; trade practices legislation; patents and copyright.
Marketing engineering goods and services; market research and marketing strategies; market segmentation; product pricing, distribution and promotion; customer service.
Consulting practice: terms of engagement and the client-consultant relationship.

Recommended reading
Department of Finance. Handbook of Cost-Benefit Analysis. AGPS, Canberra, 1991

CE670 Construction Technology
12.5 credit points • 4 hours per week • Hawthorn
Instruction: lectures/tutorial/discussion • Assessment: by assignment work
This is a subject in the Graduate Diploma of Engineering (Construction Management) and Master of Engineering (Construction Management)

Objectives
To develop a knowledge of a technological resources available for the execution of a construction project.

Content
Planning of construction programs, resource allocation, plant and equipment, soil investigation and data interpretation, construction materials and techniques.

Recommended reading

Practical work
Site visit; training films on plant handling, syndicate discussion or plant choice etc.

CE677 Quantity Surveying
A
12.5 credit points • 4 hours per week • Hawthorn

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 quantities 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 Engineering quantities, computer assisted bills of quantities.
CE690 Civil Engineering Project Control

12.5 credit points • 4 hours per week • Hawthorn •
Instruction: lecture/tutorial/discussion • Assessment: by assignment work

This is a subject in the Graduate Diploma of Engineering (Construction Management) and Master of Engineering (Construction Management)

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
Carmichael, D.G., Construction Engineering Networks Techniques, Planning and Management. Chichester, E. Horwood, 1989
Ishikawa, K., Guide to Quality Control. 2nd rev. edn, Tokyo, Asian Productivity Organization, 1986
Perry, W.E., Controlling the Bottom Line. New York, Van Nostrad Reinhold, 1984

CE692 Communications

12.5 credit points • 4 hours per week • Hawthorn •
Instruction: lecture/tutorial/discussion • Assessment: written reports and class presentations

This is a subject in the Graduate Diploma of Engineering (Construction Management) and Master of Engineering (Construction Management)

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
Robinson, D.M., Writing Reports for Management Decisions. Columbus, Ohio, CE Merrill, 1969

Practical work
Participation in class discussions is required
CE693  Introduction to Contract Law
7.5 credit points • 2 hours per week • Hawthorn

Instruction: lectures/tutorials • Assessment: by assignment work

This is a subject in the Master of Engineering (Construction Management)

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 structures, system of judicial precedence, types of law criminal, civil, consumer, worker protection, law of partnership, law of bankruptcy.

Recommended reading

CE695  Property Management
12.5 credit points • 4 hours per week • Hawthorn

Objective
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 • 4 hours per week • Hawthorn

Objective
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 • 4 hours per week • Hawthorn

Objective
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 man.

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 (sem 1) and 12.5 credit points (sem 2) • 4 hours per week for (sem 1 & 2) • Hawthorn

This is a subject in the Graduate Diploma of Engineering (Construction Management)

Content
Construction techniques for highways, bridges, railways, airports, tunnels, pipelines, foundations, buildings, dams, water supply structures, sewerage.


CE771  Construction Project Control
12.5 credit points • 4 hours per week • Hawthorn

This is a subject in the Graduate Diploma of Engineering (Construction Management)

Content
Case studies of construction projects by report and discussion.

Recommended reading
Harris, F. And McCaffre, R., Modern Construction Management. Granda Publishing, 1979

CE772  Construction Technology
12.5 credit points • 4 hours per week • Hawthorn

Instruction: lectures/tutorials • Assessment: assignment work

This is a subject in the Master of Engineering (Construction Management)

Objectives
To develop an understanding of construction and 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. Practical work

Computer modelling of systems.

Site visit.
Recommended reading


**CE773 Research Project**

50 credit points • 16 hours per week • Hawthorn

Instruction: practical work and data gathering requiring regular meetings with supervisors • Assessment: by written reports, thesis and presentations

This is a subject in the Master of Engineering (Construction Management)

**Objectives**

To develop students’ knowledge, initiative and self-education 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 • 4 hours per week • Hawthorn

**Objective**

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, coordination of the preparation of a major tender, statistical estimating methods, use of standard computer packages.

**CE790 Financial Project Control**

12.5 credit points • 4 hours per week • Hawthorn

This is a subject in the Graduate Diploma of Engineering (Construction Management)

**Content**

This subject introduces financial concepts that are important in valuating or financing projects; in financial viability of projects.

Cost control; financial control; determination of profitability; evaluation of projects; evaluation of sources of finance.

**CE791 Human Resource Management**

5 credit points • 2 hours per week • Hawthorn • Instruction: lectures/tutorials/seminars • Assessment: assignment work and seminar papers

This is a subject in the Master of Engineering (Construction Management)

**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.

**Practical work**

Visit arbitration court.

Recommended reading


American Soc. of Safety Engineers. *New Directions in Safety*. Park Ridge, Ill., American Society of Safety Engineers, 1985


CE792  Health and Safety in Construction

5 credit points • 2 hours per week • Hawthorn • Instruction: lectures/tutorials/seminars • Assessment: assignment work and seminar papers
This is a subject in the Master of Engineering (Construction Management)

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.

Practical work
Assignment work and seminar papers. Inspection of site work.

Recommended reading
Hoyos, C.G., Occupational Safety and Accident Prevention. Amsterdam, Elsevier, 1988

CE793  Construction Law

10 credit points • 3 hours per week • Hawthorn • Instruction: lectures/tutorials/seminars • Assessment: assignment work and seminar papers
This is a subject in the Master of Engineering (Construction Management)

Objectives
To give the student an appreciation of the legal and contractual responsibilities within construction operations.

Content

Recommended reading
Carter, J.W., Outline of Contract Law in Australia. Sydney, Butterworths, 1990
Khoury, D., Understanding Contract Law. 3rd edn, Sydney, Butterworths, 1992
Caffrey, B.A., Guidebook to Contract Law in Australia. 4th edn, North Ryde, N.S.W., CCH Australia, 1991
IEAust, Minimising and Resolving Engineering Disputes

CE794  Financial Management

10 credit points • 3 hours per week • Hawthorn • Instruction: lecture/tutorial/seminar • Assessment: assignment work and seminar papers
This is a subject in the Master of Engineering (Construction Management)

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.

Practical work
Computer modelling

Recommended reading
Friedman, W., Construction Marketing and Strategic Planning. New York, McGraw-Hill, 1984
Gobourne, J., Site Cost Control in the Construction Industry. Butterworths, 1982

CE795  Infrastructure Asset Management

12.5 credit points • 4 hours per week • Hawthorn

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.

EA411  Non-Newtonian Technology

4 hours per week (2 sems) • Assessment: laboratory work and examination

Objectives
To provide the student with a thorough understanding of Non-Newtonian flow and heat transfer.

Content
A review of Newtonian fluid flow, heat transfer and mixing (up to and including solutions to relevant equations of motion), precedes the work on non-Newtonian flow, viscometry, heat transfer and mixing. The final aspect of the
subject is the application of this work to some practical situations such as heat sterilisation.

**Recommended reading**


**EA491 Biochemical Engineering**

*4 hours per week (including practical work) (2 sems) *

**Objectives**

To give students a grounding in the theory and practice of biological processes used in engineering.

**Content**

Requirements for growth in biological material; variations in micro-organisms; fermentation pathways. Enzyme reaction kinetics and absolute reaction rate theory; continuous fermentation, aeration and agitation. Mass transfer theories. Bubble and mechanical aeration; scale up; operational and control. Biological water treatment — BOD, COD. Mathematical modelling for the design of activated sludge plants, trickling filter and sludge digesters. Nitrification, eutrophication and river modelling.

**Recommended reading**


**EE182 Electronics and Instrumentation**

*10 credit points • 4.5 hours per week (1 sem.) • Hawthorn • Prerequisites: None, but must satisfy course entry requirements • Corequisites: nil • Assessment: assignments/ laboratory/examination* A first year subject in all disciplines of the Bachelor of Engineering and the Bachelor of Applied Science (Multimedia Technology)

**Objectives**

- To develop insights into the theoretical concepts and skills of electrical and electronic engineering using real engineering themes and a problem solving framework;
- To gain a broad understanding of the principles of electrical circuit analysis and to achieve some proficiency in the solution of problem;
- To understand the use of modelling techniques in energy and information systems;
- To investigate application of analog and digital electronics to measurements and information transfer;
- To gain a broad understanding of Energy Conversion applications to electrical machines.

**Content**

Systems of units, d.c. circuits and analysis, measurements, instrumentation. Digital electronic concepts including number systems, logic gates, Boolean algebra and Karnaugh maps.

Alternating quantity measurement and circuit analysis. RM, values and phasor notation.

Transducers used to measure physical quantities such as displacement, strain, temperature and pressure.

Power systems and energy conversion, magnetic fields, transformers. Operation of d.c. and a.c. motors and generators. Solar energy.

Communications; Radio and TV principles, telephony, Facsimile, Integrated services. Digital Network, Cellular mobile telephone network, satellite services.

**Recommended reading**


**EE300 Industrial Experience**

*50 credit points • Hawthorn • Prerequisites: nil • Assessment: report* A third year industrial based learning subject of the degree of Bachelor of Engineering (Electrical).

A six month period of work experience occurring as part of the third year of the course leading to the degree of Bachelor of Engineering (Electrical).

Students are supervised by a member of the academic staff and are required to submit a report to their employer and supervisor.

**EE400 Industrial Experience**

*50 credit points • Hawthorn • Prerequisites: EE300 • Assessment: report* A fourth year industrial based learning subject of the degree of Bachelor of Engineering (Electrical).

A six month period of work experience occurring as part of the fourth year of the course leading to the degree of Bachelor of Engineering (Electrical).

Students are supervised by a member of the academic staff and are required to submit a report to their employer and supervisor.

**EE402 Management Fundamentals**

*5 credit points • 3 hours per week • Hawthorn • Prerequisites: nil • Assessment: examination/assignments* A fourth year subject in all streams of the degree of Bachelor of Engineering (Electrical)

**Objectives**

To provide students with a satisfactory understanding of the subject material in so far as it affects the practice of management.

**Content**

Supervision, management and the management environment including planning, organising, controlling, leading and staffing. Supervisory skills including communications, team building,
problem solving and decision making. Australian industrial relations and anti-discrimination.

Finance introduction to business finance, sources of funds, use of funds, financial accounting, double entry book-keeping through to trial balance, management accounting, costing, capital investment, working capital.

Textbook

Recommended reading
Byrt, W. and Masters, P.R. The Australian Manager. 2nd edn, Melbourne. Macmillan, 1982

EE403 Engineering Project Management
5 credit points • Hawthorn • Prerequisites: EE402 Management Fundamentals • Assessment: assignment
A fourth year subject in all streams of the degree Bachelor of Engineering (Electrical)
This subject is to be taken during the students' second industrial period. There will be no formal lectures for this subject. Students will work from a text and submit a combination assignment.

Objectives
To provide students with an understanding of engineering project management involving both personnel and plant management.

Content
The role of the manager in a high technology environment; senior management expectations, skill requirements of high technology managers, dealing with priority problems, understanding matrix organisations.

Working effectively with technical personnel; understanding professional productivity, leadership effectiveness, creating stimulating work environment, managing innovation and creativity, dealing with risk and uncertainty, leadership expectations, delegating effectively, evaluating technical performance.

Planning and organising the work, examining the work process, phased approach to engineering developments, developing schedules and measurable milestones, manpower planning, software for computer-assisted resource scheduling and program planning.

Control of technical work; available software, optimising resources, measurement of performance, tools for measurement and reporting.

Project management methodology; definition phase, planning phase, scheduling phase, control phase, advantages of project management.

Recommended reading

EE456 Electrical Design
7 credit points • 3 hours per week • Hawthorn • Prerequisites: EE384, EE386 • Assessment: assignment
A fourth year subject in the electrical power and control engineering stream of the degree Bachelor of Engineering (Electrical)

Objectives
To give practice in the application of the design process in particular aspects of electrical power and control engineering. To allow each student to select a topic for a design project.

Content
Power electronics circuitry. EMI from power switching circuits, regulations.
Illumination lighting fundamentals and photometric units. Light Sources interior and office lighting. Floodlighting Australian Standards and lighting codes. Electric machine design procedures. Examples of transformer or induction motor design.
Electrical materials.
The M.E.N. System
Residual Current Devices (RCD's)
Industrial Applications of Programmable Logic Controller. Distributed Control Systems.

Design topic selection each student is to select a topic and gain approval of it by a staff member. The staff member becomes the design supervisor. Students are expected to carry out the preliminary design procedures up to the stage of detailed calculations in the fourth year of the course, and to complete the construction, testing and evaluation stages of the process as their final year Design Project. Students are to be given guidance from their supervisor.

EE458 Electrical Design
7 credit points • 3 hours per week • Hawthorn • Prerequisites: completion of the third year of the degree Bachelor of Engineering (Electrical - unstreamed) • Assessment: assignment, poster
A fourth year subject in the communications and electronics stream of the degree Bachelor of Engineering (Electrical)

Objectives
To introduce the student to selected design considerations in the communications and electronics stream of the course; and to allow the student to elect a topic for the major design and project activities of the fifth year of the course.

Content
The process of design, functional partitioning, hardware description languages, basic features of VHDL, design entities. architectural bodies. block statements, processes, data types, packages, control statements, basic modelling techniques for combinational and sequential logic, chip level modelling, system modelling, application of VHDL in the areas of chip-level modelling and test generation, chip level
emulation in parallel, human engineering, reliability considerations, maintainability, documentation. Preparation of a research project and a technical poster.

**EE459 Electrical Design**

*7 credit points • 3 hours per week • Hawthorn • Prerequisite: completion of the third year of the degree of Bachelor of Engineering (Electrical) -unstreamed* • Assessment: assignment/poster

A fourth year subject in the computer systems engineering stream of the degree of Bachelor of Engineering (Electrical)

**Objectives**

- To introduce the student to selected design consideration in the computer systems engineering stream of the course
- To allow the student to elect a topic for the major design and project activities of the fifth year of the course.

**Content**

The process of design, functional partitioning, hardware description languages, basic features of VHDL, design entities, architectural bodies, block statements, processes, data types, packages, control statements, basic modelling techniques for combinational and sequential logic, chip level emulation in parallel, human engineering reliability considerations, maintainability, documentation. Preparation of a research project and a technical poster.

**EE465 Engineering Systems Software**

*6 credit points • 3 hours per week • Hawthorn • Prerequisites: EE363 • Assessment: examination, assignments*

A fourth year subject in all streams of the degree of Bachelor of Engineering (Electrical)

**Objectives**

The aim of the subject is for students to develop a sound understanding of advanced software engineering principles and techniques applicable to computer based systems in engineering, and to introduce the fundamental elements of operating systems as a base for advanced studies in real-time systems.

**Content**

Principles of software engineering including requirement analysis, specifications, design, verification and quality assurance.

Operating systems including the internal structure and operation, using UNIX and MSDOS as case studies.

**Recommended reading**

IEEE Transactions on Software Engineering

**EE467 Computer Communications**

*6 credit points • 3 hours per week • Hawthorn • Prerequisites: EE282, EE363 • Assessment: laboratory, examination, assignments*

A fourth year subject in the computer systems engineering stream of the degree of Bachelor of Engineering (Electrical)

**Objectives**

To introduce students to the basic concepts and techniques of data communications, computer networks and layered protocols.

**Content**

- Data communication networks and open system standards;
- Electrical interface;
- Data transmission;
- Protocol basics;
- Data link control protocols;
- Local area networks;
- Metropolitan area networks;
- Wide area networks.

**Recommended reading**

Halsall, F. Data Communications, Computer Networks and Open Systems. 3rd edn, Wokingham, Addison-Wesley, 1992

**EE474 Computer Systems Engineering**

*11 credit points • 5 hours per week • Hawthorn • Prerequisites: EE287, EE263, EE363 • Assessment: examination, assignments, laboratory exercises*

A fourth year subject in the computer systems engineering stream of the degree of Bachelor of Engineering (Electrical)

**Objectives**

To broaden the students’ knowledge of computer architecture and to examine the implementation techniques applicable to high performance computer hardware.

**Content**

Comparative computer architecture studies including rationale and trade-offs for CISC, and super scalar RISC and DSP architectures. Introduction to parallel computer organisations including taxonomy and common data path and control implementation (hardwired and micro-programmed), pipelining techniques (reservation tables, scoreboards). Memory organisation caches, interleaving, disks (organisation, accessing, algorithms), virtual memory. Input/output devices application specific controllers (graphics,communications).

**Recommended reading**

IEEE ‘Computer’ (various papers)
IEEE ‘Micro’ (various papers)
Mimar, T. Programming and Designing with the 68000 Family Including the 68000, the 68301/12, the 68020 and the 68030.
EE475  Electrical Power and Machines
11 credit points  ●  5 hours per week  ●  Hawthorn
●  Prerequisites:  EE238, EE384  ●  Corequisites:  nil
●  Assessment:  examination/assignments
A fourth year subject in the power and control engineering stream of the Bachelor of Engineering (Electrical)

Objectives
To introduce the principles of loadflow, symmetrical components and economic operation. To build on concepts of power systems, power electronics and electrical machines.

Content
Part A  –  Power systems

Part B  –  Electrical machines
The commutator machine review of construction; properties of the mechanical commutators; block diagram representation of linearized equations, transfer functions; transient response of d.c. machines. Construction of single-phase I/M, and d.c. – brushless machines. Synchronous machine static and dynamic performances.

Part C  –  Power electronics
The d.c. chopper with applications. Partly controlled and fully controlled converters for d.c., motor drives regenerative braking. Introduction to the variable frequency inverter and its applications.

Recommended reading
Pan A
Pan B
Say, M.G.  Alternating Current Machines. 5th edn, New York, Wiley, 1983
Pan C

EE476  Electronics
6 credit points  ●  3 hours per week  ●  Hawthorn
●  Prerequisites:  EE386  ●  Corequisites:  nil  ●  Assessment:  examination/assignment
A fourth year subject in the power and control engineering stream of the Bachelor of Engineering (Electrical)

Objectives
●  To understand the architecture of the 8051 microcontroller, and to apply that knowledge in control-based applications.
●  To learn the operating principles of Switch Mode Power Supplies (SMPS), to compare linear power supplies with SMPS, and to explore the advantages of SMPS.

Content
The 8051 chip, and instruction set. Timer operation, interrupts and serial port operation. 8051 applications.

Recommended reading

EE482  Communications
8 credit points  ●  4 hours per week  ●  Hawthorn  ●  Prerequisites:  EE363, EE282  ●  Corequisites:  nil  ●  Assessment:  laboratory/examination/assignments/laboratory reports
A fourth year subject in the communications and electronics stream of the degree of Bachelor of Engineering (Electrical)

Objectives
To introduce students to the basic concepts and techniques of data communications, computer networks and layered protocols. Introduces electromagnetic wave propagation and its applications to microwave communications systems.

Content
●  data communication networks and open system standards;
●  electrical interface;
●  data transmission;
●  protocol basics;
●  data link control protocols;
●  local area networks;
●  wide area networks;
●  review of electrostatics and magnetostatics;
●  maxwell equation;
●  TEM waves, reflections and polarisation;
●  waveguides, field equations and propagation;
●  waveguide components.

Recommended reading
EE483  
Electronics

9 credits points  • 4 hours per week  • Haworth

Prerequisites: EE386 EE363  • Corequisites: nil  • Assessment: examination/assignments

A fourth year subject in the communications and electronics stream of the degree of Bachelor of Engineering (Electrical)

Objectives

• To understand the architecture of the 8051 microcontroller, and to apply that knowledge in control-based applications.

• To study spectrum analysis, digital filter design and implementation on DSP56000 family.

Content


Recommended reading


EE489  
Control Systems

6 credit points  • 3 hours per week  • Haworth

Prerequisites: EE389, SM394  • Assessment: examination and assignment

Objectives

• To introduce the student to the concept of dynamic performance criteria and to develop several compensation design techniques to enable a linear or non-linear system to meet the performance specifications.

• To introduce the method of state variable analysis and to use the method to analyse and compensate a wider class of multiple input multiple output systems.

• To introduce the concept of sampled data control systems and computer control of dynamic systems and to study the effect of sampling on stability.

Content


Non-Linear Systems: Brief development of the describing function technique and the application of compensators to stabilise limit cycles.

Linear System Analysis with State Space Techniques: State Space Analysis; State space representation of linear systems; Relationship between state space and transfer function; Solution of equations; Controllability, Observability and Stability of the systems; Eigenvalues and their relationship to system stability and dynamic performance; State feedback controller design; Pole placement by state feedback for single-input single-output linear system;

Introduction of discrete time control systems; Discrete time system and Z-transform; Sampling time and Zero order hold element; Discrete time state model; Controllability, observability and stability.

Recommended Reading

Dorf, Modern Control Engineering 6th Ed. Addison Wesley
Hostetter et al. Design of Feedback Control Systems HRW
Kuo, Automatic Control Systems Prentice Hall
Ogata, Modern Control Engineering, 2nd Ed. Prentice Hall 1990

EE502  
Management Practice

6 credit points  • 3 hours per week  • Haworth

Prerequisites: EE402  • Assessment: examination, assignments, class participation

A final year subject in all streams of the degree of Bachelor of Engineering (Electrical)

Objectives

To provide students with a satisfactory understanding of the subject material in so far as it affects the practice of management.

Content

• Business strategy and plans;

• managing communications;

• planning, leading and controlling;

• ethics, professionalism and the engineering manager;

• organisation theory;

• industrial relations and enterprise bargaining;

• total quality management;

• achieving a quality culture;

• using quality as a competitive strategy

• supervision and leadership.

• project teams and task forces.

Recommended reading

Nicholas, J.M. Managing Business and Engineering Projects;
EE544 Electronic Communication Systems

7 credit points  3 hours per week  Hawthorn

Prerequisites: EE388, EE482  Assessment: laboratory, examination, assignment

A final year subject in the communications and electronics stream of the degree of Bachelor of Engineering (Electrical)

Objectives

- Understand and use common mobile communications terminology.
- Explain the behaviour of mobile communications systems and techniques.
- Analyse and critically evaluate performance of systems.
- Design systems to specified parameters, using analytical and empirical rules.

Content

Mobile and Personal Communications Systems: Introduction to mobile radio communications; Cellular concepts, system operation, handover for analogue cellular (AMPS); Mobile radio signal propagation; Small scale fading and multipath; Modulation; Cellular systems standards: AMPS, USDC, GSM and CDMA, and capacity comparisons; Wireless networking and PCS.

Recommended Reading


IEEE Personal Communications, IEEE, N.Y.

IEEE Transactions on Vehicular Technology, IEEE, N.Y.


EE545 Electronics

9 credit points  4 hours per week  Hawthorn

Prerequisites: EE483  Assessment: examination, assignment

A final year subject in the communications and electronics stream of the degree of Bachelor of Engineering (Electrical)

Objectives

To introduce students to algorithmic state machine, the design and synthesis of modern integrated digital systems including VLSI design rules and performance estimation.

Content

VHDL and High Level Synthesis: High level synthesis, functional models, HDL, VHDL, design entity declarations, architectural body, behavioural modelling, transport and inertial delays, signal assignments, drivers, data structures,
block statements, guarded assignments, structural description, overloading, chip level and finite state machine modelling, system synthesis from behavioural models, algorithmic level design, data flow design, algorithmic synthesis.

VLSI: Overview of processes used in IC fabrication, theory of MOS technologies, models of MOS transistors, MOS logic structures and device sizing, pass transistor logic, layout and design rules, extraction of parameters from layout, circuit characterisation and performance estimation, clocking schemes and various design rules, system design, the IC design flow.

Recommended reading
Blaske, J., A VHDL Primer, Prentice Hall, 1992
Douglas, P., WDL, McGraw-Hill
IEEE Design and Test of Computer Magazine
IEEE Transaction on Computer-Aided Design
Schoel, J., Performance and Fault Modeling with VHDL, Prentice Hall

EE548 Communications
13 credit points ● 6 hours per week ● Hawthorn ●
Prerequisites: EE482 ● Assessment: examination/assignment/laboratory.
A final year subject in the communications and electronics stream of the degree of Bachelor of Engineering (Electrical)

Objectives
- To gain insight into the behaviour of telecommunication and computer network.
- To understand and use common communications network terminology.
- Calculate and critically evaluate performance measures for networks.

Content
Introduction to classes of telecommunication networks; Foundations of probability for use in telecommunications; Foundations of statistics; Loss (circuit-switched) systems; Delay (queuing) systems; Traffic measurements and traffic forecasting; Traffic routing; Token ring and random access protocols and performance; Network simulation and network management; Special networks - mobile, intelligent, broadband, self-healing; Teletraffic current and future research.

Recommended Reading

EE556 Project

Objectives
- Planning a complete project where time, availability of hardware, and money are realistic restraints. This includes planning a project with other students in the case of joint projects.
- Constructing and testing hardware and/or writing and commissioning software.
- Planning and delivering a short technical lecture.
- Writing a comprehensive thesis to detail all initial research, literature survey and the work performed.
- The personal rewards in completing a complex engineering task.

Content
Each student is required to perform an individual or group design or investigation and present a thesis embodying results of the project. These projects may be hardware and/or software based.

The project may be selected on by: Making reference to the list of projects already issued; Suggesting your own project and negotiating its suitability with a staff member whose academic interests are consistent with the project.

Recommended Reading
No prescribed texts.

EE559 Electrical Machine Drives

Objectives
- To study the design and performance of electrical machine drives currently used in industry
- To study the control strategies available and to evaluate the impact of machine drives on the power system.
- To study the transient behaviour and methods of modelling electric machines and their performance in the presence of supply harmonics.

Content
Speed Control of Direct Current Machines: State Models of the DC Machines, Control Strategy, Torque and Speed Feedback Loops, Transducers; Solid State Control using controlled converters and choppers, power factor correction; Four quadrant operation and regenerative braking; Starting methods; Harmonic distortion; Advanced applications-digital control.

Speed Control of AC Machines: Speed Control of Induction Motors by variation of terminal voltage, pole changing, slip energy recovery; Variable frequency operation of AC Machines using an inverter; Advanced control strategies including pulse width modulation and vector control; Control of small machines such as the stepper motor and brushless d.c. motor.
AC Machine Transients: Space phasor description of machines; The synchronous machine - winding, transformations, the dqy model; Short circuit analysis; Three phase induction motor, starting and reconnection transients; Fault current contributions.

**Recommended Reading**

Leonhard, *Control of Electrical Drives*, Springer-Verlag, 1985

**EE562 Computer Electronics**

7 credit points • 3 hours per week • Hawthorn

**Prerequisites:** EE459 • Assessment: examination, assignment

A final year subject in the computer systems engineering stream of the degree of Bachelor of Engineering (Electrical)

**Objectives**

To provide a grounding in digital systems design with programmable logic, and CMOS VLSI design at the system level.

**Content**

 VHDL and High Level Synthesis: High level synthesis, functional models, HDL, VHDL, design entity declarations, architectural body, behavioural modelling, transport and inertial delays, signal assignments, drivers, data structures, block statements, guarded assignments, structural description, overloading, chip level and finite state machine modelling, system synthesis from behavioural models, algorithmic level design, data flow design, algorithmic synthesis.

VLSI: overview of processes used in IC fabrication, theory of MOS technologies, models of MOS transistors, MOS logic structures and device sizing, pass transistor logic, layout and design rules, extraction of parameters from layout, circuit characterisation and performance estimation, clocking schemes and various design rules, system design, the IC design flow.

**Recommended reading**

IEEE Design and Test of Computer Systems Magazine
IEEE Transaction on Computer-Aided Design

**EE563 Advanced Computer Techniques**

7 credit points • 3 hours per week • Hawthorn

**Prerequisites:** EE467 • Assessment: assignment/computer laboratory

A final year subject in the computer systems engineering stream of the degree of Bachelor of Engineering (Electrical)

Students do one of the following electives:

- **IT901 Software Process I**
- **IT906 Human-Computer Interaction (HCI)**
- **IT916 Programming the User Interface**

**EE576 Electronics**

7 credit points • 3 hours per week • Hawthorn

**Prerequisite:** EE476 • Assessment: examination, assignment, laboratory

A final year subject in the power and control engineering stream of the degree of Bachelor of Engineering (Electrical)

**Objectives**

To extend the principles learned in earlier years of microcontroller power electronics and opto-electronics, with applications in the power areas.

**Content**

Part A • Microcontrollers

The application of single chip microcontrollers to electrical engineering. A/D and D/A conversion. Data communications and interfacing.

Part B • Power electronics


**Recommended reading**

Halsall, F., *Data Communications, Computer Networks and OSI*, 2nd edn, Addison-Wesley, 1988
Intel Embedded Microcontrollers and Processors, Intel Corporation, Santa Clara, CA, 1993
Phillips IC20, 80C51 Based 8-bit Microcontrollers.

**EE597 Electrical Power Systems**

11 credit points • 5 hours per week • Hawthorn

**Prerequisite:** EE475 • Corequisite: nil • Assessment: examination, assignments, laboratory

A final year subject in the power and control engineering stream of the degree of Bachelor of Engineering (Electrical)

**Objectives**

To continue the study of power systems and in particular the topics of stability, protection and circuit interruption.

**Content**

Power Systems

Symmetrical components, unsymmetrical fault calculations, travelling waves and surges, high voltage direct current systems, transmission line economics.
Power Systems Stability

Power System Control
Automatic voltage regulator and governor functions, digital computer techniques
Protection Systems

Recommended reading

EE598 Digital Systems and Control
5 credit points • 2 hours per week • Hawthorn •
Prerequisites: EE489, SM494 • Assessment: examination/assignment
A final year subject in all stream of the degree of Bachelor of Engineering (Electrical)

Objectives
To consolidate the work on systems and control in earlier years by introducing sampling and discrete data in feedback systems, the principles of process control and techniques of computer based control including interfacing and data acquisition.

Content
Design of control systems to meet a set of specifications. Classical methods of lead-lag networks and PID controllers from root locus and frequency domain approach. Commercial packages and PLC’s. Algorithms suitable for compensation using computer based control systems. State variable feedback and design of continuous and discrete time multivariable control systems to meet a set of specifications. Advanced topics of adaptive control and optimisation.

Recommended reading
Chase, F. Diagram Sets in Process Control and Computer Interfacing. 1989

EE730 Engineering Software
12.5 credit points • 4 hours per week average • Hawthorn •
Prerequisites: must satisfy course entry requirements •
Assessment: exam, computer based assessment and assignment
A subject in the Masters of Engineering by coursework (Telecommunications, Computer Systems Engineering and Biomedical Instrumentation)

Objectives
To introduce the fundamental concepts of computing and to gain of proficiency in the application of the C programming language for constructing solutions to engineering problems. To develop a sound understanding of data structures, algorithms for their manipulation and implementation of these algorithms.

Content
• Historical context of computing;
• fundamental development of algorithms amenable to programmatic implementation;
• basis for structured programming;
• program control structures, fundamental and derived types in C;
• implementation of algorithms in C;
• pointer types and alternatives;
• lists, stacks, queues, trees, and algorithms for the manipulation of these structures;
• efficiency of algorithms;
• file types and organisation.

Recommended reading
Pugh, K., All on C. Scott, Foresman and Company, 1990
microcomputers;
- the logical and electrical interconnection of digital devices in computer systems;
- the use of high level languages for input/output intensive applications;
- the relation of high level languages to assembly language.

Content
- Computer organisation, CPU, memory, buses, I/O;
- computer architecture including representative microprocessor architectures (M68000, I80XXX);
- programmer's model (registerset, memory structure and addressing modes), Instruction: set overview;
- suitability of a machine architecture to support high level languages;
- input/output including interrupts and asynchronous I/O processing;
- physical implementation of computers. Memory elements, bus structure, memory access cycles. Peripheral devices and hardware.

Programming will emphasise the use of high-level languages as a first choice with an introduction to selective use of assembly language for time-critical program regions.

Recommended reading
Gorsline, George W., *Assembly and Assemblers*. Prentice-Hall, 1988

EE751 Telecommunications Networks: Fundamentals

12.5 credit points  ●  4 hours per week average  ●  Hawthorn  ●  Prerequisites: nil  ●  Assessment: exam, assignment and laboratory work.

A subject in the Master of Engineering by coursework (Telecommunications and Computer Systems Engineering)

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.
EE752  Digital Communications: Fundamentals.

12.5 credit points • 4 hours per week average • Hawthorn • Prerequisites: must have completed July-Now, requirements • Assessment: exam, assignment and laboratory work.
A subject in the Master of Engineering by coursework (Telecommunications and Computer Systems Engineering)

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;
- demodulation of sequences;
- data transmission error protecting codes;
- digital modulation codes;
- synchronisation;
- robustness and diversity.

Recommended reading

EE754  Broadband Multimedia Networks

12.5 credit points • 4 hours per week average • Hawthorn • Prerequisites: must be doing or have done EE751 • Assessment: exam, assignment and laboratory work.
A subject in the Master of Engineering by coursework (Telecommunications and Computer Systems Engineering)

Objectives
To develop an understanding of the concepts of Integrated Services Digital Networks (ISDN), and Broadband ISDN.

Content
ISDN: Concepts: principles, evolution, user interface, objectives, benefits and services;
- Architecture and standards;
- Transmission: channels, subscriber loop, user access;
- Protocols: architecture. connections, packet switched calls, common channel signalling, link access protocol-D, physical layer;
- Frame Relay: Applications, architecture, user data, network function.
- Congestion control;
- BISDN: Architecture, Asynchronous Transfer Mode protocols;
- Virtual channels, virtual paths, control signalling;
- ATM standards, cells, header formats, error control; ATM traffic characteristics, multimedia sources, bandwidth on demand, aggregation;
- Congestion control, connection admission control, bandwidth assignment strategies;
- SONET / SDH optical standards.

Recommended reading
Hirosi, S., Teletraffic Technologies in ATM Networks. Boston, Artech House, 1994
Stallings, W., ISDN and Broadband ISDN. N.Y., Macmillan, 1992

EE757  Personal and Mobile Communications

12.5 credit points • 4 hours per week average • Hawthorn • Prerequisites: nil • Assessment: exam, assignment and laboratory work.
A subject in the Master of Engineering by coursework (Telecommunications and Computer Systems Engineering)

Objectives
- Understand and use common mobile communications terminology.
- Explain the behaviour of mobile communications systems and techniques.
- Analyse and critically evaluate performance of systems.
- Design systems to specified parameters, using analytical and empirical rules.

Content
Mobile and Personal Communications Systems:
Introduction to mobile radio communications; Cellular concepts, system operation, handover for analogue cellular (AMPS); Mobile radio signal propagation; Small scale fading and multipath; Analogue and Digital Modulation techniques; Equalisation, Diversity and coding; Cellular systems standards: AMPS, USDC, GSM and CDMA, and capacity comparisons; Wireless networking and PCS.

Recommended Reading
IEEE Personal Communications, IEEE, N.Y.
IEEE Transactions on Vehicular Technology, IEEE, N.Y.

EE760  Research Project A

25 credit points • 8 hours per week • Hawthorn • Prerequisites: EE740 & other prerequisites may apply to particular projects • Assessment: verbal and written report; demonstrated implementation performance
An subject in the Masters and Graduate Diploma of Engineering by coursework (Telecommunications, Computer Systems Engineering and Biomedical Engineering)

Objectives
To develop the students ability to comprehend an analysis and specification, and to design, implement and evaluate a particular assigned implementation task to meet the specifications. Students should develop personal, time and resource management skills.
Content
The student chooses a particular implementation project from a number of tasks specified by the lecturer. This project will be relevant to the student's chosen discipline focus, and is often associated with the student's current or intended employment responsibilities.

The student is instructed in methodical approaches to the implementation of solutions to that task, and then embarks on the implementation, evaluation and reporting of the completed project. The student consults regularly with the project supervisor and produces a formal project report.

A maximum of two such Minor Projects can be undertaken in the course.

EE761 Research Project B
25 credit points ● 8 hours per week ● Hawthorn ●
Prerequisites: EE740, EE760 other prerequisites may apply to particular projects ● Assessment: verbal and written report; demonstrated implementation performance.

A subject in the Masters of Engineering/Graduate Diploma by coursework (Telecommunications, Computer Systems Engineering and Telecommunications Engineering)

Objectives
To develop the student's ability to comprehend an analysis and specification, and to design, implement and evaluate a particular assigned, implementation task to meet the specifications. Students should develop personal, time and resource management skills.

Content
This subject is a continuation of EE760 Research Project A from the previous semester.

EE762 Major Research Project
50 credit points ● 16 hours ● Hawthorn ● Prerequisites: The 'Project Management and Research Methods' subject & other prerequisites may apply to particular projects ● Assessment: verbal and written report; demonstrated implementation performance.

An advanced subject in the Masters of Engineering by coursework (Telecommunications, Computer Systems Engineering and Biomedical Engineering)

Objectives
To develop the students ability to comprehend a task requirement, analyse that requirement, conduct appropriate research to develop an analysis and specification of a solution, and to design, implement and evaluate that solution to meet the task requirement. Students should develop personal, time and resource management skills.

Content
The student chooses a particular engineering project task from a number of tasks specified by the lecturer. This project task will be relevant to the student's chosen discipline focus and is often associated with the student's current or intended employment responsibilities. The finished project implementation will typically be a working prototype.

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.

EE781 Computer-Aided Design and High Level Synthesis
12.5 credit points ● 4 hours per week average ● Hawthorn ● Prerequisites: nil ● Assessment: exam, assignment and laboratory

A subject in the Masters of Engineering by coursework (Telecommunications, Computer Systems Engineering and Biomedical Instrumentation)

Objectives
To provide students with an understanding of the current trends in High Level Synthesis using Hardware Description Languages (HDL) and the methodologies involved in the design and integration of complex systems using Computer-Aided Design tools.

Content
- Issues involved in High Level Synthesis;
- architectural Models in Synthesis;
- Hardware Description Language (VHDL);
- quality measures including relationship between structural and physical designs, area and performance;
- partitioning in High - Level Synthesis;
- scheduling formulation and allocation;
- design methodology for High Level Synthesis;
- performance and fault modeling using VHDL.

Recommended reading
IEEE Design and Test of Computer Magazine
IEEE Transaction on Computer-Aided Design
Schoen, J., Performance and Fault Modeling with VHDL. Prentice Hall, 1992

EE783 Digital Signal Processing Systems Engineering
12.5 credit points ● 4 hours per week average ● Hawthorn ● Prerequisites: nil ● Assessment: exam, assignment and laboratory

A subject in the Masters of Engineering by coursework (Telecommunications, Computer Systems Engineering and Biomedical Instrumentation)

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 cancelling;
- array processing.

Recommended reading
IEEE Transaction on Information Technology
IEEE Transaction on Signal Processing

EE786 Advanced Image Processing
12.5 credit points • 4 hours per week average • Hawthorn • Prerequisites: must satisfy course entry requirements • Assessment: test, laboratory, written report, oral presentation
A subject in the Masters of Engineering by coursework (Telecommunications and Computer Systems Engineering and Biomedical Instrumentation)

Objectives
To introduce the historical context, basic theory and practical use of image processing techniques, and to teach the elements of costing and specification of image processing applications.

Content
- Operations on a single image and multiple images;
- hardware, image characterisation, image transmission, array processing;
- multimedia, hypermedia, artificial reality;
- applications in biophysical and biomedical engineering, computer systems engineering and communications engineering;
- CAD/CAM image systems, artistic and perceptual applications;
- costing of image processing applications, analysis of the image processing industry.

Recommended reading
Class notes, and user manuals for the hardware and software used.

EE787 High Performance Computer Architectures
12.5 credit points • 4 hours per week average • Hawthorn • Prerequisites: EE732 • Assessment: exam, assignment and laboratory
A subject in the Master of Engineering by coursework (Telecommunications and Computer Systems Engineering)

Objectives
To develop a sound understanding of the available computer architectures and their application areas.

Content
- Historical perspective;
- taxonomy;
- MIMD architectures;
- SIMD architectures;
- pipelining techniques;
- memory organisation and hierarchy;
- communication networks.

Recommended reading
ACM Transactions on Computer Architecture
Hennessy, J.L. & Patterson, D.A. Computer Organisation and Design. The Hardware/Software Interface, Morgan-Kaufmann, 1994
IEEE Transaction on Parallel and Distributed Systems
Stallings, W. Computer Organisation and Architecture, 4th edn, Macmillan

EF101 Professional Skills
10 credit points • 4.5 hours per week for one semester • Prerequisites: nil

Objectives and content
A first year subject for all degree courses in engineering which provides an introduction to the roles and communication skills of engineers in the workplace and community.

The subject is taught as two components:
(a) Professional engineering - in which students explore ideas and improve their understanding of engineering and communication skills through oral presentations and written reports. Students experience working as part of an engineering team by undertaking a design project in which they create and communicate a design solution.
(b) Graphical communications - in which students learn to communicate and present ideas through graphical means using engineering standards and conventions.

The two components of the subject will be integrated through the completion of an engineering design project.

EF615 Introduction to Accounting and Finance
3 hours per week • City • Prerequisite: nil • Assessment: a combination of personal assignments, group assignments, class participation and/or exam.
A compulsory subject in the Graduate Diploma in Management and the Graduate Diploma in Management (Manufacturing). An elective in the Graduate Certificate in Management (Manufacturing).
Objectives and content
An introductory course giving: mastery of basic of accounting and produce profit and loss statements, balance sheets and funds statements; understanding of financial mathematics and ability to apply spreadsheets to financial modelling, forecast financial requirements and to evaluate investments and businesses.

Recommended Reading

EF616 Management Fundamentals
3 hours per week • City • Prerequisite: nil • Assessment: a combination of personal assignments, group assignments, class participation and/or exam.

A compulsory subject in the Graduate Diploma in Management and the Graduate Certificate and Graduate Diploma in Management (Manufacturing).

Objectives and content
An introductory study of industrial development and the growth of managerial functions leading to an understanding of the complexities of managing an enterprise in the business world of today. The importance of innovation and entrepreneurship is stressed.

As with other core subjects within the course, the study will integrate key elements – financial, human and organisational – of management.

It includes a general introduction to management theories, to fundamentals of finance, to human and organisational aspects of management and to fundamental legal concepts of organisation.

Recommended reading

EF617 Project and Asset Management
2 hours per week • City • Prerequisite: nil • Assessment: a combination of personal assignments, group assignments, class participation and/or exam.

An elective subject in the Graduate Diploma in Management and the Graduate Diploma in Management (Manufacturing).

Objectives and Content
An introductory course addressing 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
3 hours per week • City • Prerequisite: EF616 Management Fundamentals • Assessment: a combination of personal assignments, group assignments, class participation and/or exam.

A compulsory subject in the Graduate Diploma in Management and the Graduate Diploma in Management (Manufacturing). An elective in the Graduate Certificate in Management (Manufacturing).

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

EF620 Human Aspects
3 hours per week • City or Hawthorn • Prerequisite: nil • Assessment: a combination of personal assignments, group assignments, class participation and/or exam.

An elective subject in the Graduate Diploma in Management and the Graduate Certificate and Graduate Diploma in Management (Manufacturing).

Objectives and content
This subject is designed to build upon the work of the introductory work in the first semester and treat the material with more depth and practicality.

Topics covered include: theoretical base interpersonal relationship and individual development: individual differences, personality theory, value and value systems, group dynamics, role theory, leadership intergroup competition, interpersonal communication, perception, thinking processes and memory. Business politics. Human resource management: recruitment, selection and training. Aptitude testing. Management development and personnel appraisal systems. Wage and salary structures, benefits and financial reward schemes.

Performance factors motivation, job satisfaction, morale, management of conflict, organisation structures and their effects on behaviour, effecting change in the organisation.

Industrial relations practical industrial relations for supervisors and managers.

Recommended reading

EF623 Marketing
3 hours per week • City Hawthorn • Prerequisite: nil • Assessment: a combination of personal assignments, group assignments, class participation and/or exam.

A compulsory subject in the Graduate Diploma in Management and Graduate Diploma in Management (Manufacturing).

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 market place. A blend of theory and 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

**EF644 Introduction to The Business Plan**

*1 hour per week equivalent ● City ● Prerequisite: nil ● Assessment: a combination of personal assignments, group assignments, class participation and/or exam*

A compulsory subject in the Graduate Diploma in Management.

**Objectives and Content**
An integrating course which establishes the requirements for a successful business plan prior to participants commencing EF623 and EF645 within the program. 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.

**Recommended reading**

**EF645 New Venture Accounting and Finance**

*2 hours per week ● City or Hawthorn ● Prerequisite: EF615 Introduction to Accounting and Finance ● Assessment: a combination of personal assignments, group assignments, class participation and/or exam*

A compulsory subject in the Graduate Diploma in Management and an elective subject in the Graduate Diploma in Management (Manufacturing).

**Objectives and 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. Students demonstrate their grasp of the topics covered in other courses within the program by working in self-selected teams to produce the selected business plan. The complete business plan includes comprehensive marketing, financial and organisational sections and is assessed against professional standards of presentation and content. In parallel, students explore contemporary problems in business strategy by a program of guided reading, discussion and research exercises. Students analyse the work of leading Australian and international authors and commentators during this section of the course.

**Recommended reading**

**EF661 Leadership and Team Building**

*2 hours per week ● City or Hawthorn ● Prerequisite: nil ● Assessment: a combination of personal assignments, group assignments, class participation and/or exam*

An elective subject in the Graduate Diploma in Management and the Graduate Diploma and Graduate Certificate in Management (Manufacturing).

**Objectives and Content**
A course focusing on the requirements of effective leadership and team building. The five faces 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, running group meetings, resolving conflicts and integration.

**Recommended reading**

**EF662 Total Quality Management**

*2 hours per week ● City or Hawthorn ● Prerequisite: nil ● Assessment: a combination of personal assignments, group assignments, class participation and/or exam*

An elective subject in the Graduate Diploma in Management and a compulsory subject in the Graduate Diploma and Graduate Certificate in Management (Manufacturing).
Objectives and 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.

EF663 Service Management
2 hours per week ● Hawthorn ● Prerequisite: nil
An elective subject in the Graduate Diploma in Management and the Graduate Diploma in Management (Manufacturing).

Objectives and Content
A course addressing the 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
2 hours per week ● City, Hawthorn ● Prerequisite: nil
Assessment: a combination of personal assignments, group assignments, class participation and/or exam
An elective subject in the Graduate Diploma in Management and a compulsory subject in the Graduate Diploma and Graduate Certificate in Management (Manufacturing).

Objectives and Content
This subject reviews integrated manufacturing systems and the manufacturing management function production, production planning and control, maintenance, quality control, etc.

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 Ps of Japanese manufacturing technique, VAM, world class manufacturing, JIT production system and theory Z.

EF665 Risk Management
2 hours per week ● City, Hawthorn ● Prerequisite: nil
An elective subject in the Graduate Diploma in Management and the Graduate Diploma in Management (Manufacturing).

Objectives and Content
A course introducing concepts of risk management (including models for process, assets, vulnerabilities, exposure, threats, functions and activities), principles and practices of risk control and risk decision making, systematic risk control and risk management systems.

EF666 Engineering Management
2 hours per week ● City, Hawthorn ● Prerequisite: nil
Assessment: a combination of personal assignments, group assignments, class participation and/or exam
An elective subject in the Graduate Diploma in Management and the Graduate Diploma in Management (Manufacturing).

Objectives and Content
This subject addresses wider issues associated with effective engineering management. Considerations include legal issues (trends, obligations, professional liability and protection of property), executive interfaces, engineering business units, management of systems effectiveness, management strategies (capability acquisition and procurement, integrated logistic support, maintenance, performance measurement).

Recommended reading

EF667 Information Management
2 hours per week ● City, Hawthorn ● Prerequisite: nil
Assessment: a combination of personal assignments, group assignments, class participation and/or exam
An elective subject in the Graduate Diploma in Management and the Graduate Diploma in Management (Manufacturing).

Objectives and Content
A course addressing the requirements for effective management of information within an enterprise. Considerations include: corporate communications; requirements, networks, cost minimisation and auditing; business; computer business applications and systems; finance and accounting, administration and database management, office automation, electronic office and decision support packages available.

Recommended reading

EF713 The Entrepreneurial Organisation
12.5 credit points ● 39 hours ● City ● Prerequisite: nil
A first year subject in the Innovation and Enterprise suite of programs.

Objectives
The underlying ideal of the subject is to simulate the experience of entrepreneurs with the personnel aspects of organisations as they go about their business of making something happen to achieve a profitable and satisfying result. Particular reference is given to the relationship between these traits and managing the family owned business. This ideal will be approached by the use of lectures, case studies and situational evaluations through which relevant principles will be reviewed. The emphasis of the subject is on the integration of all topics to facilitate understanding of the process of managing the behaviour of people in a successful new venture.

Content
● Introduction and overview
• Entrepreneurship - what is it?
• Introduction to Organisation Behaviour Terminology and an Organisational Behaviour Model
• Determinants of individual behaviour and group behaviour
• Organisational Behaviour as a Management Tool
• Methods for analysing and solving case studies and practical problems in Organisational Behaviour
• Motivation theories
• Motivational practices in entrepreneurial organisations
• Leadership issues and problems
• Power
• Using Organisational Behaviour principles to change organisations
• When things go wrong
• The principles of Organisational Development
• The structure of organisations

Textbooks

Additional Reference

Journals
*Frontiers of Entrepreneurship Research*, Babson College, Centre for Entrepreneurial Studies, Wellesley Massachusetts, 1981 onwards
*Journal of Business Venturing*, Elsevier, Snider Entrepreneurial Centre, University of Pennsylvania and Centre for Entrepreneurial Studies, New York University, 1986 onwards

**EF721 Operating the Family Business Internationally**

12.5 credit points • 39 hours • Prerequisite: nil

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

**Objectives**
In an environment of increasing globalisation of business, national boundaries no longer prescribe markets for a family firm's business or its operations. Even small organisations will become increasingly called upon to understand and operate successfully within the global context. The objective of this subject is to enable students to develop an understanding of the various operating methods from which family businesses may choose to conduct business in foreign markets.

On completion of the subject students will understand:
• the increasing diversity of forms of international business operation
• the main modes of operation • licensing, franchising, exporting and direct investment
• issues of collaboration and control in foreign operations
• how to choose among operational methods

how to develop a practical and realistic marketing plan to support the launch of new products or services onto the international marketplace.

**Content**
• Business and marketing in the international context
• Operating mode 1: Export/Import
• Operating Mode 2: Franchising
• Operating Mode 3: Licensing
• Operating Mode 5: Management Contracts and Projects
• Operating Mode 6: Contract Manufacturing and Subcontracting
• Operating Mode 7: Direct Investment
• What about Services - are they different?
• Cooperative Strategies
• Countertrade
• Issues in Organisation and Control
• Choosing and Operating Model.

The subject is not content driven, rather it is conceptual and will focus on seminar style discussion. The main format is the interactive discussion of assigned readings and case studies in class sessions. There are no absolute "correct" or "right" answers to case studies, but rather learning will be developed through the focussed discussion of the concepts covered in the subject.

Textbooks

Additional Reference

**EF722 Strategic Management of the Family Business**

12.5 credit points • 39 hours • Prerequisite: nil

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

**Objectives**
The is a capstone subject, viewing the family business and its environment from the perspective of the Chief Executive and drawing together the management skills already suited to analyse the firm's competitive and innovation performance and focus the firm's resources to achieve long-run success. It requires an integration of the various functional skills such as finance and marketing to enable an analysis of the competitive environment in which the family business must operate. This includes identification and evaluation of the organisation's competitive position, its markets, government policies, social issues, emerging trends and key factors, such as innovation in the company, which are critical for success in its environment. Final steps include the crafting of appropriate strategy and ensuring that implementation of the strategy is appropriately supported by an innovation-style culture, structure, controls and rewards.
On completion of the subject students will understand:

* the dynamic nature of business and the strategic management processes employed to gain sustainable competitive advantage and develop an innovative culture
* how to plan the future of the family business in its competitive environment from the viewpoint of the Chief Executive
* the analytical skills necessary for developing and implementing innovative strategies that will enable the family business to achieve competitive advantage
* how to apply and integrate the skills and knowledge acquired in other management subjects to strategic problem solving.

**Content**
The subject is structured in four topics:

* Understanding the company and its competitive environment
* Financial Analysis
* Analysing the Environment
* Company Internal Analysis
* Crafting Innovative Strategies
* Strategies and Competitive Advantage
* Crafting a Strategy
* Diversification
* Portfolio Analysis
* Implementing the Strategy
* Structure and Controls
* Culture and Leadership
* Consolidation of experience

The subject is not content driven, rather it is conceptual and analytical. The main format is the interactive discussion of case studies in class sessions. There are no absolute "correct" or "right" answers to case studies, but rather recommendations or conclusions that are developed from a factual basis through the logical application of the concepts and techniques learned in the subject.

**Textbooks**

**EF810 New Venture Marketing**
3 hours per week equivalent • City • 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 market place. A blend of theory and 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 • City • Prerequisite: EF936 Opportunity Evaluation Techniques • 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 of 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 • City • Prerequisites: EF936 Opportunity Evaluation Techniques, EF398 Commercialising Innovation, and EF810 New Venture Marketing. Normally, students are expected to be concurrently undertaking EF811 New Venture Financial Planning • 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). 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. 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

EF820 Planning of Training Programs
36 hours over 4 x 1-day block modules (9 hours per day) • City
• 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 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

EF822 Training Innovation and Evaluation
36 hours over 4 x 1-day block modules (9 hours per day) • City
• 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 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

EF823 Administration of Training
36 hours over 4 x 1-day block modules (9 hours per day) • City
• 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 Training Guarantee Act Legislation, compliance with legislation, book-keeping, computer applications, the National Training Board, competency standards, organizational HRD functions, theory of organizational behaviour, 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. Carnforth, England, Parthenon Publishing, 1987, but has been adapted to Australian conditions by course lecturers


EF920 Managing the Growing Business
3 hours per week equivalent • City • Prerequisite: EF713 The Entrepreneurial Organisation • 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
As a new venture moves from startup into a stage of rapid growth, the management and development — under duress — 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 resources. This subject draws more deeply on the theories and principles of organisational behaviour (first encountered in the subject 'The Entrepreneurial Organisation') and uses them to solve case studies and problems (Australian and international) in growth situations. The emphasis is on managing growth through all stages of business development. The subject includes a treatment of major ethical issues as they apply to entrepreneurship and the development of new organisations.

Recommended reading


Kao, J J The Entrepreneurial Organisation, Prentice Hall, 1991

EF923 Growth Venture Evaluation
3 hours per week equivalent • City • Prerequisite: EF811 New Venture Financial Planning • Assessment: a combination of personal assignments, group assignments, class participation and/or exam

A subject in the Master of Enterprise Innovation.

Objectives and Content
This is a case based subject which provides students with the ability to apply their knowledge of financial principles (gained in EF811) 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 and financing entrepreneurial ventures.

Textbook

EF924 Advanced Business Plan
40 hours per year • City • Prerequisites: All year 1 & 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
This subject requires students in supervised teams, to write their second business plan. They draw on the experience of their first effort in EF814 and the growing sophistication in entrepreneurial management acquired over many subjects. They produce a business plan of a calibre high enough to meet the due diligence standards of an investment analyst operating in an internationally established venture capital company.

Recommended reading

EF934 Entrepreneurial Research Project
40 hours per year • City • 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

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 • 39 hours • Prerequisite: nil
A first year subject in the Innovation and Enterprise suite of programs.

Objectives
The subject is designed to provide participants with the essential tools that in the past many business people have been unable to attain. Participants leave the subject with the ability to objectively analyse whether a business idea is an idea or actually an 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 subject 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?

The key to this subject is "mind-set" • a way of thinking. Participants will constantly be challenged with "reality checks". The subject matter is not pure theory, but a set of useable tools for the real world.

Content
- Introduction to innovation
- Sources of innovation
- Opportunity recognition and analysis
- The screening guide
- Market implications
- The financial requirements
- The human element

Textbooks

Additional Reference
Timmons, New Business Opportunities, Brick House Publishing, Action, 1980
Vesper, K., New Venture Strategies, Prentice Hall, 1980
Golis, CC., Enterprise and Venture Capital, Allen & Unwin, 1989

EF938 Commercialising Innovation
3 hours per week equivalent • City • Prerequisite: nil
Assessment: a combination of personal assignments, group assignments, exam
A first year subject in the Innovation and Enterprise suite of programs

Objectives and Content
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. 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.

Recommended reading
Porter, M.E. Competitive Advantage, Free Press, 1985

EF940 Innovation Creativity and Leadership
3 hours per week equivalent • City • Prerequisite: nil
Assessment: a combination of personal assignments, group assignments, 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 tolls to real-life challenges. Major segments of the subject are leadership and lateral thinking; learning, listening, communications; and tick 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 and tick in the innovation process; and understand their own strengths and weaknesses as potential innovators.

Recommended reading
Hardy, C., The Age of Unreason, Arrow, 1995
Turgeon, M., Right Brain, Left Brain Reflexology, Healing Arts Press, Vermont, 1994

EF943 Strategic Intent and Corporations
4 hours per week equivalent • City • Prerequisite: All Year 2 MEI subjects • Assessment: a combination of personal assignments, group assignments, 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*

**ES100 Object-Oriented Software Development 1**
10 credit points • 5 hours per week • Hawthorn •
Prerequisite: nil • Instruction: lectures and laboratory sessions
● Assessment: assessed laboratory exercises, assignments and final examination
A first year subject in the Bachelor of Applied Science and Bachelor of Software Engineering

**Objectives**
To introduce basic concepts of object-oriented analysis and design; to introduce object-oriented programming using C++; to study the main features of the software development process in an object-oriented framework.

**Content**
Responsibility driven design; contracts: pre and post conditions and assertions; introduction to C++; control structures; streams; introduction to object-modelling; introduction to objects and classes in C++; introduction to class libraries; use of an OO CASE tool.

**Recommended Reading**
Perry, J. & Levin, H. *An Introduction to Object-Oriented Design in C++*, Addison-Wesley, Reading, Ma, 1996.

**ES104 Professional Skills for Software Engineers**
10 credit points • 32 hours per semester • Hawthorn •
Prerequisite: nil • Instruction: lectures, workshops
● Assessment: assignments; class participation; lecturer and student self
A first year subject in the Bachelor of Applied Science and Bachelor of Software Engineering

**Objectives**
To enable students to develop communicative competence and improve analytical skills; to provide students with an awareness of the need for clear and coherent communication in industry; to equip students with communication skills current in industry which have immediate application in their degree course.

**Content**
Use of catalogues, CD-ROM and other library facilities; in-text quoting and compilation of bibliographies; business correspondence - letters, memos, faxes, email; team building - group dynamics; oral presentation skills; report writing; resumes and letters of application; interview skills; non-verbal communication; meeting skills and documentation; user/technical documentation manuals; personal development issues (study skills, learning approaches etc).

**Recommended Reading**

**ES107 Computer Systems 1**
10 credit points • 3 hours per week • Hawthorn •
Prerequisite: nil • Instruction: lectures and laboratory sessions
● Assessment: assessed laboratory exercises, assignments and final examination
A first year subject in the Bachelor of Applied Science and Bachelor of Software Engineering

**Objectives**
To introduce the fundamental concepts of computer systems; to introduce the DOS, Windows and UNIX operating systems.

**Content**
Functions and components of computers; history of computing; data representation; computer hardware; operating systems; introduction to UNIX operating system; UNIX file management; commands & filters; shell programming; data communications; computer software; security, privacy & ethics; emerging technology; the internet.

**Recommended Reading**

**ES200 Object-Oriented Software Development 2**
10 credit points • 4 hours per week • Hawthorn •
Prerequisite: ES100 • Instruction: lectures and laboratory sessions
● Assessment: assessed laboratory exercises, one team assignment and final examination
A first year subject in the Bachelor of Applied Science and Bachelor of Software Engineering

**Objectives**
To present advanced concepts of object-oriented analysis and design; to present intermediate-level concepts of the C++ language.

**Content**
Advanced object modelling (including inheritance); task scripts and use cases; the dynamic model; C++ inheritance and run-time polymorphism; C++ techniques to implement associations; C pointers; recursion; introduction to algorithm complexity; C++ templates and container classes; dynamic object creation and destruction; linked lists.
**Recommended Reading**


**ES204 Software Engineering 1**

10 credit points • 3 hours per week • Hawthorn •
Corequisite: *ES100* • Instruction: lectures and tutorials.
Assessment: 3 small team assignments and final examination
A first year subject in the Bachelor of Applied Science and Bachelor of Software Engineering

**Objectives**

To introduce the basic problems which are encountered in the development and maintenance of software in a small team environment; to examine the current techniques and tools which are used by industry to address these problems; to allow students to experience the development of management, analysis, design and end-user documentation, working as a member of a small (eg 2-4 person) software project team.

**Content**

Software lifecycle models; human factors (incl. personality, group working); planning tasks and resource allocation; software specification; software design; software implementation techniques and tools; software validation; software maintenance; user documentation.

**Recommended Reading**


**ES207 Computer Systems 2**

10 credit points • 3 hours per week • Hawthorn •
Prerequisite: *ES107* • Instruction: lectures and laboratory sessions.
Assessment: assignment and final examination
A first year subject in the Bachelor of Applied Science and Bachelor of Software Engineering

**Objectives**

To introduce the main principles of computer architecture, computer organisation and assembly language programming: to consider the interface between hardware and software in relation to operating systems.

**Content**

Operating systems architecture, process management, memory management, overview of a computer system, instruction sets, assembly language, basics of digital logic design, arithmetic and logic unit, central processing unit • datapath, control and *pipelining*, memory hierarchy, input/output • interfacing with *peripherals*, *buses*, superscalar and parallel processors.

**Recommended Reading**


**ES300 Object-Oriented Software Development 3**

10 credit points • 3 hours per week • Hawthorn •
Prerequisite: *ES200* • Instruction: lectures and laboratory sessions.
Assessment: assignments and final examination
A second year subject in the Bachelor of Applied Science and Bachelor of Software Engineering

**Objectives**

To present advanced features of the C++ language; to present the implementation of standard data structures in C++; to study the fundamentals of design patterns and software architecture.

**Content**

Algorithm complexity; stacks and queues; table implementations; stacks; heaps and priority queues; graphs; exceptions in C++; multiple inheritance; random access files in C++; introduction to OO design patterns.

**Recommended Reading**


**ES301 Concurrent Programming in Ada**

10 credit points • 3 hours per week • Hawthorn •
Prerequisite: *ES200* • Instruction: lectures and laboratory sessions.
Assessment: assignments, final examination
A second year subject in the Bachelor of Applied Science and a third year subject in the Bachelor of Software Engineering

**Objectives**

To introduce Ada, ie a *procedural* language with strong typing, an industrial language other than C++; to introduce concurrent *programming* in a high level language.

**Content**

Ada type concepts and packages; control structures; exception handling; tasks; rendezvous; protected objects; semaphores; classic concurrent problems.

**Recommended Reading**


**ES304 Software Engineering 2**

10 credit points • 3 hours per week • Hawthorn •
Prerequisite: *ES204* • Instruction: lectures and tutorials.
Assessment: assignments, final examination
A second year subject in the Bachelor of Applied Science and Bachelor of Software Engineering

**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 (ie, in excess of four person) software development teams; to present the techniques and tools necessary for the successful management of medium to large-scale software development projects.
Content
Software costing, scheduling and risk management; software quality management (incl. SQM Approaches (eg. ISO9001, CMM, SPICE, Bootstrap, TQM), Standards, Configuration Management); software metrics.

Recommended Reading

ES305 Database
10 credit points • 3 hours per week • Hawthorn •
Prerequisite: nil • Instruction: lectures and tutorials • Assessment: tutorial exercises, laboratory exercises, assignment and final examination
A second year subject in the Bachelor of Applied Science and Bachelor of Software Engineering

Objectives
To provide a solid theoretical foundation to the fundamentals of database design and database systems development; to survey existing Database Management Systems and provide a framework to compare and evaluate different DBMS products; to provide sufficient practical exposure to designing and using databases so as to equip students for basic database tasks in industry and government.

Content
Database Architecture; Data Models; Conceptual Design; Entity-Relationship and Semantic Object Modeling; Relational Theory; Logical and Physical Design; DBMS Survey and Evaluation; Database Tools for Software Development; Network DBMS's; Hierarchical DBMS's; Object Databases.

Recommended Reading

ES306 Introduction to Human-Computer Interaction
10 credit points • 3 hours per week • Hawthorn •
Prerequisite: nil • Instruction: lectures, tutorials and laboratory sessions • Assessment: assignments and final examination
A second year subject in the Bachelor of Applied Science and Bachelor of Software Engineering.

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 (UIMS); Groupware and Computer Supported Cooperative Work (CSCW); organisational issues.

Recommended Reading

ES402 Systems Programming
10 credit points • 3 hours per week • Hawthorn •
Prerequisite: ES107, ES100 • Instruction: lectures and laboratory sessions • Assessment: assignments and final examination.
A second year subject in the Bachelor of Applied Science and the Bachelor of Software Engineering.

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

ES403 Software Development Project
10 credit points • Equivalent to 3 hours per week • Hawthorn •
Prerequisite: ES304 • Instruction: lectures and project team development activities • Assessment: assignments
A second year subject in the Bachelor of Applied Science and the Bachelor of Software Engineering.

Objectives
To apply the software engineering and management skills acquired in the previous semesters of the course to a substantial software development project in a team environment; to give project teams experience in the management of time and resources and the preparation of the full range of project and software documentation.

Content
Project teams will be expected to liaise with a client to establish user needs and to transform these needs into a software solution; each project team will be required to prepare a suite of deliverables; project plan, requirements...
specification, design specification, source code, and user manual; deliverables shall be prepared in accordance with the software documentation standards; the final product shall be presented to the client for evaluation and acceptance.

**Recommended Reading**

**ES406  Graphical User Interface Development**
10 credit points ● 3 hours per week ● Hawthorn ●
Prerequisite: ES200, ES306 ● Instruction: lectures and laboratory sessions ● Assessment: assignments and final examination
A second year subject in the Bachelor of Applied Science and the Bachelor of Software Engineering.

**Objectives**
To explore the methods and tools of graphical user interface development; to familiarise students with the principles, practices and techniques of the event based programming paradigm, with particular application to Graphical User Interfaces (GUIs).

**Content**
The rapid prototyping paradigm; tools and techniques for rapid prototyping; managing the prototyping process; the role of developers and users in prototyping; design principles for rapid prototyping; event based programming principles tools and techniques; a brief introduction to graphic user interface elements; concept of event driven programming and types of events; introduction to a modern rapid prototyping user interface development environment, preferably using C++; GUI programming in C++; use of and programming of dynamic link libraries (DLLs); use of high level class libraries for user interface programming; use of application programming interfaces for low-level calls; user interface issues, choice of colours, design, etc.

**Recommended Reading**

**ES407  Data Communications**
10 credit points ★ 3 hours per week ● Hawthorn ●
Prerequisite: ES100 ● Instruction: lectures and laboratory sessions ● Assessment: assignments and final examination
A second year subject in the Bachelor of Applied Science and the Bachelor of Software Engineering.

**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 technologies; 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, ISDN, standards, wide area networks; OSI: the seven layer model, layer interaction, comparison of architectures; message handling systems: standards, examples.

**Recommended Reading**

**ES409  Introduction to Artificial Intelligence**
10 credit points ★ 3 hours per week ● Hawthorn ●
Prerequisite: ES100 ● Instruction: lectures, tutorials and laboratory sessions. ● Assessment: assignments and final examination.
A second year subject in the Bachelor of Applied Science and a third year subject in the Bachelor of Software Engineering.

**Objectives**
To give students an appreciation of the difficulties involved in encoding knowledge, even in restricted domains, in such a fashion that 'intelligent behaviour' can be elicited; to contrast the symbol-based and non-symbol-based paradigms.

**Content**
Problem solving and search; symbolic knowledge representation; artificial neural networks; evolutionary programming; machine learning; natural language processing; machine vision.

**Recommended Reading**

**ES500  Compiler Design**
10 credit points ★ 3 hours per week ● Hawthorn ●
Prerequisite: ES300 ● Instruction: lectures and tutorials. ● Assessment: assignments and final examination.
A final year elective subject in the Bachelor of Applied Science and the Bachelor of Software Engineering.

**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**


**ES501 Real-Time Systems**

10 credit points • 3 hours per week. Hawthorn • Prerequisite: ES304 • Instruction: lecture and laboratory sessions. Assessment: assignments and final examination.

A final year subject in the Bachelor of Software Engineering and a final year elective in the Bachelor of Applied Science.

**Objectives**

To study the design and implementation of hard real-time systems

**Content**

Characteristics of real-time systems; safety, reliability and fault tolerance; resource management and deadlock prevention; clocks and deadlines; low-level programming, interrupt handling; preemptive scheduling; real-time kernels; real-time aspects of distributed systems; analysis for real-time systems; introduction to real-time methodologies.

**Recommended Reading**


**ES503 Software Engineering Project**

30 credit points over two semesters • 3 hours per week in Sem 1, 1 hour per week in Sem 2 • Hawthorn • Prerequisite: ES300, ES304 • Instruction: lecture, contact with supervisor and project team sessions. Assessment: assignments.

A final year subject in the Bachelor of Applied Science and the Bachelor of Software Engineering.

**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**


**ES504 Advanced Software Engineering 1**

10 credit points • 3 hours per week • Hawthorn • Prerequisite: ES404 • Instruction: lecture and tutorial. Assessment: assignments and final examination.

A third year subject in the Bachelor of Software Engineering and an elective subject in the Bachelor of Applied Science.

**Objectives**

To demonstrate proficiency in current approaches and techniques in Process Modelling, Software Architecture and Software Validation and Verification.

**Content**


**Recommended Reading**


Gamma, E. et al., *Design Patterns: Elements of Reusable Object-Oriented Software*, Addison-Wesley, Reading MA, 1995.

**ES506 Advanced HCI 1**

10 credit points • 3 hours per week • Hawthorn • Prerequisite: ES404 • Instruction: lecture and tutorial. Assessment: assignments and final examination.

An elective subject in the Bachelor of Software Engineering and the Bachelor of Applied Science.

**Objectives**

To develop ability in selecting techniques for user centred system; design; to introduce the philosophy and techniques of cooperative user interface development; to introduce the philosophy and techniques of cognitive user; interface development.

**Content**

Designing the design process; the effect of context on method selection; participatory approaches, the cooperative paradigm, participative design methods, contextual inquiry, sociotechnical design, participative evaluation, ethnomethodology, the technology of participatory design; formal modelling-based approaches, function and task modeling, user modeling, situation modeling, activity modeling.

**Recommended Reading**


ES507  Local Area Networks

10 credit points  ●  3 hours per week.  Hawthorn  ●  Prerequisite: ES407  ●  Instruction: lecture and laboratory sessions  ●  Assessment: assignments and final examination.

A final year elective subject in the Bachelor of Software Engineering and the Bachelor of Applied Science.

Objectives
To study the operation of common LAN topologies and protocols; to study the functionality of LAN components such as repeaters, bridges and routers; to study some representative network operating systems.

Content
Data communication networks and open system standards; protocol basics; ethernet, token ring and token bus networks; high speed and bridged LANs; internetworking; transport protocols; application specific protocols; DNS, NIS, NFS; network operating systems: Novell’s Netware, Windows NT; network management: SNMP; security aspects.

Recommended Reading


ES508  Multimedia Technology

10 credit points  ●  3 hours per week.  Hawthorn  ●  Prerequisite: ES406  ●  Instruction: lecture and laboratory sessions  ●  Assessment: assignments and final examination.

A final year elective subject in the Bachelor of Software Engineering and the Bachelor of Applied Science.

Objectives
To present a range of technologies, concepts and techniques used in the development of multimedia systems.

Content
Introduction to multimedia - concepts, terminologies and application areas; multimedia objects - text graphics, audio, animation, video, digitisation, standards (MCI, DVI, Quicktime, MIME), capturing techniques, compression (entropy and redundancy, JPEG, MPEG, fractal), storage formats and conversion, manipulation, processing and editing tools; multimedia hardware - components of a multimedia system, CD-ROM, scanners, video and sound cards, interfaces (MDI, SCSI, PCMCIA, IDE), CD-ROM, CD-I; multimedia on the Internet - WWW, HTML, CGI, VRML, Java: Windows™ multimedia programming – Microsoft Multimedia Viewer, Windows™ API and MCI, OLE; application construction - toolkits, authoring systems, search engines, scripting, 3-D animations; networking and communication - protocols, multimedia servers, distributed multimedia databases, video conferencing.

Recommended Reading


ES509  Knowledge-Based Systems Engineering

10 credit points  ●  3 hours per week.  Hawthorn  ●  Prerequisite: ES409  ●  Instruction: lecture and laboratory sessions  ●  Assessment: assignments and final examination.

A final year elective subject in the Bachelor of Software Engineering and the Bachelor of Applied Science.

Objectives
To introduce the techniques and theories of knowledge acquisition and building knowledge-based systems.

Content
Manual knowledge acquisition techniques; automated knowledge acquisition techniques; knowledge representation in knowledge-based systems; inferences, problem solving and architecture in knowledge-based systems; inconsistent, multiple and distributed knowledge source management; building knowledge-based systems with multimedia interfaces.

Recommended Reading

ES514  Formal Methods

10 credit points  ●  3 hours per week.  Hawthorn  ●  Prerequisite: ES304, ES300, SM111  ●  Instruction: lecture and tutorial  ●  Assessment: assignments, test and final examination.

A third year subject in the Bachelor of Software Engineering and an elective subject in the Bachelor of Applied Science.

Objectives
To review the elements of discrete mathematics relevant to formal systems development; to consider in detail the Object Z specification language; to study the role of formal methods in the software development process; to develop skills in reading and writing formal system specifications; to consider formal development methods.

Content
Review of fundamentals of discrete mathematics (sets, relations, functions, propositional and predicate calculus); the Object Z specification language; integration of formal methods into software processes: the FOOM approach; specification techniques for real-time systems; formal verification techniques; formal development methods; formal methods in practice - a case study.

Recommended Reading

ES518  Computer Graphics and Virtual Reality

10 credit points  •  3 hours per week  •  Hawthorn  •  
Pre requisite: ES200  •  Instruction: lecture and tutorial.  •  
Assessment: assignments and final examination.  
A final year elective subject in the Bachelor of Software 
Engineering and the Bachelor of Applied Science.  

Objectives 
To introduce computer graphics principles; to introduce 
concepts of virtual reality.  

Content 
What is computer graphics; graphics hardware; point, line, 
circle and polygon drawing; 2D transformations; 
windowing and clipping; data structures for computer 
graphics; 3D transformations; 3D viewing and 
representations; colour in computer graphics; object 
rendering/tracing; virtual reality.  

Recommended Reading 
Hearn, D & Baker, M., Computer Graphics, Prentice-Hall, 
1986.  

ES524  Professional Issues in Software 
Engineering 

10 credit points  •  3 hours per week  •  Hawthorn  •  
Pre requisite: nil  •  Instruction: lecture and tutorial, workshop 
• Assessment: assignments and final examination.  
A final year subject in the Bachelor of Software Engineering 
and the Bachelor of Applied Science. 

Objectives 
To introduce and review of the Code of Ethics and Code 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 reasoning confronting issues at the 
workplace. 

Content 
A 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 workplace; a 
personal framework for ethical behaviour.  

Recommended Reading  
Arnold, R and Hess, D., The Paradox of Economic Growth and 
Inequality, Victorian Association for Peace Studies, Hampton, 
Victoria, Australia, 1994.  

ES600  Programming Paradigms 

10 credit points  •  3 hours per week  •  Hawthorn  •  
Pre requisite: ES200  •  Instruction: lecture and laboratory 
sessions  •  Assessment: assignments and final examination.  
A final year elective subject in the Bachelor of Software 
Engineering and the Bachelor of Applied Science.  

Objectives 
To introduce the concepts underlying programming 
languages; to investigate the major programming paradigms.  

Content 
Short introduction to formal languages theory, syntax and 
grammers, semantics; elements of programming languages, 
data abstraction, data types; functions and recursion; 
dynamic structures; parallel processing; classification and 
characteristics of programming languages, imperative 
programming paradigm, object oriented programming paradigm, functional programming paradigm, logic 
programming paradigm; examples of implementation of the 
major programming paradigms (this may include languages : 
C++, Miranda, Prolog, Lisp, Java and others).  

Recommended Reading 
Watt, D. Programming Language Concepts and Paradigms, 

ES603  Software Team Project 

10 credit points  •  3 hours per week  •  Hawthorn  •  
Pre requisite: ES204  •  Instruction: lecture and contact with 
project supervisor  •  Assessment: assignment.  
A final year subject in the Bachelor of Applied Science. 

Objectives 
To apply software engineering principles to the 
development and successful implementation of a major 
piece of software which satisfies user needs; to learn 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 School of Computer 
Science and Software Engineering. Each group is supervised 
closely by a member of staff who acts as 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 at which the completed software and user.

**Recommended Reading**


**ES604 Advanced Software Engineering 2**

10 credit points • 3 hours per week • Hawthorn • Prerequisite: ES504 • Instruction: lecture and tutorial • Assessment: assignments and final examination.
A third year subject in the Bachelor of Software Engineering and an elective subject in the Bachelor of Applied Science.

**Objectives**

To present an in-depth study of some of the current, critical issues in Software Engineering.

**Content**

A number of Swinburne or visiting lecturers shall present a selection of advanced, topical issues related to Software Engineering. It is envisaged that three topics will be presented, each of which is discussed and debated in depth.

**Recommended Reading**


**ES605 Advanced Database**

10 credit points • 3 hours per week • Hawthorn • Prerequisite: ES505 • Instruction: lecture and laboratory sessions • Assessment: assignments and final examination.
A final year elective subject in the Bachelor of Applied Science and the Bachelor of Software Engineering

**Objectives**

To provide students with sufficient theory and experience in the areas of transaction management, client-server architectures, distributed databases and object databases to give a solid foundation for practical usefulness in client-server development in industry.

**Content**

Transaction management; security and privacy; distributed databases; object databases; client-server technology.

**Recommended Reading**


**ES606 Advanced HCI 2**

10 credit points • 3 hours per week • Hawthorn • Prerequisite: ES506 • Instruction: lecture and tutorial • Assessment: assignments and final examination.
A final year elective subject in the Bachelor of Applied Science and the Bachelor of Software Engineering

**Objectives**

To allow lessons learned so far in the HCI stream to be particularised within real world projects and contexts.

**Content**

Applications areas will be drawn from: biomedical issues and HCI, physiological monitoring systems in hospitals, clinical information systems (hospital records, orders, etc); HCI and large complex systems, geographical information systems in use, multi-function keyboards in aviation systems, air traffic control, ground transportation control (traffic, trains, taxis, etc.), power plant process control; software psychology; novel display design; HCI issues in multimedia, multimedia “walk-up-and-use” kiosks in public use, TV studio switching systems for technical direction; HCI and groupwork and CSCW.

**Recommended Reading**


**ES608 Multimedia Development**

10 credit points • 3 hours per week • Hawthorn • Prerequisite: ES508 • Instruction: lecture and tutorial • Assessment: final examination.
A final year elective subject in the Bachelor of Applied Science and the Bachelor of Software Engineering

**Objectives**

To design and develop a multimedia application operating in a team environment; to evaluate multimedia systems.

**Content**

The multimedia project - the development team, project planning, project management, media management; design models and methodologies - design paradigms, navigation metaphors, hypertext models (Dexter, Trellis, Amsterdam), document models (SGML, Hytime), analysis and design methodologies; multimedia interface design; evaluation of multimedia systems; societal issues - information superhighway, patents and copyright, censorship.

**Recommended Reading**

**ES609  Soft Computing**

10 credit points • 3 hours per week. Hawthorn •
Prerequisite: ES409 • Instruction: lecture and laboratory sessions.
Assessment: assignments, laboratory reports and final examination.
A final year elective subject in the Bachelor of Applied Science and the Bachelor of Software Engineering.

**Objectives**
To introduce and investigate non-deterministic computational methods and their application to complex problem domains.

**Content**
Methods of inference and approximate reasoning: artificial neural networks for supervised learning; artificial neural networks for unsupervised learning; evolutionary computing; fuzzy systems; hybrid systems.

**Recommended Reading**

**ES614  The Personal Software Process**

10 credit points • 3 hours per week. Hawthorn •
Prerequisite: ES300, ES304 • Instruction: lecture and laboratory sessions.
Assessment: assignments and reports.
A third year subject in the Bachelor of Software Engineering and an elective subject in the Bachelor of Applied Science.

**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, size estimating, 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**

**ES618  Computer Graphics and Animation**

10 credit points • 3 hours per week. Hawthorn •
Prerequisite: ES518 • Instruction: lecture and tutorial.
Assessment: assignments and final examination.
A final year elective subject in the Bachelor of Applied Science and the Bachelor of Software Engineering.

**Objectives**
To present advanced areas of Computer Graphics, with special attention given to computer animation.

**Content**
A selection from the following topics may be covered: Nature of Light and Colour, what is light? what is colour? colour models; Surface Shading, characteristics of different types of surfaces, interaction of surfaces with light, light sources, ambient light, diffuse and specular reflection, simple surface shading equations, Phong and Gourand shading of polygons; Radiosity, what is radiosity, how does it differ from other rendering methods? basic radiosity calculations; Animation, types of animation, simple animation of shapes, layering, character animation, motion description.

**Recommended Reading**

**ES700  Object-Oriented Software Development 1**

10 credit points • 4 hours per week. Hawthorn •
Prerequisite: nil • Instruction: lecture and laboratory sessions.
Assessment: assignments, laboratory tests and final examination.
A subject in the Graduate Diploma (Computer Science)

**Objectives**
Basic proficiency in programming using an object-oriented language; appreciation of the software development process in an object-oriented framework; good understanding of basic object-oriented concepts; ability in elementary object-oriented analysis and design.

**Content**
Responsibility driven design; contracts: pre and post conditions and assertions; introduction to C++; control structures; streams; introduction to object-modelling; introduction to objects and classes in C++; introduction to class libraries; use of an OO CASE tool.

**Recommended Reading**

**ES703  Software Development Project**

20 credit points over two semesters • 3 hours per week. Hawthorn •
Prerequisite: Knowledge of software engineering principles and practices either covered in previous semesters or being taught in parallel with this subject • Instruction: lecture, contact with supervisor and project team sessions.
Assessment: assignments.
A subject in the Graduate Diploma (Computer Science)

**Objectives**
To introduce techniques and strategies for the management of software project utilising development technologies that enable the realisation of management objective; to give
project teams experience in the management of time and resources and the preparation of the full range of project 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**


**ES704 Professional Issues in Software Engineering**

10 credit points • The subject will be run in the flexible learning mode • Hawthorn • Prerequisite: nil • Instruction: lecture and distance learning material • Assessment: assignments and final examination

A subject in the Graduate Diploma (Computer Science)

**Objectives**

To introduce and review of the Code of Ethics and Code 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 reasoning confronting issues at the work place.

**Content**

A 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**


**ES705 Database**

10 credit points • 3 hours per week • Hawthorn • Prerequisite: nil • Instruction: lecture and laboratory/tutorial sessions • Assessment: assignments and final examination

A subject in the Graduate Diploma (Computer Science)

**Objectives**

To provide a solid theoretical foundation to the fundamentals of database design and database systems development; to survey existing Database Management Systems and provide a framework to compare and evaluate different DBMS products; to provide sufficient practical exposure to designing and using databases so as to equip students for basic database tasks in industry and government.

**Content**

Database Architecture; Data Models; Conceptual Design; Entity-Relationship and Semantic Object Modeling; Relational Theory; Logical and Physical Design; DBMS Survey and Evaluation; Database Tools for Software Development; Network DBMS’s; Hierarchical DBMS’s; Object Databases.

**Recommended Reading**


**ES707 Computer Systems 1**

10 credit points • 3 hours per week • Hawthorn • Prerequisite: nil • Instruction: lecture and laboratory sessions • Assessment: assignments, laboratory tests and final examination

A subject in the Graduate Diploma (Computer Science)

**Objectives**

To introduce the fundamental concepts of computer systems: to introduce the DOS, Windows and UNIX operating systems.

**Content**

Functions and components of computers; history of computing; data representation; computer hardware; operating systems; introduction to UNIX® operating system; UNIX® file management; commands & filters; shell programming; data communications; computer software; security, privacy and ethics; emerging technology; the internet.

**Recommended Reading**


**ES710 Object-Oriented Software Development 3**

10 credit points • 3 hours per week • Hawthorn • Prerequisite:ES750 • Instruction: lecture and laboratory tutorials and exercises • Assessment: assignments and final examination

A subject in the Graduate Diploma (Computer Science)

**Objectives**

Advanced-level proficiency in programming using C++; working knowledge of the standard data structures; appreciation of software architecture.

**Content**

Algorithm complexity; stacks and queues; table
implementations; trees; heaps and priority queues; graphs; exceptions in $C++$; multiple inheritance; random access files in $C++$; introduction to OO design patterns.

**Recommended Reading**


**ES750 Object-Oriented Software Development 2**

10 credit points • 4 hours per week • Hawthorn •
Prerequisite: ES700 • Instruction: lectures and laboratory sessions • Assessment: assignments, laboratory tests and final examination

A subject in the Graduate Diploma (Computer Science)

**Objectives**

Intermediate-level proficiency in programming using C++; proficiency in object-oriented design and analysis.

**Content**

Advanced object modelling (including inheritance); task scripts and use cases; the dynamic model; $C++$ inheritance and run-time polymorphism; $++$ techniques to implement associations; $C$ pointers; recursion; introduction to algorithm complexity; $C++$ templates and container classes; dynamic object creation and destruction; linked lists.

**Recommended Reading**


**ES752 Systems Programming**

10 credit points • 4 hours per week • Hawthorn •
Prerequisite: ES700, ES707 • Instruction: lectures and laboratory sessions • Assessment: assignments and final examination

A subject in the Graduate Diploma (Computer Science)

**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**


**ES754 Software Engineering 1**

10 credit points • 3 hours per week • Hawthorn •
Prerequisite: nil; However students who have not passed ES700 must study that subject concurrently with ES754 •
Instruction: lectures and tutorials • Assessment: assignments and final examination

A subject in the Graduate Diploma (Computer Science)

**Objectives**

To introduce the basic problems which are encountered in the development and maintenance of software in a small team environment: to examine the current techniques and tools which are used by industry to address the above problems; to allow students to experience the development of management, analysis, design and end-user documentation, working as a member of a small (eg 2-4 person) software project team.

**Content**

Software lifecycle models; human factors (incl. personality, group working); planning tasks and resource allocation; software specification; software design; software implementation techniques and tools; software validation; software maintenance; user documentation.

**Recommended Reading**


**ES757 Data Communications**

10 credit points • 4 hours per week • Hawthorn •
Prerequisite: ES700 • Instruction: lectures and laboratory sessions • Assessment: assignments and final examination

A subject in the Graduate Diploma (Computer Science)

**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 technologies; 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, ISDN, standards, wide area networks; OSI: the seven layer model, layer interaction, comparison of architectures; message handling systems; standards, examples.

**Recommended Reading**

GD101 Studio Projects 1A
37.5 credit points • 10 hours per week • full year subject • Prahran • Assessment: continuous
A first year subject in the Bachelor of Design (Graphic Design)

Studio Projects 1A and 1B
Studio Projects 1A and 1B refer to two coordinated work programs with specific emphasis on developing in students an individual creative approach to solving communication problems using visual and conceptual means.

Content
Students are encouraged to develop their own personal style through soundly reasoned, skillfully executed assignments and to communicate the solutions in a way most likely to ensure acceptance and successful implementation. Group assignments also allow students to develop a broader understanding and appreciation of other students' particular abilities.

These sequential programs are directed at developing a general awareness of visual aspects of the students' environment and facility for critical objective analysis.

Design
Studies in design seek to equip students with a design vocabulary to allow creative expression in areas of two and three dimensions. As the year progresses, design projects increasingly interact with drawing, photography and design for print. In this way students develop an appreciation and competence over a broad range of communication problems.

Design for print
This subject introduces print technology including reproduction of lettering, typographic and symbol design, illustration, and all aspects of production with particular emphasis on experimental work in offset lithography and screen printing.

GD102 Studio Projects 1B
37.5 credit points • 10 hours per week, full year subject • Prahran • Assessment: continuous
A first year subject in the Bachelor of Design (Graphic Design)

Objectives and Content
Typography and letterform
This subject introduces students to the principles and practice of typographic design. Studies include calligraphy, letterform design, the historic derivation of type and the application of typefaces and letterform’s in contemporary design. Methods of copy preparation and specification and the preparation of finished artwork for reproduction are also studied.

Photography
A comprehensive introduction to still photography as a creative medium aims at cultivating visual awareness through study of controlled lighting, spatial relationships, form, product and fashion photography, photo-journalism, photo reproduction techniques (e.g., developing and printing), pictorial editing, various colour processes and costing.

GD111 History of Arts 1
15 credit points • 3 hours per week, full year subject • Prahran • Assessment: continuous
A first year subject in the Bachelor of Design (Graphic Design)

Objectives and Content
This subject explores art and design, photography and popular culture ranging from neo-classicism and the industrial revolution through romanticism, arts and crafts, post-impressionism, art nouveau and modernism to dada and surrealism and their attacks on the establishment.

As well as studying the work of individual artists and designers the course looks at themes such as gender and class, and the impact of political and social theories, especially those of Marx and Freud.

The crossover between western and non-western cultures are considered along with the themes of imperialism, nationalism and utopia in Australian and Japanese art.

The assignments are designed to develop conceptual and analytical skills and consist of a combination of written, visual and verbal components with an emphasis placed on creativity.

GD120 Introduction to Film and Media Studies
10 credit points • 2 hours per week, full year subject • Prahran • Assessment: continuous
A first year subject in the Bachelor of Design (Graphic Design)

Objectives and Content
Emphasis is placed on exploring contemporary modes of criticism via film analysis. Various structural methodologies are developed through reading, lectures and class discussions. Feature films, shorts and commercials are screened. Lectures and discussions deal with the application of criticism to problems of directing and the analysis of film. Films are discussed in terms of art, technique and historical context.

Students should be prepared to see prescribed films, undertake prescribed reading and present a critical and historical analysis of film in essay form.

GD130 Ideas, Culture and Communication
10 credit points • 2 hours per week, full year subject • Prahran • Assessment: continuous
Alternative first year subject for students from non-English speaking backgrounds in the Bachelor of Design (Graphic Design)

Content
This subject has been designed to help and encourage overseas students to improve their command of written and
spoken English in order to assist them to successfully complete the applied subjects in this course. Emphasis is placed on the links between art/design/political and social realities.

GD201/ Studio Projects 2A and 2B
GD02
40 credit points each • 10 hours per week each, full year subjects • Prahran • Prerequisites: Studio Projects 1A and 1B, (GD101, GD102, GD111 and GD120) • Assessment: continuous
These are second year subjects in the Bachelor of Design (Graphic Design)

Content
Areas included in Studio Projects 2A design, methods of production and computer-aided design.
Areas included in Studio Projects 2B photography, typography, drawing and illustration
These subjects constitute a bridge between the formative studies undertaken in Studio Projects 1A and 1B and the applied studies of Studio Projects 3. The educational aim of Studio Projects 2A and 2B is to bring the student to a high standard of competence in the illustrative, symbolic, typographic, written and verbal presentation of ideas. These skills are used in the arrangement of sequential information embracing publishing, advertising, sales promotion, merchandising and public relations, and also for non-commercial areas such as education and community organisations.

GD221 Design History and Critical Theory
20 credit points • 3 hours per week, full year subject • Prahran • Assessment: continuous • Prerequisites: GD101, GD102, GD111, GD120
A second year subject in the Bachelor of Design (Graphic Design)

Content
In second year, History concentrates on developments in design, art and popular culture from Post World War 2 and International Modernism through to today and Post Modernism. Emphasis is placed on exploring the political, social and economic dimensions of design from within a framework of critical design theory; the aim being to encourage a critical discourse amongst students about design and its role in society.

GD322 Print Technology
5 credit points • 2 hours per week • Prahran • Assessment: continuous • A third year subject in the Bachelor of Design (Graphic Design) and the Bachelor of Design (Honours) (Graphic Design)

Content
This subject investigates the theory and application of modern print technology. It is not intended that this subject will go deeply into the electronics, mechanics or chemistry of printing, but rather explore the possibilities for design, production and distribution created by modern reproduction methods. These include type composition, photo-mechanical processes (offset, screen, letterpress and gravure), and studies of paper and other stocks.
This course will include the economics of production and relate to sections of the course in business administration. Visits to production houses are also arranged.

GD335 Design Culture
20 credit points • 3 hours per week, full year subject • Prahran • Prerequisite: GD201, GD202 and GD221 • Assessment: continuous
A third year subject in the Bachelor of Design (Graphic Design) and Bachelor of Design (Honours) (Graphic Design)
N.B. it is expected that for students to satisfactorily complete this subject, additional time will be required to visit galleries, exhibitions and performances.

Objectives
To facilitate a first-hand experience of art and design culture and the place it occupies within the functioning of our society.

Content
Various levels of cultural experience, encircling the personal, the professional and the academic, will be explored. Regular outings to exhibitions, performances, films, seminars and public forums form a major component of the program.
As part of the assessment students will create an experiential diary consisting of a combination of written and visual elements.

GD410 Studio Projects 4A
70 credit points • 18 hours per week, full year subject • Prahran • Prerequisite: Credit level or above in GD301 Studio Projects 3, GD335 and GD322 or GD303 Industrial Year, GD335 and GD322 • Assessment: teaching staff and external design professionals convene to undertake assessment of this unit.
A fourth year subject in the Bachelor of Design (Honours) (Graphic Design)
N.B. additional work required outside scheduled hours, including evenings and weekends

Content
Working in a professional atmosphere, emphasis is given to developing the student’s special capabilities through assigned professional projects or self-defined problems, culminating in a major design assignment.
GD411  Studio Projects 4B (Honours Dissertation)
25 credit points • 6 hours per week, full year subject • Prahran • Prerequisite: credit level or above in GD301 Studio Projects 3, GD335 and GD322 or GD303 Industrial Year, GD335 and GD322. • Assessment: Teaching staff and external design professionals convened to undertake critical appraisal of this unit.
A fourth year subject in the Bachelor of Design (Honours) (Graphic Design)
Objectives
To develop a sophisticated research methodology which applies to the practice of design and postgraduate research.
Content
Students research and then produce a single project which demonstrates the student’s special interest in visual communication. Through research and documentation the project responds to a program of enquiry that is of general importance to the discipline of graphic design. It is a synthesis of previous experience, realised by research and subsequent production of a project.

GD490  Design Management
5 credit points • 2 hours per week Prahran • Assessment: continuous
A fourth year subject in the Bachelor of Design (Honours) (Graphic Design)
Objectives
To give students a general understanding of the business environment with an emphasis on management in the visual communication industry.
Specific course objectives are:
• to develop an understanding of graphic design management including setting up and managing a design office, working with clients and graphic design project management;
• to develop skills in presentation and articulation of ideas;
• to gain experience in solving design management problems;
• to develop skills in written business communication and report writing.
Aspects of the theory are incorporated in assigned project work of the IBL Honours degree stream and the professional practice of the Design Centre.
Students are required to submit two major written assignments based on information presented in the tutorials by the course coordinator and guest lecturers.

ID101  Industrial Design 1
12.5 credit points • 8 hours per week • Prahran • Assessment: continuous
A first year subject in the Bachelor of Design (Industrial Design)
This subject consists of:
Design Principles 1A

Common Studies 1A
Design Drawing

Design Principles 1A
Objectives
To introduce a range of design methodologies used to produce creative solutions in design projects.
Content
An introduction to design methodology including product research, analysis and identification of the problem, methods for dealing with creative problem solving and removing mental blocks, clear thinking, divergent and convergent thought processes. Areas of interest will include lateral thinking, form follows function, functionalism, association, brainstorming techniques and other methodologies. Practical exercises and discussions will consolidate these processes.

Common Studies 1A
Objectives
To create a general understanding of the value and application of a variety of useful topics as they apply to industrial designers and in the practice of other related disciplines.
Content
Topics to be covered in this subject will include time management, typography, photography and reprographics as they pertain to industrial designers.

Design Drawing
Objectives
To introduce students to perspective and ‘box construction’ drawing as a basis for two dimensional communication techniques such as product sketching and more formal visualisation.
Content
The introduction to one, two and three points perspective as it pertains to industrial design and the construction of sophisticated forms from basic constructed geometric units.

ID102  Technology 1
12.5 credit points • 6 hours per week • Prahran • Prerequisites: nil • Assessment: continuous
A first year subject in the Bachelor of Design (Industrial Design).
This subject consists of:
Design and Manufacturing 1A
Workshop Techniques 1A

Design and Manufacturing 1A
Objectives
An introduction to the structure, properties, and processing of engineering materials.
Content
• The classification, structure and properties of engineering materials;
• elements, compounds and mixtures;
- metals and non-metals;
- organic and inorganic materials, chemical bonding, properties of materials;
- testing and inspection techniques used to determine the properties of materials;
- material data sheets.

**Workshop Techniques 1A**

**Objectives**
This subject will outline the basic theory and practice of modelmaking.

**Content**
This subject will explore the basic materials and techniques used in the production of design models and prototypes. Tutorial and workshop sessions will ensure the safe use of handtools, machinery and the various materials used in modelmaking for design. The function of models and their role in the design process will also be discussed and demonstrated.

**ID103 Drawing ID**

**10 credit points • 6 hours per week • Prahran • Prerequisites: nil • Assessment: continuous**
A first year subject in the Bachelor of Design (Industrial Design)

**Objectives**
To cultivate a visual language by observation and personal expression through various media.

**Content**
The content includes drawing the human figure, drawing from studio 'set-ups', and field work expanding on such topics as life, nature, color, form, expression and texture using basic drawing principles.

**ID104 Computer Studies 1A**

**7.5 credit points • 3 hours per week • Prahran • Prerequisites: nil • Assessment: continuous**
A first year subject in the Bachelor of Design (Industrial Design)

**Objectives**
To introduce computing and give an understanding of the variation of programs and languages available.

**Content**
To introduce the computer as a tool in aiding the process of business activities such as information retrieval and as a method of communication. Topics will cover a basic understanding of language and simple programs for every day use such as word processing, database and spreadsheet. Computer environments will be explored and the differences discussed. The student will gain an understanding of how to use computers for the purposes of presenting written information and retrieving data.

**ID105 Design History 1A**

**7.5 credit points • 3 hours per week • Prahran • Prerequisite: nil • Assessment: continuous**
A first year subject in the Bachelor of Design (Industrial Design)

**Objectives**
To establish frames of reference, a broad cultural base for students, by the exploration of developments in art and design during the modernist period. The course aims to bring students to an awareness of the role that art and design plays in shaping and communicating our social, political and cultural values.

**Content**
Semester one explores European and Australian developments in design and art ranging from the industrial revolution and neo-classicism to the end of the nineteenth century. While charting the work of individual designers and artists the course also explores cultural themes such as gender and class, imperialism and nationalism, east and west and considers the influence of political and social conditions on western culture.

**ID201 Industrial Design 2**

**12.5 credit points • 8 hours per week • Prahran • Prerequisites: ID101 Industrial Design 1, ID102 Technology 1 • Assessment: continuous**
A first year subject in the Bachelor of Design (Industrial Design)

This subject consists of:
- Design Principles 1B
- Common Studies 1B
- Presentation Drawing

**Design Principles 1B**

**Objectives**
To expand the range of design methodologies used to creatively resolve design problems.

**Content**
This subject refines design methodologies and will include product research, analysis and identification of the problem, methods for dealing with creative problem solving, removing mental blocks and clear thinking. Divergent and convergent thought processes will be examined. Areas of interest will include lateral thinking, form follows function, functionalism, association, brainstorming techniques and other methodologies. Practical exercises and discussions will consolidate these processes.

**Common Studies 1B**

**Objectives**
To introduce students to the process of design and design practice.

**Content**
Through a series of practice projects, students will be introduced to the process of design and the incorporation of other design areas into this process.
Areas include:
- graphics
- photography
- drawing and visual thinking
- basic model making
- engineering

Presentation Drawing

Objectives
To further develop the communication drawing techniques covered in the first semester and introduce the use of color for more formal renderings.

Content
The generation of more sophisticated forms using construction drawing methods and the introduction of color rendering techniques.

ID202 Technology 2

12.5 credit points • 9 hours per week • Prahran
- Prerequisites: ID101 Industrial Design 1, ID102 Technology 1
- Assessment: continuous
A first year subject in the Bachelor of Design (Industrial Design)
This subject consists of:
Design and Manufacturing 1B
Engineering Graphics
Workshop Techniques 1B

Design and Manufacturing 1B

Objectives
An introduction to the structure, properties, and processing of engineering materials.

Content
This subject introduces students to the classification, structure and properties of wood and wood products, wood technology, and machining and fabrication techniques.
Areas of interest will include testing and inspection techniques used to determine the properties of timber and wood products and designing for manufacture in wood and wood products.

Engineering Graphics 1

Objectives
To give students a practical background in the skills and materials required to produce engineering drawings in accordance with AS1100.

Content
This subject deals with the formal technical skills of engineering drawing.
This subject will cover requirements for engineering drawings, orthographic projection and auxiliary projections, sectioning and dimensioning, two dimensional geometry, details of machine elements, screws and fasteners, etc.

Workshop Techniques 1B

Objectives
This subject will develop skills and knowledge to enable the appropriate use of modelmaking materials, techniques and finishes.

Content
This subject will introduce a wider range of materials and techniques through demonstration and use of the workshop machinery. The use of a variety of materials such as plastic, timber, moulding materials, sheetmetal, steel and aluminium will provide an opportunity to produce models and prototypes representing product design projects.

ID203 Visualisation

10 credit points • 3 hours per week • Prahran • Prerequisites: ID103 Drawing • Assessment: continuous
A first year subject in the Bachelor of Design (Industrial Design)

Objectives
To help establish the 'process of design' as second nature through freehand sketching.

Content
To encourage free ranging design, investigative drawing and form study exercises with the accent on enjoyable self-expression.

ID204 Computer Studies 1B

7.5 credit points • 3 hours per week • Prahran
- Prerequisites: ID104 Computer Studies 1A • Assessment: continuous
A first year subject in the Bachelor of Design (Industrial Design)

Objectives
To introduce computing and the type of programs and languages applicable to design environments.

Content
Topics covered will include desktop publishing, illustration and photo-imaging for graphic and industrial applications. The use of data storage, file maintenance and bureau services will be discussed. Practical work will provide the student with specific knowledge in areas critical to industrial design.

ID205 Design History 1B

7.5 credit points • 3 hours per week • Prahran • Prerequisites: ID105 Design History 1A • Assessment: continuous
A first year subject in the Bachelor of Design (Industrial Design)

Content
In semester two, students will explore European developments in design and art ranging from post-impressionism through futurism, dada, the Bauhaus, surrealism and American and Australian modernism. While charting the work of individual designers and artists the course also explores cultural themes such as gender and class, imperialism and nationalism, east and west and considers the influences of political and social conditions on western culture.
ID301 Industrial Design 3
12.5 credit points • 9.5 hours per week • Prahran
Prerequisites: ID101 Industrial Design, ID201 Industrial Design 2, ID202 Technology 2, ID205 Design History 1B • Assessment: continuous
A second year subject in the Bachelor of Design (Industrial Design)
This subject consists of:
Design Projects 2A
Product Illustration

Design Projects 2A
Objectives
To introduce industrial design development principles and methods of practice while concentrating on the identification of the problem and the purpose of exploring multiple design solutions.

Content
Creative problem solving utilising knowledge gained in the theoretical and practical studies will be encouraged, and an emphasis on the understanding of the process of design will underpin all activities. The student will begin to develop an appreciation of three dimensional form and aesthetics by removing many of the constraints normally existing in design problems.
Topics include communication of ideas through both two and three dimensional presentations, including basic rendering and mockups as development aids; understanding of the concept of producing more than one viable solution to problems; understanding of appropriate manufacturing processes for various solutions; ability to define the problem; appreciation of form and appreciation of function.

Product Illustration
Objectives
The introduction of technical graphics as it pertains to the industrial designer.

Content
The subject provides an introduction to perspective grids, the generation of exploded views, sectional drawings and instruction in how these technical graphics are used to enhance the visual presentation of design concepts.

ID302 Technology 3
12.5 credit points • 6 hours per week • Prahran
Prerequisites: ID101 Industrial Design 1, ID201 Industrial Design 2, ID202 Technology 2 • Assessment: continuous
A second year subject in the Bachelor of Design (Industrial Design)
This subject consists of:
Design and Manufacturing 2A
Electronics
Ergonomics

Design and Manufacturing 2A
Objectives
To give the student an introduction to the structure, properties and processing of a range of plastic and related materials.

Content
This subject introduces the student to the classification, structure and properties of plastics; the processing, fabrication, fastening and decoration of plastic components; testing and inspection techniques used to determine the properties of plastic materials; introduction to more advanced materials such as ceramics, composites, and adhesives; the design for manufacture of moulded plastic and composite components.

Electronics
Objectives
To introduce basic concepts of electric and electronic circuitry and give an appreciation of the industry and construction methods related to product design.

Content
This subject will introduce basic concepts of electrical and electronic theory and practice. Through discussion and practical sessions, students will gain an appreciation of printed circuit board design, construction, component layout and product design, commercial componentry and technical manuals.
Electric and electronic standards will be covered to outline their effect on component selection and design considerations.

Ergonomics
Objectives
To introduce students to the wide range of factors affecting the relationship between people and their working environment by evaluating human capabilities and limitations and how the application of ergonomic principles and data can be applied to optimise design, performance and wellbeing of the user.

Content
Topics include an introduction to the philosophy of ergonomics, its principles and disciplines; learning the anatomical, physiological and anthropometric capabilities and limitations of the human body; gaining an understanding of the bio-mechanics of the human body; evaluating and analysing human performance; engineering psychology and human behavioural characteristics; ergonomic product and workplace design; the environmental factors which affect human information processing characteristics; the design of controls and displays for compatibility with human needs and expectations; system design and task analysis; occupational health and safety, risk engineering, control and prevention.
**ID303 Professional Studies 1**

10 credit points • 5 hours per week • Prahran • Prerequisites: ID201 Industrial Design 2, ID202 Technology 2, ID204 Computer Studies 1B • Assessment: continuous

A second year subject in the Bachelor of Design (Industrial Design)

This subject covers the following:

**Technical Writing**

**Objectives**

This subject introduces the principles and practices of technical writing with respect to reports, manuals and other industry related documentation.

**Content**

This subject will cover the nature and basic rules of communication as appropriate to the designer. Other topics will include the fundamentals of style, reader based writing, report writing, submissions and briefs, graphics and desktop publishing, documentation blueprints, drafting, editing, production and distribution of documentation.

**Product Critiques 1**

**Objectives**

To increase the students’ analytical skills with rational objectivity.

**Content**

Case studies, seminars, discussion, deconstruction or reconstruction and analysis of design will examine such areas as:

- their own and others’ work
- aesthetic rationale
- manufacturing and production
- conceptual design

**ID304 CAD Studies**

7.5 credit points • 3 hours per week • Prahran • Prerequisites: ID202 Technology 2, ID204 Computer Studies 1B • Assessment: continuous

A second year subject in the Bachelor of Design (Industrial Design)

**Objectives**

To introduce the potential of the computer as a design and drafting tool, and to develop the students expertise in the use of CAD for the production of engineering drawings.

**Content**

Introduction to the operation of a PC based computer-aided design laboratory, its equipment and software. Through demonstration and practical work the student will learn the operating system and commands necessary to produce hard copy engineering drawings using the CAD system.

**ID305 Design History 2A**

7.5 credit points • 25 hours per week • Prahran • Prerequisites: ID205 Design History 1B • Assessment: continuous

A second year subject in the Bachelor of Design (Industrial Design)

**Objectives**

In year two students will be asked to further develop the critical, analytical and conceptual thought required to formulate and articulate considered and well informed opinions.

Students will be encouraged to extend and consolidate their research, presentation and writing skills through intensive thought and debate.

**Content**

Semester three concentrates on post-World War II design, the critique of modernism and the conflict between high art and mass culture. Theories of symbology are explored along with issues relating to the cultural discourse constructed by design commodity culture, advertising, clothes as code, the home as the site of consumption, and corporate imperialism.

**ID401 Industrial Design 4**

15 credit points • 12.5 hours per week • Prahran • Prerequisites: ID301 Industrial Design 3, ID302 Technology 3 • Assessment: continuous

A second year subject in the Bachelor of Design (Industrial Design)

This subject consists of:

- Design Projects 2B
- Engineering Graphics 2

**Design Projects 2B**

**Objectives**

To expand the application of learned theoretical skills and knowledge to problem solving.

**Content**

The student will begin to resolve complex issues relating to design and be expected to utilise professional presentation techniques in order to communicate their ideas. Greater emphasis will be placed on the conceptual development of ideas and providing the relevant technical information to support chosen solutions. This semester will concentrate on a developed use of professional presentation techniques, demonstration of an understanding of the integration of the technical and professional skills and draw on a sophisticated use of mockups to communicate ideas. The student will be expected to conduct research to establish a basis for resolution. The projects in this semester will be small scale.

**Engineering Graphics 2**

**Objectives**

To introduce advanced engineering drawing and CAD skills, and to introduce aspects of mechanical design.
**Content**
Advanced engineering drawing including detailed multiple-component assemblies, linear and geometric tolerancing, geometry of solids and development of lines of intersection and surface development for intersecting solids.

Introduction to elements of mechanical design such as bearings, drives, seals and simple lever, gear, and cam mechanisms etc.

Use of CAD in engineering drawing.

**ID402 Technology 4**

10 credit points • 2 hours per week • Prahran • Prerequisites: ID301 Industrial Design 3, ID302 Technology 3 • Assessment: continuous

A second year subject in the Bachelor of Design (Industrial Design)

**Objectives**
An introduction to the structure, properties, and processing of metals.

**Content**
- The classification, structure and properties of ferrous and non-ferrous metals and their alloys;
- hot and cold forming, heat treatment and surface treatment of metals including the mechanism of corrosion and the protection of metals;
- machining and fabrication of metals;
- testing and inspection techniques used to determine the properties of metals;
- design for manufacture in metal.

**ID403 Professional Studies 2**

10 credit points • 6 hours per week • Prahran • Prerequisites: ID301 Industrial Design 3, ID302 Technology 3, ID303 Professional Studies 1 • Assessment: continuous

A second year subject in the Bachelor of Design (Industrial Design)

This subject consists of:
- Process Management
- Product Critiques 2

**Process Management**

**Objectives**
To develop an understanding of the designer's role in the industrial environment and the management of design projects.

**Content**
Topics to be covered include manufacturing theory with reference to the management of the design process, design for export, resource planning, government resources, vendor qualification and quality management.

Project Management will also be examined as it applies to designers and the manufacture of products within the scope of the designer.

Guest lecturers will be used as required for specific assistance and will discuss hypothetical and actual case studies.

**Product Critiques 2**

**Objectives**
To raise students level of inquiry and evaluation of design and its consequences.

**Content**
Case studies, seminars and discussions will analyse the effects of design on topics including:
- their own and other's work;
- the environment and material selection;
- transition of cottage industry to mass production;
- cradle to grave considerations;
- the effect of technology on product aesthetics.

**ID404 CAD CAM Studies**

7.5 credit points • 3 hours per week • Prahran • Prerequisites: ID301 Industrial Design 3, ID302 Technology 3, ID304 CAD Studies • Assessment: continuous

A second year subject in the Bachelor of Design (Industrial Design)

**Objectives**
To introduce three dimensional computer modelling and its relationship to computer aided manufacture.

**Content**
Students will be introduced to the User Co-ordinate System, 3D co-ordinate entry, model space and paper space, 3D displays and dynamic views, wireframe modelling, surface modelling, and solid modelling. The use of AutoLISP, in particular its use in setting up the three dimensional modelling space, and some rendering and animation, will also be covered.

**ID405 Design History 2B**

7.5 credit points • 2.5 hours per week • Prahran • Prerequisite: ID305 Design History 2A • Assessment: continuous

A second year subject in the Bachelor of Design (Industrial Design)

**Content**
Second semester begins with abstract expression, then considers questions of national identity and Australian culture in the '50s and '60s, moves to assemblage, pop, performance art and earthworks, explores the 1960s/70s critique of high modernism and the shift to post-modernist values in painting, design and architecture.

**ID501 Industrial Design 5**

20 credit points • 16 hours per week • Prahran • Prerequisites: ID401 Industrial Design 4, ID402 Technology 4, ID404 CAD/CAM Studies, ID403 Professional Studies 2, ID405 Design History 2B • Assessment: continuous

A third year subject in the Bachelor of Design (Industrial Design)

**Objectives**
To develop independent decision making and an holistic appreciation of the role of the designer.
Content
Projects will be designed specifically to introduce complex issues which will challenge the student to investigate beyond the literal translation of the brief and begin to dissect the brief. Through the application of skills already learned and the confidence gained through previous practical and theoretical work, the student will be encouraged to expand their understanding of the development of ideas and apply their skills to assigned projects. The student will be expected to present concise information supported by researched material relevant to the project and to develop ideas from a rational research base. The use of models to demonstrate the concept will be required.

ID502 Technology 5
12.5 credit points • 2 hours per week • Prahran • Prerequisites: ID401 Industrial Design 4, ID402 Technology 4 • Assessment: continuous
A third year subject in the Bachelor of Design (Industrial Design)

Objectives
To provide an introduction to advanced manufacturing techniques.

Content
Stereo lithography, chemical milling, electrical discharge machining, explosive forming etc.

ID503 Professional Studies 3
10 credit points • 3 hours per week • Prahran • Prerequisites: ID403 Professional Studies 2, ID401 Industrial Design 4, ID402 Technology 4 • Assessment: continuous
A third year subject in the Bachelor of Design (Industrial Design)

Objectives
To provide an insight into the expectations and demands placed on the practising designer in industry and business.

Content
This subject will develop an understanding of design management including the setting up and management of a design office. Topics to be covered include basic accounting and financial planning, business planning, quotation and fee structuring, business communications, professional association and ethics in design.

ID505 Art and Design Culture 1A
7.5 credit points • 3 hours per week • Prahran • Prerequisites: ID405 Design History 2B • Assessment: continuous
A third year subject in the Bachelor of Design (Industrial Design)

Content
This subject is designed to respond to events attended and discussed in class. The subject seeks to build on History of Arts 1 and 2 but branches into more philosophical issues and concentrates on the critique of culture. Issues looked at include design as commodity culture, the interpretation of design/theories and definitions of design, new museological and shopping culture, postmodern positions on taste, style and space, and the necessity of an Australian design culture.

ID601 Industrial Design 6
20 credit points • 16 hours per week • Prahran • Prerequisites: ID501 Industrial Design 5, ID502 Technology 5, ID503 Professional Studies 3 • Assessment: continuous
A third year subject in the Bachelor of Design (Industrial Design)

Objectives
To consolidate experience in conducting design projects through all stages of the process, by working on individual or team based projects collaboratively with clients from industry or on self-generated projects.

Content
Students will gain a comprehensive understanding of the role of the designer in industry and the application of design in problem solving. Students will develop concepts from a rational research base and will be encouraged to consult with appropriate specialists. The student will be provided with the opportunity to pursue areas of interest according to future professional aspirations.

ID605 Art and Design Culture 1B
10 credit points • 3 hours per week • Prahran • Prerequisites: ID505 Art and Design Culture 1A • Assessment: continuous
A third year subject in the Bachelor of Design (Industrial Design)

Content
This subject begins by looking at abstract expressionism, then considers questions of national identity and Australian culture in the '50s and '60s, moves to assembe, pop, performance, history 1 and 2 before considering more philosophical and concentrating on the critique of culture. Issues looked at include design as commodity culture, the theatrical interpretation and definitions of design, new museological and shopping culture, postmodern positions on taste, style and space, and the necessity of an Australian design culture.

ID607 Design Research Skills
12.5 credit points • 2 hours per week • Prahran • Prerequisites: ID501 Industrial Design 5, ID502 Technology, ID503 Professional Studies • Assessment: continuous
A third year subject in the Bachelor of Design (Industrial Design)

Objectives
To prepare students for postgraduate research by introducing them to a range of methods and critical approaches to research and its applications in the practice of design.

Content
Topics pertaining to the designer, design practice, the object, marketing, manufacture, materials and process, commodity
culture, taste, style, the vernacular, reader-user response, the image or product and its production will be examined via critical readings of contemporary writings and/or technical publications. Some emphasis will be placed on the construction of an Australian design history and critical discourse around each topic.

Consideration will be given to the development of research skills and methods which can be applied in both written, visual and practical forms.

**ID608 Independent Study Program (I.S.P.1)**

*7.5 credit points • 3 hours per week • Prahran • Prerequisites: ID501 Industrial Design 5, ID502 Technology, ID503 Professional Studies 3 • Assessment: continuous*

A third year subject in the Bachelor of Design (Honours) (Industrial Design)

**Objectives**

To provide an opportunity for students to enhance their program in accordance with their career aspirations.

**Content**

The independent study program is a series of subjects that will allow students a degree of choice and self-direction through the later stages of their program. Students should use these subjects to extend specific design or research investigations into their current project activities.

**ID701 Industrial Design 7**

*25 credit points • 18 hours per week • Prahran • Prerequisites: Credit level results in all the degree level subjects or to the satisfaction of the program director and the progress committee, ID601 Industrial Design 6, ID608 I.S.P.1, 10607 Design Research Skills, ID605 Art and Design Culture 1B • Assessment: teaching staff and external design professionals convene to undertake assessment of this unit.*

A fourth year subject in the Bachelor of Design (Industrial Design)

**Objectives**

To examine, develop and propose solutions to identified problems through the application and knowledge gained in previous studies.

**Content**

An emphasis on the research activities associated with product design opportunities developed with participating industry sponsors, will be the focus of this subject. It is anticipated that individuals in this subject may also elect to identify, approach and develop solutions for industry. Students will be expected to develop concepts from a rational research base and consult with appropriate specialists.

**ID707 Design Research Methods 1**

*15 credit hours • 2 hours per week • Prahran • Prerequisites: ID601 Industrial Design 6, ID608 I.S.P.1, ID607 Design Research Skills, ID605 Art and Design Culture 1B • Assessment: continuous*

A fourth year subject in the Bachelor of Design (Honours) (Industrial Design)

**Objectives**

To develop students research abilities in preparation for industry and postgraduate work.

**Content**

Students will elect a staff member to act as a supervisor and in consultation with them, nominate an area or topic to research. Students may choose a new topic or continue with their minor research project from the previous semester and develop it further. Assistance will be given in accessing data banks and libraries at other local, interstate and overseas universities.

Students will work at their own pace investigating their topic thoroughly to produce a research paper or project, which may be in a written, visual or demonstrational form. A combination of either may be used.

**ID708 Independent Study Program (I.S.P. 2)**

*10 credit points • 6 hours per week • Prahran • Prerequisites: ID601 Industrial Design 6, ID608 I.S.P.1, ID607 Design Research Skills, ID605 Art and Design Culture 1B*

A fourth year subject in the Bachelor of Design (Honours) (Industrial Design)

**Objectives**

To provide an opportunity for students to enhance their program in accordance with their career aspirations.

**Content**

The independent study program is a series of subjects that will allow students a degree of choice and self-direction through their program. Students should use these subjects to extend specific design or research investigations into their current project activities.

**ID801 Industrial Design 8**

*25 credit points • 16 hours per week • Prahran • Prerequisites: ID701 Industrial Design 7, ID708 I.S.P.2, ID707 Design Research Methods 1 • Assessment: teaching staff and external design professionals convene to undertake assessment of this unit.*

A fourth year subject in the Bachelor of Design (Honours) (Industrial Design)

**Objectives**

To examine, develop and propose solutions to identified problems.

**Content**

It is expected that all of the skills and knowledge gained in the previous studies will be utilised to develop comprehensive solutions. Building on the skills gained and extending abilities towards independence in managing complex design projects, emphasis on the research activities associated with product design opportunities developed with participating industry sponsors, will be the focus of this subject. It is anticipated that individuals in this subject may also elect to identify, approach and develop solutions for
industry. Students will be expected to develop concepts from a rational research base and consult with appropriate specialists.

**ID807  Design Research Methods 2**

15 credit points  
- 2 hours per week  
- Prerequisites: ID 707 Design Research Methods 1  
- Assessment: continuous

A fourth year subject in the Bachelor of Design (Honours)  
(Industrial Design)

**Objectives**

To develop students research abilities in preparation for industry and postgraduate work.

**Content**

In this subject, students may elect a new topic or preferably, continue with their research project from the previous semester and develop it further. Assistance will be given to access data from libraries and manufacturers applicable to their area of research.

Students will work at their own pace investigating their topic thoroughly to produce a research paper or project, which may be in a written, visual or demonstrational form. A combination of either may be used.

**ID808  Independent Study Program 3 (I.S.P. 3)**

10 credit points  
- 6 hours per week  
- Prerequisites: ID 701 Industrial Design 7, ID 707 Design Research Methods 1, ID 708 I.S.P. 2

A fourth year subject in the Bachelor of Design (Honours)  
(Industrial Design)

**Objectives**

To provide an opportunity for students to enhance their program in accordance with their career aspirations.

**Content**

The independent study program is a series of subjects that will allow the students a degree of choice and self-direction through the later stages of their program. Students should use these subjects to extend specific design or research investigations into their current project activities.

**IT101  Computer Fundamentals**

10 credit points  
- 3 hours per week  
- Hawthorn  
- Prerequisite: nil  
- Assessment: continuous

A first year subject in the Bachelor of Information Technology.

**Objectives**

- to introduce students to the hardware, software and functions of computer systems.
- to provide students with a practical understanding of the DOS, Unix and Windows environment.

**Content**


**Recommended Reading**


**IT102  Introduction to Programming**

10 credit points  
- 4 hours per week  
- Hawthorn  
- Prerequisite: None  
- Assessment: continuous

A first year subject in the Bachelor of Information Technology.

**Objective**

To introduce students to programming in the language C, using modern structured programming techniques.

**Content**

The software lifecycle, specifications, algorithm approach to problem solving, program design methodology, data types, 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.

**Textbooks**

To be advised.

**IT103  Business Applications & Systems 1**

10 credit points  
- 4 hours per week  
- Hawthorn  
- Prerequisite: None  
- Assessment: continuous

A first year subject in the Bachelor of Information Technology.

**Objectives**

- Introduce students to the component parts of common business systems such as inventory, accounts receivable and accounts payable.
- Give students skills in using personal computers particularly in productivity tools such as word processing, spreadsheets and graphics.
- Examine the use of computers in accounting information systems, other transaction processing systems, management information systems, decision support systems and office information systems.

**Content**

Introduction to information systems and accounting, the role of computers in information systems. Introduction to word processing and spreadsheets.

Identification of components of systems. Files classification, recording, updating, documenting systems.

Accounting systems Business Manager Accounting package, inventory, accounts receivable, accounts payable.

Reporting to managerial decision makers concepts of management information systems and decision support systems.
Introduction to business support systems; spreadsheets, report generators etc. Computer based data conversion: graphics, business presentation tools, Integrated packages.

Case study presentations.

**Recommended Reading**


**IT105 Behaviour and Communications in Organisations**

10 credit points ● 4 hours per week ● Hawthorn ● Assesment: oral presentations, research project, journals, class participation

A first year subject in the Bachelor of Information Technology.

**Objectives**

To provide students with:

- an understanding of the nature and importance of communication, interpersonal skills and group development to organisational management;
- to develop students' interpersonal skills and skills as team members;
- to allow students to experiment with various techniques, theories and approaches to communications and management through the use of experiential teaching techniques;
- to prepare students to appreciate the context of work and their own roles as organisation members;
- to provide a foundation for subsequent studies.

**Content**

Interpersonal and group communication, report writing, oral presentations, team work, perception, conflict management and research skills.

**Recommended Reading**

To be advised.

**IT202 COBOL Programming**

10 credit points ● 3½ hours per week ● Hawthorn ● Prerequisite: IT102 Introductory Programming ● Assessment: assignments, test, examination

A first year subject in the Bachelor of Information Technology.

**Objectives**

To train students to be able to:

- read, understand, modify and debug COBOL programs;
- design, write, test and document attractive well-structured programs in COBOL, using the main features of 1985 ANSI COBOL.

**Content**

Algorithm design using pseudocode, structure charts, decision tables.

Cobol fundamental syntax and structure.

Sequential file processing.

Multiple sequential files.

Indexed file processing.

Group control reporting.

Editing.

Arithmetic.

Validation including If, Inspect, Unstring, String, Evaluate.

Tables

Testing.

Modular programming

**Recommended Reading**


Grauer, R.T., *Structured COBOL Programming*, Prentice-Hall, 1985 [or later]

IT203  Business Applications & Systems 2
10 credit points • 4 hours per week • Hawthorn • Prerequisite: IT103 Business Applications and Systems 1 • Assessment: Examination/Assignments
A first year subject in the Bachelor of Information Technology.

Objectives
To train students to:
- develop a simple business application using a microcomputer package;
- specify the data inputs, file contents and information requirements for common production systems such as job cost and bill of materials;
- specify data that needs to be used to integrate common business applications and to be able to achieve this on the computer;
- explain how systems are justified, developed, implemented and maintained.

Content
Data base management concepts file concepts, reporting tool Dbase III+, Dbase IV or related DBMS.
Systems development concepts packages v. Tailored, systems life cycle, prototyping, professional development v. 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 micro-mainframe links, PC to PC links, integrated software.
Case study presentations.

Recommended Reading

IT223  Management Problem Solving
4 hours per week • Assessment assignment and examination • Prerequisite: nil
A first year elective subject in the Bachelor of Information Technology

Objectives
- To broaden students’ understanding of different types of problems arising in business and industry
- To provide students with necessary skills to formulate, solve, interpret and implement the solutions to those problems

Content
Matrices.
Matrix manipulation, inverse of a matrix, matrix solution of equations.
Decision theory; classification of decision problems; decision trees and related topics.
Multicriteria decision models.
Forecasting; definitions, requirements, time series forecasting, moving averages, exponential smoothing and their applications.
Markov process, definition of stochastic systems, transient and steady systems, first time package.
Queueing theory; classification of queueing systems, basic queueing models, other queueing models.

IT301  Systems Software 1
16.5 credit points • 27 hours over 3 weeks • Hawthorn • Prerequisites: successful completion of segments one and two • Assessment: examination and assignment
A Bachelor of Information Technology subject studied at the end of 1st year, during the Summer Semester.

Objectives
- To develop an understanding of the fundamental principles of operating systems so as to promote a more efficient use of the resources provided in the computing environment, and to prepare for more in-depth studies in later systems software subjects.
- To develop an understanding of how these principles apply to a specific general purpose operating system such as UNIX and IBM’s MVS.

Content
Operating system principles introduction, operating system services, file systems, process scheduling, memory management, virtual memory, storage system scheduling, deadlocks, job and task management, protection.
A user and structural overview of UNIX including process management and the file system. The main components of IBM’s MVS, including the job entry subsystem, the supervisor, data facility product, virtual store. Job control language is also practically covered.

Recommended Reading
To be advised.

IT302  Organisation Behaviour (OB)
17 credit points • 18 hours over 3 weeks • 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.

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.

**IT303 Data Base Management Systems 1**

16.5 credit points • 27 hours over 3 weeks • Prerequisites: IT202 COBOL Programming and IT203 Business Applications and Systems 2 • Assessment: examination/assignment

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

**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 databases. Students will use a major commercial relational DBMS for their practical work.

**Content**
SQL, DBMS terminology and concepts, including database object types, data dictionaries, data integrity, data independence, transaction management, concurrency control, recovery, triggers, stored procedures and cursors. Designing and programming on-line database transactions using a forms tool.

Batch programming using SQL embedded in a 3GL.

**Recommended Reading**
Pratt, P.J. & Adamski, Database Systems and Design, 3rd edn, South-Western, 1994
Content

Students make use of appropriate software tools to help them develop detailed requirements specifications.

Recommended Reading

Whitten, Bentley and Barlow, Systems Analysis and Design Methods, 3rd edn, Irwin, 1994

Ravalli, G., Process Modelling, Swinburne Press

IT503 Data Base Management Systems 2

10 credit points • 4 hours per week • Hawthorn • Prerequisite: IT303 Data Base Management Systems 1 • Assessment: examination/assignment

A second year subject in the Bachelor of Information Technology.

Objective

To build upon the basic knowledge gained in IT303, by examining database design and performance issues in both local and distributed client-server environments.

Content

After completing this unit successfully, students should:

• understand physical design issues in both relational and non-relational systems
• be able to use database and transaction volume analysis as a basis for an efficient design
• be able to make use of optimiser plan information to check/improve performance
• be able to design and use views effectively to achieve data independence
• be able to apply the techniques above, in a distributed system.

Recommended Reading


IT504 Data Communications 1

10 credit points • 3 hours per week • Hawthorn • Prerequisite: IT102 Programming in C • Assessment: assignments, exam

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
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.
OSI: the seven layer model, layer interaction, comparison of architectures.
Emerging Technologies.

Recommended Reading

Halsall, F. Data Communications, Computer Networks and Open Systems, 4th edn, Addison Wesley, 1996

IT509 Software Engineering 1

10 credit points • 4 hours per week • Hawthorn • Prerequisite: None • Assessment: examination, assignment

A second year subject in the Bachelor of Information Technology. This subject complements IT501 Systems and Information Analysis 1 by concentrating on managing software development and on the latter stages of the software life cycle, particularly design.

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

IT601 Systems and Information Analysis 2

10 credit points • 3 hours per week • Hawthorn • Prerequisite: IT501 Systems and Information Analysis 1 • Assessment: research paper

A third year subject in the Bachelor of Information Technology.

It builds on the technical knowledge gained in earlier subjects and provides students with an understanding of the
various ways in which the total corporate computing environment can be designed to meet corporate information needs and support corporate goals.

**Objectives**

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 systems development approaches;
- describe the methodologies in use in organisations and to determine the correct development approach for different systems;
- understand the need for different approaches to computer systems development to ensure that corporate information needs are met and computing productivity is maximised.

**Content**

Information systems theory - information needs of management, impact of information systems on strategic corporate plans.

Traditional life cycle development.

Problems with traditional life cycle development. User driven computing - elimination of the functions of user and analyst, user abilities, quality assurance, private systems; resource requirements • hardware, software and support structures.

Life cycle variations • methodology and scope, variations in roles, controls framework.

Management issues • management of maintenance, risk assessment and control review, security and privacy, human resource planning, use and misuse of methodologies.

**Recommended Reading**

To be advised.

**IT609 Software Engineering 2**

10 credit points • 4 hours per week • Hawthorn • Prerequisite: Software Engineering 1 • Assessment: examination/tests/assignment/project.

A third year subject in the Bachelor of Information Technology. It builds on material covered in IT509 Software Engineering 1.

**Objectives**

This subject aims to develop in more detail some of the basic notions of the software life cycle as studied in IT509 Software Engineering 1.

A greater emphasis will be placed upon techniques for managing and improving the process of large-scale software development. Students should be able to apply their understanding to the development of modern software systems and become fully participating members of software project teams.

**Content**

Peopleware, software process models, software cost and schedule estimation, software risk management, software standards, software configuration management, software quality management, software metrics. Group project.

**Recommended Reading**

Humphrey, W.S., Managing the Software Process, Reading, Massachusetts, Addison-Wesley

**IT701 Industry Based Learning 2**

50 credit points 20 weeks full-time project work in industry • Prerequisite: satisfactory completion of the first six segments of the course • Assessment: assignment

**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.

**IT803 Emerging Information Technologies**

30 credit points 6 contact hours per week or equivalent. (Note: The subject may be delivered in intensive seminar style) • Hawthorn • Prerequisite satisfactory completion of segments one to seven • Assessment: Team Case Study, Team Projects

A Bachelor of Information Technology subject studied at the end of 3rd year, in Summer Semester.
Objectives
To introduce students to selected technologies which are deemed to be of emerging significance.

Content
A detailed treatment of selected technologies determined on a year-to-year basis, as a result of consultation with sponsor organisations.

Recommended Reading
To be advised

IT804 Computing and the Human Context
20 credit points • 6 contact hours for 6 weeks or equivalent.
(Note The subject may be delivered in intensive seminar style)
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.

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

IT901 Software Process 1
12.5 credit points • 2 hours per week • Hawthorn
Prerequisite: Nil Assessment: tests, assignments and a final examination

A subject in the Master of Information Technology.

Objectives
• To review the software engineering lifecycle.
• To study the personal software engineering skills needed by the software professional who is to participate in the analysis, design and implementation of large scale software.

Content
Part 1: Software lifecycle models; Software process models; Overview of the software lifecycle (planning; specification; design; implementation; testing; maintenance).
Part 2: Detailed study of the personal software process (Scripts and Logs; Planning; Design; Code; Compile; Test; Postmortem; Plan Summary; Measurement of the Software Process; Defining your Personal Software Process).

Recommended Reading
Pressman, R.S. Software Engineering • A Practitioner's Approach, McGraw Hill
Sommerville, I. Software Engineering. Addison Wesley
Humphrey, WS. A Discipline for Software Engineering, Addison-Wesley

IT903 Software Engineering Project
50 credit points • No formal classes: regular meetings with project supervisor will be arranged • Prerequisites: IT903 is only available to students who have completed the Software Engineering cluster in the Master of Information Technology
Instruction: workshop and laboratory sessions, together with team and individual consultation with staff as required
Assessment by deliverable items appropriate for the complete documentation of a software development project, and by verbal presentation

A project in the Master of Information Technology degree.

Objectives
The aim is to provide an opportunity for students to develop, in a team, a significantly complex software system, using appropriate object-oriented methodologies. The development will encompass the whole software development process, and will be conducted using a process conforming with the SEI Capability Maturity Model, Level 2.

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.
IT906  Human-Computer Interaction (HCI)  
12.5 credit points  • 2 hours per week  • Hawthorn  
Instruction: combination of lectures, seminars and laboratory sessions  • Assessment: two assignments and a final examination  
A subject in the Master of Information Technology.  

Objectives  
To appreciate the need for, and the role and characteristics of, human-computer interaction.  

Content  
Introduction points of view, scope and objectives of HCI, metamodels of HCI; HCI technology human-machine fit and adaptation, the user interface useability and its components, input/output devices, interface objects, dialogue styles, genre, architecture, enhanced/adaptive interaction; HCI theory; modelling psychological foundations of user interfaces, types of uses, human information processing, language, communication and interaction, formal models, cognitive models, social models, ergonomic models, applications; HCI research methods experiments and experimental design, measurement in the behaviouralsciences, data collection methods, data analysis methods; HCI application: organisational impact; HCI future developments.  

Textbooks  
To be advised.  

IT911  Software Process 2  
12.5 credit points  • 2 hours per week  • Hawthorn  
Prerequisite: IT901 Software Process 1  • Assessment: tests, laboratory work, and final examination  
A subject in the Master of Information Technology.  

Objectives  
The subject continues to explore issues raised in IT901 Software Process 1, adding the objectives:  
To study the process management issues which span projects which undertake to engineer large-scale software systems. Special emphasis is given to issues surrounding the management of software development within the object-oriented paradigm  
To study software engineering environments, providing students with experience working in select environments  

Content  
Part 3: Process Management Issues (Peopleware; Risk Management; Software Standards; Software Metrics; Software Configuration Management; Software Quality Management).  
Part 4: Software Engineering Environments (including laboratory experience).  

Recommended Reading  
Boehm, B.W.  *Software Risk Management*, IEEE Computer Society  
DeMarco, T. and Lister T., *Peopleware*, Dorset House  

Humphrey, W.S.  *Managing the Software Process* Addison-Wesley.  
Yourdon, E.  *Decline and Fall of the American Programmer*, Yourdon Press  

IT916  Programming the User Interface  
12.5 credit points  • 2 hours per week  • Hawthorn  
Instruction: combination of lectures, seminars and laboratory sessions  • Assessment: two assignments and a final examination  
A subject in the Master of Information Technology.  

Objectives  
To introduce the concepts and techniques relevant to programming the user interface.  

Content  
Concepts independence (application, device, user); programming menus, command-based systems, data input, giving information back to the user, screen techniques, using colour, direct manipulation systems and environments, event based programming, Windows and UIMS, help systems, handling and avoiding errors; tools UNIX PC and Macintosh platforms, function libraries, special purpose programming languages, interactive editors, application specific user interface programming languages, user interface management systems.  

IT921  Object Technology 1  
12.5 Credit Points  • 8 hours per week for 4 weeks, then 2 hours per week for 13 weeks.  • Hawthorn.  @Prerequisites: Nil; although some knowledge of C++ is desirable  @Assessment: Individual and/or team assignments and examination  
A subject in the Master of Information Technology.  

Objectives  
Introduction to Object Oriented (00) software engineering with most emphasis on analysis, but also including programming, design and database.  

Content  
• Introduction to programming in C++  
• Introduction to Object Oriented concepts  
• Detailed study of a contemporary Object Oriented Analysis method  
• Introduction to Object Oriented Design  
• Comparison of Object Oriented Analysis and Design methods  
• Introduction to Object Oriented Databases  

Recommended Reading  
IT926 Interactive Systems Development

12.5 credit points • 2 hours per week • Hawthorn • Instruction: combination of lectures, seminars and laboratory sessions • Assessment: two assignments and a final examination

A subject in the Master of Information Technology.

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: formal methods in HCI; design prototyping, wizard of Oz, storyboarding, animation and video, rapid prototype implementation; implementation fundamental concepts (independence, reusability), interaction libraries, dialogue control structure models; evaluation techniques empirical evaluation, predictive modelling; user interface management systems; user interface integration into user interfaces.

Textbooks
To be advised.

IT931 Object Technology 2

12.5 Credit Points • 2 Hours per week • Hawthorn • Prerequisite: IT921 • Assessment: Individual and/or team assignments and examination

A subject in the Master of Information Technology.

Objectives
To provide a comprehensive coverage of Object Oriented (00) design and advanced programming techniques. In addition, software engineering principles supported by contemporary 00 programming languages and object databases will be explored.

Content
Methodologies for O0 design; responsibility driven design; standard 00 programming practices and mechanisms; advanced O0 programming styles, strategies and idioms.

Recommended Reading
Booch G., Object Oriented Analysis and Design with Applications, 2nd edn, Addison Wesley, 1994

IT993 Research Project

25 credit points per semester (total 50 credit points) • Hawthorn • 8 hours per week for two semesters • Instruction: guided research • Assessment: by thesis. However, performance of the students is monitored by regular progress reports on the project to the supervisor. These reports may be written, oral or both.

A subject in the Master of Information Technology.

Objectives
To give students the opportunity to pursue in greater depth than in a cluster project subject a topic of interest; to allow students to fully experience the design and development of a major research project.

Content
The topic for the project will be selected by the student after consultation with staff. Prior to commencing their project, students may be required to undertake a short course of study in research concepts and methodologies. Students may be required to present one or more seminars on the subject of their research and to attend other seminars on related subjects.

IT996 HCI Project

12.5 credit points • Two hours per week • Hawthorn • Prerequisite: IT906 • Instruction: guided research • Assessment: to take the form of a written report of perhaps a total of 10,000 words, which may be varied if the problem includes system implementation

A subject in the Master of Information Technology.

Objectives
To give students the opportunity to pursue a topic of interest in detail to give students experience in the design and development of research; to integrate material dealt with in the taught components of the cluster.

Content
Generally the project shall be undertaken on an individual basis, and will be goal directed. The project should require research into a specific problem area (eg. user interface development standards, practices, methodologies, user interface programming environments...), requiring the gathering of information from and the reading of relevant literature. Material gathered must be structured and analysed with a view to forming and reporting conclusions of relevance to the specific question posed.

LBC100 Accounting 1

4 hours per week • Lilydale • Prerequisite: nil • Assessment: examination, computer-based progressive assessment, assignment

A stage I subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

Objectives and Content
A basic introduction to accounting concepts, financial accounting, management accounting and finance.

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

LBC100 Learning Guide, Swinburne 1996
LBC200  Computer Accounting Systems
4 hours per week • Lilydale • Prerequisite: LBC100 •
Assessment: examination, computer-based progressive assessment, and
presentation, computer-based practice set
A stage 2 subject in the Bachelor of Business which also
may be taken in the Bachelor of Social Science and Bachelor of
Applied Science.

Objectives and Content
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 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
are also assessed.

Recommended reading
Kloot, L. and Sandercock, E., Accounting. The Basis for Business
LBC200 Learning Guide, Swinburne, 1996
Insight Accounting: Software and accompanying notes: Longman
Publishing, 1995
Hoggett, J. and Edwards, L., Accounting in Australia. 2nd rev.
edn, Brisbane, John Wiley and Sons, 1992
Holmes, S., Hodgson, A. and Nevell, P., Accounting Student's
CCH Macquarie Dictionary of Accounting (Student version), CCH, 1991

LBC201  Corporate Accounting
3 hours per week • Lilydale • Prerequisite: LBC200 •
Assessment: examination, assignment, test
A stage 2 subject in the Bachelor of Business which also
may be taken in the Bachelor of Social Science and Bachelor of
Applied Science.

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 theoretical and 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 supervised 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 including 5th Schedule
and Accounting Standards requirements;
• reconstruction and company liquidation.

Recommended reading
Australian Corporations and Securities Legislation, Accounting/ Auditing Statements 1996
ASCPA or ICAA BC221 Corporate Accounting Student Manual,
Swinburne, Swinburne Press, 1996
Leo, K.J. and Hoggett, J.R. Company Accounting in Australia. 3rd
edn, Brisbane, Wiley, 1993
Clift, R.C. and Sims, M.A. Corporate Accounting. 4th edn, New
York, Prentice Hall, 1993
Jager, M.O., Taylor R.B. and Irvine J.R. Company Accounting
Procedures. 6th edn, Sydney, Butterworths, 1994

LBC202  Computer Cost Accounting Systems
3 hours per week • Lilydale • Prerequisite: LBC100 •
Assessment: examination and assignment
A stage 2 subject in the Bachelor of Business which also
may be taken in the Bachelor of Social Science and Bachelor of
Applied Science.

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 microcomputer based techniques for solving
problems;
• focus on the relevance of accounting information to
management information needs, and;
• to critically evaluate traditional management accounting
theory and practice against the contemporary literature
on activity-based costing and the new technologies.

Recommended reading
Hansen, D.R. and Mowen, M.M. Cost Management. 4th edn,
Cincinnati, Ohio, South Western, 1995
Garrison, R.H. and Noreen, E.W., Managerial Accounting
Concepts for Planning, Control and Decision Making. 7th edn,
Homewood, Illinois, Irwin, 1994
Horngren, C.T., Foster, G. and Datar, S.M., Cost Accounting A
Managerial Emphasis. 8th edn, Englewood Cliffs, N.J., Prentice
Hall. 1994
LBC203 Computer Cost Accounting Systems

3 hour per week • Lilydale • Prerequisite: LBC100 and LBC202 • Assessment: examination, assignment

A stage 2 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

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, overhead and activity based costing, process costing, costing in the service industries, standard costing, product costing and performance measurement in Just in Time systems, performance evaluation of business units, transfer pricing and cost of quality programs.

Recommended reading
Hansen, D.R. and Moven, M.M. Cost Management. 4th edn, Cincinnati, Ohio, South Western, 1995

LBC204 Financial Management 1

3 hours per week • Lilydale • Prerequisite: completion of all core subjects • Assessment: examination/assignments

A stage 2 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

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.

LBC300 Accounting Theory

3 hours per week • Lilydale • Prerequisite: All second year subjects required for professional accounting recognition • Assessment: examination/essay/tutorial performance/test

A stage 3 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

Objectives and Content
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

3 hours per week • Lilydale • Prerequisite: LBC201 • Assessment: examination/assignments

A stage 3 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

Objectives
The overall course 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.
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

Australian Income Tax Assessment: Act 1936, North Ryde, N.S.W., CCH Australia Ltd.
Australian Master Tax Guide. North Ryde, N.S.W., CCH Australia Ltd.
Barkoczy, S., Australian Tax Casebook, North Ryde, N.S.W., CCH Australia Ltd., 1993
Australian Federal Tax Reporter, CCH Australia Ltd.
Lehmann, G. and Coleman, C. Taxation Law in Australia. 3rd edn, Sydney, Butterworths, 1994
Topical Tax Cases for Australians. North Ryde, N.S.W., CCH Australia Ltd., 1991
Australian Tax Handbook. Sydney, Butterworths

LBC302 Auditing

3 hours per week  •  Lilydale  •  Prerequisite: LBC201  •  Assessment: assignment / examination

A stage 3 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

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

Auditing Student Manual, Swinburne University of Technology, 1997
Chartered Accountant and Australian Society of CPA’s, Auditing Handbook 1997, Vol 2
Current auditing readings as required

LBC303 Strategic Cost Management

3 hours per week  •  Lilydale  •  Prerequisite: LBC203 LBC204
  •  Assessment: group cast studies and individual research essay

A stage 2 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

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

Current journals, especially Journal of Cost Management and Management Accounting

LBC304 Financial Management 2

3 hours per week  •  Lilydale  •  Prerequisite: nil but strongly recommended that students should have completed or be concurrently enrolled in LBC204  •  Assessment: examination/ assignments

A stage 3 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science which may be counted towards either an accounting major/minor or a finance minor.
Objectives and Content
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**
3 hours per week • Lilydale • Prerequisite: LBC301 • Assessment: examination/assignment
A stage 3 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

Objectives and Content
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, superannuation funds and primary producers. 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. 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
- pan IVA and tax avoidance
- international taxation
- sales tax

**Recommended reading**
*Income Tax Assessment Act (1936 as amended)*
Lehman, G. and Coleman, C. *Taxation Law in Australia*, 3rd edn, Sydney, Butterworths, 1994
*Australian Federal Tax Reporter*, North Ryde, CCH Australia Ltd
*Australian Tax Cases*, North Ryde CCH Australia Ltd.

**LBE100 Microeconomics**
3 hours per week • Lilydale • Prerequisite: nil • Assessment: multiple choice tests, assignment, examination
A stage 1 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

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 of the market 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**

**LBE200 Macroeconomics**
3 hours per week • Lilydale • Prerequisite: LBE100 • Assessment: multiple choice tests, assignments, examination
A stage 2 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

Objectives
To provide business students with an understanding and
appreciation of macroeconomic concepts, issues and policies pertaining to the Australian economy.

**Content**

This subject introduces students to the key macroeconomic concepts, issues and policies. Emphasis is on current issues and policies. To fully appreciate the current Australian economic and business environment, some theoretical background is necessary and this is provided in the course by the AD/AS model. This model is 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.

**Recommended reading**


**LBE201 Managerial Economics**

3 hours per week • *Lilydale* • Prerequisite: LBE100 also LCR100 • Assessment: examination/assignment

A stage 2 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

**Objectives and Content**

To show the relevance of microeconomic concepts to business decision-making.

This subject deals with topics such as decision-making under conditions of uncertainty, demand analysis with emphasis on demand estimation, cost analysis and concept costs for decision making, pricing decisions in theory and practice and the goals of the firm and their influence on decision-making.

**Recommended reading**


**LBE202 Macroeconomic Policy**

3 hours per week • *Lilydale* • Prerequisite: LBE200 • Assessment: examination/assignment

A stage 2 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

**Objectives and Content**

This is a second year subject which builds on the material covered in BE220, the first year macro subject.

The main objectives of the subject are to:

- Broaden students' understanding and appreciation of macroeconomic principles, current issues and policy;
- Provide students with the necessary skills to evaluate macroeconomic policies and related debate.

Specific topics include the measurement of macroeconomic performance, limitations of major aggregate indicators, sources of fluctuations in economic activity, major macroeconomic problems, macroeconomic management within an open economy.

The course will describe the deficiencies in earlier macroeconomic theories which led to disaffection. But the theories now in vogue, and importantly the policies based upon them, have their own limitations which will be explained.

**Recommended reading**


**LBE300 Financial Institutions and Monetary Policy**

3 hours per week • *Lilydale* • Prerequisites LBE100 LBE200 • Assessment examination/assignment, multiple choice test

A stage 3 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

**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.

**Recommended reading**

Mishkin, F. *The Economics of Money Banking and Financial
The subject also aims to enable students to better appreciate the context of work by:
- managing oneself and others in an organisational setting;
- operating effectively in large and small self-managing work teams;
- managing relationships with co-workers, consultants, and senior management. As well as providing students with an introduction to various aspects of knowledge associated with organising and managing, opportunities are provided to develop the following:
- appreciation of the value of independent study as well as the value of learning to be an effective group member;
- building on fundamental academic and research skills such as: use of the library and other information sources; analysis and synthesis; written and verbal communication skills; report and essay writing skills; interviewing and questioning skills.

Content
- Human resources management;
- organisational strategy and structure;
- organisational environments and culture;
- leadership, power and authority;
- interpersonal communication and group dynamics;
- managing change;
- social responsibility and ethics;
- emerging issues for contemporary organisations.

Recommended reading
Only one text for subject.

LBL100  Introduction to Commercial Law
3 hours per week ● Lilydale  ● Prerequisite: nil  ● Assessment: To be advised
A stage 1 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

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 Yarnouni, Understanding Contract Law, Butterworths, 1995

Swinburne University of Technology 1997 Handbook 409
Latimer, P., Australian Business Law., North Ryde, N.S.W. CCH Australia, 1996

LBL200 Company Law
3 hours per week • Lilydale • Prerequisite: LBL100 • Assessment to be advised • This subject is compulsory for students in the Accounting stream; optional for others
A stage 2 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

Objectives and Content
• The intention here is to undertake a comparative analysis of the form of business organisations.
• This involves an introduction to partnership and company law.

Recommended reading
Lipton, P. and Herzberg, A. Understanding Company Law 5th edn, Sydney, Law Book Co, 1993
Law of Companies in Australia. 2nd edn, North Ryde, CCH, 1986
Guidebook to Australian Company Law. 10th edn, North Ryde, CCH, 1988

LBL201 Marketing Law
3 hours per week • Lilydale • Prerequisite: LBL100 • Introduction to Commercial Law • Assessment: assignment, test, final examination or major research paper
A stage 2 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

Objectives and Content
The subject involves an examination of the legal controls imposed on the manufacturing, labelling, packaging, distribution, promotion, pricing, and retailing of goods and (where applicable) services.

Recommended reading
Healey, D. and Terry, A. Misleading or Deceptive Conduct. North Ryde, CCH Australia Ltd., 1991
Livermore J. and Clark, E., Marketing Law Sydney, Law Book Co., 1993

LBM100 The Marketing Concept
3 hours per week • Lilydale • Prerequisite: nil • Assessment: examination, assignments, presentation, class exercise
A stage 1 subject in the Bachelor of Business which also may be taken in the Bachelor of Social Science and Bachelor of Applied Science.

Objectives and Content
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.

Particular emphasis is given to the role marketing plays in the organisation's process of adaptation to its environment, relationships between organisations and their clients, and in the formulation of management policies that impact on other functions such as accounting, operations, and research.

At the end of the subject, the successful student will have achieved the object of an understanding of key concepts upon which to build a framework for the integration of a variety of ideas on business-customer exchanges and an understanding of the role of the marketing function. This understanding of marketing and marketing people will aid in the understanding of other disciplines in the Bachelor of Business as providing a strong foundation for the vocational study of marketing.

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

LBM200 Market Behaviour
3 hours per week • Lilydale • Prerequisite: LBM100 • Assessment: examination, assignments • This subject is a mandatory requirement for a major sequence in marketing
A stage 2 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

This subject requires active participation. The theoretical aspects of consumer behaviour are supplemented by practical problems through the use of case studies and fieldwork exercises

Objectives
The objective of this subject is to study the process of choice in both consumer and business-to-business purchasing contexts, along with its determinants and its implications for marketing strategy. At the completion of the subject, students should have acquired an understanding of:
• the process of human decision making;
• the three main influences on consumer choice;
• the individual consumer
• environmental influence
• market strategy
• the main influences impacting on business-to-business purchasing decisions:
• the DMU (Decision Making Unit) or buying centre
• organisational factors and constraints;
• to allow second-stage students to explore basic human behaviour concepts and theories, as they relate to purchasing decisions in both consumer and business-to-business marketing areas;
to emphasise the practical marketing implications of those behavioural concepts, by the study of - consumers as individuals and in groups;

decision-making processes (consumer and organisational);

communication across groups;

communication and promotion forms;

to provide base behavioural knowledge levels, which allow further development of marketing knowledge in later stage subjects.

Recommended reading
Assael, H. Consumer Behaviour and Marketing Action, Cincinnati, South-Western, 1995
Hawkins, Neal and Quester, Consumer Behaviour, Irwin, 1994

LBM201 Marketing Planning
3 hours per week  ● Hawthorn  ● Prerequisite: LBM100 and LBM200  ● Assessment: examination, assignments

A stage 2 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

Marketing Planning is a mandatory subject in the economics-marketing, and marketing streams and an elective subject in the accounting and computing streams.

Objectives and Content
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 strategy formulation, implementation and control. It focuses on the marketing planning process as a key tool in an organisation's interaction with its environment.

In the highly competitive and turbulent business world of the mid-90s, it is particularly important for Australian companies to carefully analyse their strategic planning, sharpen their business analysis skills and see beyond the geographical or product-based boundaries of the markets in which they currently compete. 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 acquire 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.

Case studies

A case study and discussion of prescribed articles form a major part of the course. The emphasis on business report writing is continued, with more complex reports required. The major assignment requires critical assessment of the marketing planning process in 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.

Recommended reading
Cravens, D.W. Strategic Marketing. 4th edn, Burr Ridge, Ill., Irwin, 1994
Jain, S.C., Marketing Planning and Strategy. 4th edn, Cincinnati, Ohio, South Western, 1993

Other supporting material will be prescribed when appropriate. It is expected that extensive use will be made of library resources.

LBM300 Product Management
3 hours per week  ● Lilydale  ● Prerequisite: For marketing major: LBM200 and LQ200. For marketing minor: LBM200
● Assessment: assignment and test  ● This subject is a mandatory requirement for a major sequence in marketing.

A stage 3 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

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
3 hours per week • Lilydale • Prerequisite: For marketing major: LBM202 and LBQ201 For marketing minor: LBM202
• Assessment: examination/assignments, case study work • This subject is a mandatory requirement for a major sequence in marketing.

A stage 3 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

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
- distinctive aspects of service marketing;
- market research in services environment;
- communication and services;
- demand management;
- service quality;
- managing service culture;
- implementing the service strategy;
- international services and its future;
- investigating a service industry of your choice (e.g. financial services, hospital services, insurance industry, catering services, etc.).

Recommended reading

LBQ200 Marketing Research 1
3 hours per week • Lilydale • Prerequisite: LBM100 and LBM200 • Corequisite: LBM201 • Assessment: presentation, assignment, examination • This subject is a mandatory requirement for a major sequence in marketing.

A stage 2 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

Objectives and Content
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 partial conduct of a major research assignment, and an evaluation of student experiences. Students will design and test a quantitative data collection instrument and develop the necessary skills to use SPSS for Windows software to analyse the data gathered.

The subject leads into BQ227 Marketing Research 2 in which students actually undertake the major fieldwork and/or analyse the data collected from this subject.

Recommended reading

LBQ201 Marketing Research 2
3 hours per week • Lilydale • Prerequisite: LBQ200 • Assessment: syndicate assignment, examination • This subject is a mandatory requirement for a major sequence in marketing.

A stage 2 subject in the Bachelor of Business which also maybe taken in the Bachelor of Social Science and Bachelor of Applied Science.

Objectives and Content
This subject builds on the preliminary work undertaken in the subject Marketing Research 1. It takes the research task from the initial data analysis and verification stage through to the report phase.

This subject will:
- focus on the implementation of the survey instrument developed in BQ226, to demonstrate the complete marketing research process;
- require students to carry out marketing research fieldwork, including developing a sampling plan, pilot testing and interviewing;
- focus on editing data entry and validation of the marketing research data collection;
- require students to develop a data analysis plan, for reporting the results of the study;
- develop the necessary skills to use an appropriate statistical software package, in order to analyse survey
and experimental data;

- enable students to present the findings of the research topic, both orally and in written form.

**Recommended reading**

**LBT200 Data Analysis and Design**
3.5 hours per week • Lilydale • Prerequisite: LCI100 • Assessment: examination/assignment
A stage 2 subject in the Bachelor of Business which also may be taken in the Bachelor of Social Science and Bachelor of Applied Science.

**Objectives and Content**
This subject extends the basic information technology user skills gained in BT110 to the development of a simple automated personal data base update and retrieval system to solve a well-bounded business problem. Appropriate automated tools will be used to assist in the design and generation of a simple personal enquiry and update system. The emphasis is on gaining an understanding of the problem in its business context, and the need for adequate documentation of the system and management of this data to ensure that the information produced by the data base system is relevant and accurate. Students will use conceptual data analysis methods to produce a logical data model.

**Recommended reading**

**LBT201 Business Computing**
3 hours per week • Lilydale • Prerequisite: LCI100 • Assessment: examination/assignment
A stage 2 subject in the Bachelor of Business which also may be taken in the Bachelor of Social Science and Bachelor of Applied Science.

**Objectives and Content**
The subject is specifically for students taking the business computing major or minor or non-computing majors.
The Objectives 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 'BT110 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.
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:

**LBT202 Business Computing Applications**
3.5 hours per week • Lilydale • Prerequisite: LBT201 • Assessment: a major group assignment, one final exam
A stage 2 subject in the Bachelor of Business which also may be taken in the Bachelor of Social Science and Bachelor of Applied Science.

**Objectives and Content**
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. Specifically, typical business systems such as marketing, manufacturing, finance, human resources systems are examined. High level software solutions to management problems are investigated.

**Recommended reading**
Recent references used

**LBT300 Information Technology Strategies**
3 hours per week • Lilydale • Prerequisite: any two Stage 2 Business Computing subjects • Assessment: examination/assignments
A stage 3 subject in the Bachelor of Business which also may be taken in the Bachelor of Social Science and Bachelor of Applied Science.

**Objectives and Content**
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.
Topics covered:
- 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.

Recommended reading
To be advised

LC1100 Information Technology

4 hours per week • Lilydale • Prerequisite: nil • Assessment: continuous/final examination

A stage 1 core subject in the Bachelor of Business and Bachelor of Social Science and Bachelor of Applied Science

Objectives
- to instill in students the confidence to use information technology, particularly computers and interfaces to the information super highway;
- to give all students a broad understanding of information technology and its applications in today's world;
- to endow students with computer skills that will be of benefit to them in other discipline subjects, and in their later careers;
- to provide a firm basis for second and third level computing subjects.

Content
- The Windows environment;
- word processing;
- spreadsheets;
- databases;
- graphics and presentation graphics;
- research tools such as CD-ROM;
- using the Internet;
- the application of the above skills to problem-solving in a real-world environment;
- fundamentals of information technology;
- the capture, storage, retrieval, processing and communication of data using information technology;
- the application of information technology to business and social demands;
- computer privacy and security;

Recommended reading
Fuller F. & Mannering W., Computers and Information Processing, Boyd & Fraser, USA, 1994
Trainor N.T. & Krasnewich D., Computers, McGraw-Hill, USA, 1994
Capron H.L. & Perron J.D., Computers and Information Systems, Benjamin/Cummings, USA, 1993
Rochester J., & Rochester J., Computers for People, Irwin, USA, 1991
Krol, E., The Whole Internet, O'Reilly & Assoc., USA, 1994
Morrow, C. (Managing Editor), The Internet, SAMS, USA, 1994

LCL100 Learning and Communication Behaviour

3 hours per week independent study. Lilydale • Prerequisite: nil • Assessment: journal and individual presentation, class tests, group exam

A stage 1 core subject in the Bachelor of Applied Science, Bachelor of Business, and Bachelor of Social Science

Objectives
On completion of this subject students will have increased competence in a range of skills such as concept mapping, time management, team problem solving, written and oral communication; presentation, reading and notation techniques; and critical thinking. They will use these skills to augment their studies in all disciplines, and be able to apply them to the workplace.

To provide students with the possibility of interdisciplinary study. To encourage a Liberal Arts perspective on learning thereby facilitating the exploration of insights and perspectives of disciplines in addition to those in which students already study.

To develop awareness of how knowledge is generated. To facilitate active, flexible learning styles; and a positive attitude to life long learning. Students should gain understanding of the relevance of both the skills and the substantive themes of the course to their participation in the community, work and the international arena.

Content
- The learning individual at University;
- psychology and learning theories;
- sociology and the social construction of knowledge;
- communication — multi-disciplinary approaches to team problem solving in a business context;
- critical thinking about values, ethics and fraud — science is not all facts;
- practical skills associated with the content themes and the objectives outlined above.

Recommended reading
Study Guide provided. Other materials including course notes, and information on prescribed or recommended texts to be advised.

LCR100 Statistics and Research Methods

3 hours per week • Lilydale • Prerequisite: nil • Assessment: class work examination

A stage 1 core subject in the Bachelor of Business, Bachelor of Social Science and Bachelor of Applied Science

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
- posing research questions;
- preparing a research plan;
- data collection;
- statistical methods;
- preparing a research report.

Recommended reading
Babbie, Earl., The Practice of Social Research, Wadsworth, California, 1992

LCS100  Computer Science 1
12.5 credit points  5 hours per week  Lilydale  Prerequisite: nil  Assessment: assignments and a final examination
A first stage subject in the Bachelor of Applied Science (Computing) which may also be taken in the Bachelor of Social Science and Bachelor of Business.

Objectives
The aims of this subject are:
- to provide an introduction to computer science;
- to develop relevant problem solving skills;

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
12J credit points  5 hours per week  Lilydale  Prerequisite: LCS100 and LCI100  Assessment: programming assignments and a final examination
A first stage subject in the Bachelor of Applied Science (Computing) which may also be taken in the Bachelor of Social Science and Bachelor of Business.

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 contest of computing
- computing as a discipline
- functions

Recommended reading
Deitel, H.M. and Deitel, P.J. C++ How to Program, 1994

LCS204  Formal Methods
3 hours per week  Lilydale  Prerequisite: nil  Assessment: assignments and a final examination, computer managed learning tests
An elective subject in the Bachelor of Applied Science (Computing) which may also be taken in the Bachelor of Social Science and Bachelor of Business.

Objectives
Formal Methods 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 system modelling; interpret and construct formal specifications using the Z formal specification language.

Content
- Introduction to formal methods; propositional calculus; proof and argument; set theory; the Z predicate calculus; relations, functions; sequence; bags; formal specification languages.

Recommended reading
To be advised.

LCS300  Data Structures and Algorithms
3 hours per week  Lilydale  Prerequisites: LCS100 and LCS200  Assessment: assignments and examination
A second stage subject in the Bachelor of Applied Science (Computing) which may also be taken in the Bachelor of Social Science and Bachelor of Business.

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; has tables.

Recommended reading
To be advised.
LCS305 Database Structures and Algorithms
3 hours per week • Lilydale • Assessment: assignments and examination
A second stage subject in the Bachelor of Applied Science (Computing) which may also be taken in the Bachelor of Social Science and Bachelor of Business.

Objectives
To supply the practical skills and knowledge to design most databases used in industry; to provide the foundation to evaluate existing database management systems; to teach proficiency in SQL.

Content
The theory and process of database design, including database architecture; data modelling; rational theory; logical and physical design; relational, network, hierarchical and object oriented databases; SQL.

Recommended reading
To be advised.

LCS306 Human-Computer Interaction
3 hours per week • Lilydale • Prerequisites: nil • Assessment: two assignments and one exam
An elective subject in the Bachelor of Applied Science (Computing) which may also be taken in the Bachelor of Social Science and Bachelor of Business.

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.

LCS314 Software Engineering/Systems Analysis
3 hours per week • Lilydale • Prerequisite: nil • Assessment: assignments and/or projects and a final examination
A second stage subject in the Bachelor of Applied Science (Computing) which may also be taken in the Bachelor of Social Science and Bachelor of Business.

Objectives
Software engineering is the study of organisational and technical issues associated with the development of large scale software systems. This subject surveys a variety of process models, management and development methods and techniques common to software engineering.

LCS407 Data Communications
3 hours per week • Lilydale • Prerequisite: nil • Assessment: assignments and final examination
A second stage subject in the Bachelor of Applied Science (Computing) which may also be taken in the Bachelor of Social Science and Bachelor of Business.

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.

LCS412 Systems Programming
3 hours per week • Lilydale • Prerequisite: nil • Assessment: assignments and/or projects and a final examination
An elective subject in the Bachelor of Applied Science (Computing) which may also be taken in the Bachelor of Social Science and Bachelor of Business.

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, SCCS, 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.

LCS419 Artificial Intelligence
3 hours per week • Lilydale • Prerequisite: nil • Assessment: a combination of assignments and examination
An elective subject in the Bachelor of Applied Science (Computing) which may also be taken in the Bachelor of Social Science and Bachelor of Business.

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.
LCS606  Computing in the Human Context
12.5 credit points • 3 hours per week • Lilydale • Prerequisite: nil • Assessment: essay and examination
A stage three core subject in the Bachelor of Applied Science (Computing) which may also be taken in the Bachelor of Social Science and Bachelor of Business.

Objectives
To provide students with a framework for the development of personal and corporate ethics appropriate for the 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
3 hours per week • Lilydale • Prerequisite: nil • Assessment: assignments
A stage 3 core subject in the Bachelor of Applied Science (Computing) which may also be taken in the Bachelor of Social Science and Bachelor of Business.

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 they 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
4 hours per week • Lilydale • Prerequisite: nil • Assessment: continuous
A stage 1 core subject in the Bachelor of Business, Bachelor of Social Science and Bachelor of Applied Science.

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 superhypeways?
• 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, 1995
Thwaites, T., Davis, L., and Mules, W., Tools For Cultural Studies, Macmillan, 1994
Wolport, L., The Unnatural Nature of Science, Faber and Faber, 1992

LSM100  An Introduction to Media, Literature and Film
3 hours per week • Lilydale • Prerequisite: nil • Assessment: continuous
A stage 1 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives and Content
This subject introduces an analytical approach to media texts. Though it will refer to print and radio forms, it will primarily concern itself with film and/or television. Our interest in studying these texts is not so much to establish their worth. or otherwise. as to draw attention to the mechanics of our work as readers, to the ways in which we produce meanings from (or are confused by) the texts, to the methods they use in order to produce meanings, and to the values they embody in their representations. The texts for study will be selected from fiction and documentary films, television series, news and current affairs programs, music videos, advertisements, variety and sports shows, and children's programs. They will be examined within the context of textual theory, with particular attention being given to their visual aspects.

Recommended reading
Fiske, J., Television Culture, London, Methuen, 1987
LSM200  Popular Culture
3 hours per week  ●  Lilydale  ●  Prerequisite: LSM100
●  Assessment: Research Essay 3000 words, individual tutorial presentation, group exercise, class participation
A stage 2 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives
●  To introduce students to issues and debates in an analysis of popular culture in Australia;
●  to investigate the images, ideologies, meanings and practices which comprise popular culture;
●  to familiarise students with the main theoretical understandings of the Frankfurt and Birmingham Schools, Feminism, Post Structuralism and Postmodernism;
●  to encourage students towards in a critical engagement of their culture.

Content
●  The debates surrounding high culture versus popular culture;
●  an introduction to Marxist and postmodern perspectives;
●  the Frankfurt School: shopping, fashion industries and wearing jeans;
●  traditional vs. postmodern feminists: debates around 'Sexist Advertising';
●  pornography and censorship;
●  postmodern perspectives;
●  the dysfunctional family on television. Birmingham School perspectives;
●  seminar: guest lecturer - 'Junk Culture';
●  sites of popular culture: The rise and rise of computer and video games, gambling, and popular culture, the rock music industry and sport: the true 20th century Australian religion.

Recommended reading
Fiske, J. Understanding Popular Culture. Unwin Hyman, Boston 1989

LSM201 Writing for the Media
3 hours per week  ●  Lilydale  ●  Prerequisite: LSM100  ●
Assessment: Class News Writing Exercises Newsletter/ Feature Television/ Radio News
A stage 2 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives
To offer a theoretical and practical introduction to media writing skills. While the major focus is on writing for the print media – in particular newspapers and magazines – it also includes news writing for radio and television.

Content
●  Editing skills – grammar and punctuation;
●  news writing – hard news, human interest news;
●  news features – writing leads, news story structure, attributions;
●  news research skills;
●  interviews;
●  human interest stories;
●  investigative reporting;
●  magazine features;
●  writing radio news;
●  writing television news.

Recommended reading
Hogan, T. Radio News Writing. AFTRS, Sydney, 1985
Bell, P. and Van Leeuwen, T. The Media Interviews. UNSW Press, Sydney, 1994

LSM202  New Media: The Telecommunications Revolution
3 hours per week  ●  Lilydale  ●  Prerequisite: LSM100  ●
Assessment: Publication in print of creative essay, Internet, publication, reflective review of a piece of one’s own writing
A stage 2 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives and Content
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 that media are undergoing profound change. This subject will examine the issues of who is driving these changes and who might benefit. New communications technologies, such as cable and pay television, interactive television applications, and Internet are discussed in terms of their challenges to established systems. Special attention is given to changes in the telecommunications industry, with the shift towards privatisation, managed competition and a new service culture. Notions such as technological determinism, globalisation, media plurality, information superhighways, information access and equity, are related to an alleged new information revolution. The effects of new communications technologies on content, diversity and social needs in Australia are canvassed. As well, the cultural implications of new choices of media, made possible by technological change, are examined for special groups.

Recommended reading
Barr, T., Challenges and Change, Melbourne, Oxford University Press, 1987
Mosco, V., The Pay-per-Society – Computers and Communications...
in the Information Age, Norwood, N.J., Ablex, 1989
Wheelwright, E. and Buckley, K., (eds), Communications and the Media in Australia, Sydney, Allen & Unwin, 1987

Reinecke, I. and Schultz, J., in the 1990


LSM300 Cinema Studies

3 hours per week  •  Lilydale  •  Prerequisite: LSM100 and two stage two subjects  •  Assessment: class presentation, class participation, short thesis

A stage 3 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives

This subject is designed as an introduction to the practice of film criticism in the context of our ongoing concern with textual analysis.

Content

• Each year different groups of films, representatives of particular genres or embodiments of particular themes (science-fiction, screwball comedy, film noir, Hitchcock's American thrillers, "art" movies, and so on), are selected for study. They are examined as individual texts, week by week, but the major function of our work on them is to be found in the way they provide a foundation for the introduction of broader issues to do with films as art works and as cultural artefacts and with critical practice as a set of specific cultural discourses.

Key issues to emerge will include:

• the role played by structuralist methodologies in the overturning of the humanist discourse which dominates more traditional critical work;
• the ways in which ideology is inscribed into the works examined (as well as into the methods of examination);
• the ways in which particular kinds of relationships are created between films and their viewers;
• the place occupied by 'the author' in relation to the formal and thematic organisation of the works which bear his/her name;
• the usefulness of genre studies;
• the role of the star system;
• the inbuilt connections between the films, the industry and the culture in which they exist.

Recommended reading

Grant, B.K. (ed.), Film Genre Reader. Austin University of Texas Press, 1986

LSM301 Electronic Writing

3 hours per week  •  Lilydale  •  Prerequisite: LSM100 and two stage two subjects  •  Assessment: desktop publication, individual powerpoint class presentations, Internet publication and reading record.

A stage 3 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives

The purpose of this subject is to introduce students to the convergence of print with electronic publishing.

It 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. It will enable the student to develop electronic writing skills including desktop publishing, hypermedia and cruising and using the Internet. Students will have access to and be able to use an open page on the World Wide Web for this subject. They will be encouraged to undertake independent electronic excursions and publication.

Content

• Writing and electronic culture;
• desktop publishing;
• cruising the Internet: reading;
• cruising the Internet: writing;
• critiquing the relationship between reading and writing;
• cultural possibilities: construction and deconstruction in electronic technology;
• on-line writing activities using MUDs and MOOs;
• interactive fiction-writing using 'Storyspace.'
• publishing with PageMaker

Recommended reading


LSM302 Information Society: Promises and Policies

3 hours per week  •  Lilydale  •  Prerequisite: core subject and two stage two subjects  •  Assessment: I major tutorial presentation, I major research assignment

A stage 3 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives

To examine the convergence of broadcasting, information technology and telecommunications in the context of political economic and social changes associated with the notion of an information society.
Content
- Information society: conceptual paradigms;
- political economy of information society: control, competition and choice;
- Australian telecommunications: beyond the duopoly;
- globalisation: cultural imperialism revisited;
- privatisation: impact and effects;
- national information policies: Singapore, U.S.A., Australia;
- the broadband revolution: supply and demand;
- media and telecommunications policy in Asia;
- public broadcasting: crisis of identity;
- social agendas: privacy, equity, abuse;
- futures methodologies: media and telecommunications.

Recommended reading
Green, L. and Guinney, R (eds) Framing Technology, Allen & Unwin, 1994
Wark, M. Virtual Geography, Indiana University Press, 1994

LSS100 Introduction to Sociology
3 hours per week ● Lilydale ● Prerequisite: nil ● Assessment: Tutorial attendance and participation, essay and examination
A stage 1 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives and Content
This subject aims to provide students with a general introduction to the content and methods of the discipline. It examines the ways in which individual and group behaviour influences social outcomes. Students will develop an appreciation of the manner in which society and its institutions shape and constrain individual behaviour. A number of themes are explored including examination of the processes via which our self concepts, behaviours and ideas are formed: and how everyday interactions are socially negotiated accomplishments.

The subjects also deals with broad social structures and power relationships which shape the destinies of individuals and social groups. A wide range of contemporary social issues and debates are analysed using sociological perspectives which relate to social class, gender, ethnicity and the role of other institutions in society such as the state and the economy. The methods and theories used by sociologists, as well as how sociological analysis can inform the development and implementation of social policy, are considered.

Recommended reading
Babbie, E. What is Society, Forge Press, 1994
Robertson, I. Sociology, Worth, New York, 1987

LSS200 Sociology of Deviance and Social Control
3 hours per week ● Lilydale ● Prerequisite: LSS100 ● Assessment: Methodology Exercise, Debate Tutorial Participation Essay (2000 words)
A stage 2 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives and Content
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. The first part of the subject examines the contributions which a variety of sociological perspectives have made to the understanding of deviant behaviour and the social responses it evokes. Three main forms 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

LSS201 Sex and Gender in Society
3 hours per week ● Lilydale ● Prerequisite: LSS100 ● Assessment: major essay (3500 words), final examination
A stage 2 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives and Content
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.

The course examines key social institutions and practices, including work, family, sexuality, and violence. There is a focus upon recent developments and controversies, including sexual harassment, sex change operations, pornography, 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
Connell, R., Gender and Power, Sydney, Allen & Unwin, 1987
Hughes, K.P. ed., Contemporary Australian Feminism, Melbourne, Longman Cheshire, 1994
LSS300 Sociology of Organisations

3 hours per week ● Lilydale ● Prerequisite: LSS100 and two second year sociology subjects ● Assessment: research, assignment, examination

A stage 3 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives and Content

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, bureaucratically managed, and global in their operations. Sociology of Organisations examines first the major explanations of large organisational structures. It then considers aspects of organisations, including organisational culture, gender patterns, corporate networks and power. Finally, the course addresses organisational restructuring, the emergence of new corporate forms and the resurgence of small businesses in the late twentieth century.

The course uses case studies such as BHP, General Motors and McDonalds to illustrate theoretical arguments, and compares Australian organisational patterns with those of other societies.

Recommended reading


LSS301 Current Issues in Sociology: Environment and Population

3 hours per week ● Lilydale ● Prerequisite: LSS100 and two second year sociology subjects taken at level two ● Assessment: One written seminar paper One major essay Seminar participation: two group presentations

A stage 3 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives and Content

The subject matter changes on a year to year basis depending on what issues are considered relevant and interesting to students. Typical issues include environment, health and gender. Irrespective of the issue, key concepts and theories drawn from sociology will be used to inform students' understanding.

At present the focus is on the environment and population. The course 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

Harding, G. Living Within Limits. New York, Oxford University Press, 1993

LSS302 Methodology of Social Research

3 hours per week ● Lilydale ● Prerequisite: LSS100 and two second year sociology units ● Assessment: research design assignment class test research project tutorial contribution

A stage 3 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives and Content

This subject is designed to provide an understanding of the range of methodologies that link sociological theory with social research practices, and to provide the opportunity for practical experience in research by using different methods and designs. In this subject, we examine the relationship between theory, research design and policy. Students are introduce 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: Qualitative and Quantitative Approaches Allen and Bacon, Boston, 1994

LSS303 Sociology and Social Policy

3 hours per week ● Lilydale ● Prerequisite: LSS100 and two second year sociology subjects ● Assessment: class exercises tutorial paper (1500 words) essay (2500 words)

A stage 3 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives and Content

The 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, chronically and disability. The subject also seeks to compare Australian health policy to health policy developments in a number of other societies.

Recommended reading

LSY100 Psychology 100
4 hours per week • Lilydale • Prerequisite: nil • Assessment: practical exercises (including participation as a subject in research), a practical report and an examination
A stage 1 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives and Content
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
4 hours per week • Lilydale • Prerequisite: LSY10, LCR100 • Assessment: essay, a practical report (including participation as a subject in research) and an examination
A stage 1 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives and Content
This subject concentrates on various aspects of cognition such as memory, information processing, intelligence and problem solving. Other topics covered include: motivation, genetics, personality, sexuality, 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
4 hours per week • Lilydale • Prerequisite: LSY100, LCR100, LSY101, SM278L • Assessment: Examination Report (1500 words) Report (2500 words)
A stage 2 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives
The subject will provide a basis for the understanding of skills acquisition and examine the effects of motivation, overload and arousal levels on performance.

Content
The subject examines theories of cognitive functioning and the mechanisms and processes involved in memory, attention and human performance. After a general introduction to theory, contemporary issues are considered, including decision making, perceptual-motor performance and clinical and organisational applications.

Recommended reading

LSY201 Developmental Psychology
4 hours pw week • Lilydale • Prerequisite: LSY100, LSY101 and LCR100 • Corequisite: SM278L • Assessment: One essay, one laboratory report, final examination
A stage 2 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives
• To understand the processes of human growth and change;
• to examine the biological, psychological and environmental factors involved in growth and change.

Content
• Theory and method in developmental psychology;
• prenatal and perinatal 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.

Recommended reading
Berk, L. E. Child Development. 3rd edn, Boston, Allyn and Bacon, 1994
DeLoache J.(ed) Current Readings in Child Development. 2nd edn, Boston, Allyn and Bacon, 1994

LSY202 Social Psychology
3 hours pw week • Lilydale • Prerequisite: LCR100, LSY100, LSY101 and SM278L • Assessment: one essay, one laboratory report, final examination
A stage 2 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives
To understand the processes of interaction between individuals and the society in which they live.

Content
• Methodology and ethics in social psychology;
• attitudes and attitude change;
• person perception;
• social cognition;
• attribution;
• social influence;
• conformity/compliance/obedience;
• stereotypes and prejudice;
• social identity;
• group behaviour;
• decision making;
• interpersonal attraction;
• personal relationships;
• prosocial behaviour;
• aggression;
• gender roles;
• psychology and law;
• organisational psychology;
• environmental psychology;
• political psychology.

Recommended reading

LSY300 The Psychology of Personality
3 hours per week • Lilydale • Prerequisite: LSY200, LSY201, LSY202, SM278L • Assessment: one individual research project report, one final examination
A stage 3 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives
To develop students’ understanding of major theories of personality and how selected concepts from these theories are applied in areas such as counselling psychology, organisational psychology and sports psychology.

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
3 hours per week • Lilydale • Prerequisite: LSY300, SM378L • Assessment: to be advised
A stage 3 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives
To instruct students in the foundation principles of psychological assessment, including the bases of psychological tests.

Content
• 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 reliability;
• the concept of validity — methods of demonstrating validity;
• comparative norms and their importance in assessment;
• score transformations;
• selected applications of assessment procedures — abilities, interests, personality;
• social issues and psychological assessment — equity, opportunity, discrimination.

Recommended reading

LSY302 Psychological Foundations of Counselling
3 hours per week • Lilydale • Prerequisite: LSY300 • Assessment: final examination evaluation of interview
A stage 3 subject in the Bachelor of Social Science which also may be taken in the Bachelor of Business and the Bachelor of Applied Science.

Objectives
• To introduce students to the basic theory of
psychotherapeutic counselling;
- to practise basic helping interviewing skills.

Content
The nature of psychological counselling and its relationship to guidance, psychotherapy and other interview based helping activities will be considered. Emphasis will be given to the mainstream approaches to counselling and to their relevant implications and assumptions. Basic helping interview skills will be introduced as part of the experiential component of the subject. These skills will be drawn from the microskills model proposed by Ivey. Students will be expected to practise interviewing as part of their classroom participation. Other models of counselling will also be discussed, and consideration will be given to the effectiveness of the counselling process.

Recommended reading
Thomas, R. Counselling and Lifespan Development. London, Sage, 1990

MD101 Principles of Design for Electronic Media 1
10 credit points • 4 hours per week • Prahran • Assessment: continuous
A first year subject in the Bachelor of Applied Science (Multimedia Technology)

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 • 4 hours per week • Prahran • Assessment: continuous • Prerequisite: MD101
A first year subject in the Bachelor of Applied Science (Multimedia Technology)

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 4D 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 • 4 hours per week • Prahran • Assessment: continuous
A first year subject in the Bachelor of Applied Science (Multimedia Technology)

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. Stratavision 3D Pro. The introduction to interactivity, utilising flowcharts, pathways, image and sound interaction. Software scripting with appropriate software to maximise the effectiveness of interactivity and audio visual presentation. i.e. Macromind Director and SoundEdit 16.

MD202 Design for Multimedia 2
10 credit points • 4 hours per week • Prahran • Assessment: continuous • Prerequisite: MD201
A second year subject in the Bachelor of Applied Science (Multimedia Technology)

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.

ME249 Environmental Engineering
10 credit points • 4 hours per week (1 sem) • Hawthorn • Assessment: practical work and examination
A second year subject in the Bachelor of Applied Science (Environmental Health)

Objectives
To provide students with an understanding of some engineering principles, and the ways in which these can be employed to control the environment.

Content
Part A Mechanical engineering plant
Principles and standards to be met by heating, ventilating, air-conditioning, refrigeration, thermal comfort and sick buildings. Recognition and analysis of problems, reports and recommendations, maintenance of records.
Part B Vibration/acoustics
Theory and practice of vibration and noise control applied to equipment and plant including ventilation systems and food processing plant. Codes of practice for noise emission
and control.

Minimising the health risks associated with high levels of vibration and noise.

**Recommended reading**


**ME729 Fluid Mechanics**

*3 hours per week*  ●  *Hawthorn*  ●  *Assessment: practical work and examination*

**Content**

To provide a knowledge of fluid mechanics adequate for the graduate entering the process industry.

Kinematic and potential energy, the equivalence of pressure and head. Bernoulli equation and its application to Pitot tube, orifice plate and Venturi, and weir plates.

Momentum and the momentum equation. Viscosity, its measurement and use. Criteria of similarity; dimensional analysis and its application to the derivation of the Stanton (Moody) chart. Equivalent length and diameter. Stanton and von Karman charts. The Hagen-Poiseuille equation.

Operation and characteristics of centrifugal pumps and fans; means of output control. The virtual head equation, the dimensionless groups relating pump head, throughput, power consumption and efficiency with impeller diameter and speed. Specific speed; cavitation and NPSH; relationships between frictional head loss in pipework and head development of pump or fan.

Application of the above concepts to the solution of problems.

Positive displacement pumps and blowers; valves — gate, globe, diaphragm, pinch, ball etc.

**Recommended reading**


**ME731 Instrumentation and System Control**

*3 hours per week*  ●  *Hawthorn*

**Content**

General concepts. Overview of instrumentation in monitoring, control and experimental analysis.

Functional concepts. Functional elements of instruments and system control loops.


Interrelation of plant and control systems, and interpretation of schematic control drawings.

Control devices and controllers. Broad understanding of pneumatic, electric and electronic control systems, relative merits, overview of controller types and a practical understanding of system control.

DDC, building automation and monitoring.

System studies. Linking of the above elements into control systems for air-conditioning, refrigeration and heating and fire services.

Application of control systems within overall energy management strategies — link with ME781.

**Recommended reading**


**MF110 Flight Rules and Procedures 1**

*14 credit points*  ●  *3 hours per week (2 sems)*  ●  *Moorabbin*

A first year subject in the Bachelor of Technology (Aviation)

**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**

*14 credit points*  ●  *3 hours per week (2 sems)*  ●  *Moorabbin*

A first year subject in the Bachelor of Technology (Aviation)

**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;
- navigation fundamentals, pilot navigation, radio navigation aids;
- 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
Thom, T. Meteorology & Navigation, Vols 2. Williamstown, Aviation Theory Centre

MF131 Aircraft General Knowledge 1
14 credit points • 3 hours per week (2 sems) • Moorabbin
A first year subject in the Bachelor of Technology (Aviation)

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 • 2 hours per week (2 sems) • Hawthorn
A first year subject in the Bachelor of Technology (Aviation)

Objectives
This subject is designed to acquaint students with the occupational health and safety requirements of modern aviation.

Content
Safety hazards, combustion, handling of dangerous goods, accident prevention, aviation medicine, survival skills.

Recommended reading
Creighton, W.B. Understanding Occupational Health and Safety Law in Victoria. North Ryde, N.S.W., CCH Australia, 1986
Jensen, R.S. Aviation Psychology. Aldershot, Brookfield, USA, Gower Technical, 1989
Merritt, A. A Guidebook to Australian Occupational Health and Safety Laws. 2nd edn, North Ryde, N.S.W., CCH Australia, 1986

MF160 Propulsion and Aircraft Systems
14 credit points • 3 hours per week (2 sems) • Hawthorn
A first year subject in the Bachelor of Technology (Aviation)

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

MF170 Aviation Mathematics and Computing
20 credit points • 4 hours per week (2 sems) • Hawthorn
A first year subject in the Bachelor of Technology (Aviation)

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, data transfer.

Textbook

Recommended reading
Noggle, J. QuickBASIC Programming for Scientists and Engineers, CRC, 1993
Weatherburn, C.E. Elementary Vector Analysis, G. Bell and Sons, 1960
MF180  Aviation Electronics

6 credit points  •  2 hours per week  •  Hawthorn

A first year subject in the Bachelor of Technology (Aviations)

Objectives
This subject is designed to develop and establish an understanding of the basic electrical and electronic principles required for the theoretical discussion of the principles of operation of equipment found in aircraft.

Content
Electrical quantities, electrical circuit components, electrical circuit analysis, power supplies and conversion from A.C. supply to D.C. supply. Communication concepts and interference.

Recommended reading
Edminister, Electric Circuits, Schaum
Hughes, Aircraft Electricity and Electronics. 5th edn, McGraw Hill 1994
Longman, Electrical Technology, 7th edn, 1995

MF190  Communication Skills

8 credit points  •  3 hours per week  •  Hawthorn

A first year subject in the Bachelor of Technology (Aviation)

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 resumes 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
Pease, A., Jacobowski, P & Garner, A. Talk Language, Sydney, Prase Training Corp, 1985

MF220  Navigation and Meteorology 2

14 credit points  •  3 hours per week (2 sem)  •  Hawthorn

A second year subject in the Bachelor of Technology (Aviation)

Objectives
This subject is designed to provide students with an extensive understanding of the purpose, operation and limitations of some navigation methods and systems; and an ability to take into account the importance of the dynamic atmosphere to flight operations up to Airline Transport Pilot Licence standard.

Content
• 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, Aeronautical Information Publication, Civil Aviation Safety Authority
Thorn, T. PPL Navigation Vols. 1 and 2, Williamstown, Aviation Theory Centre, 1985

MF210  Flight Planning and Procedures 2

10 credit points  •  2 hours per week (2 sem)  •  Moorabbin

A second year subject in the Bachelor of Technology (Aviation)

Objectives
This subject is designed to provide students with a knowledge of flight rules and procedures sufficient to cover various licence levels and operational situations often in excess of that required for an Air Transport Pilot Licence.

Content
• Aircraft operation performance and flight planning to ATPL;
• broaden understanding of flight planning, enroute performance and methods of cruise control, choice of route and amount of reserve fuel. the use of aircraft performance data;
• flight rules and aviation law to ATPL;
• privileges and limitations, flight rules and conditions of flight application to ATPL.
MF231 Aircraft General Knowledge 2

10 credit points • 2 hours per week (2 sems) • Hawthorn

A second year subject in the Bachelor of Technology (Aviation)

Objectives
This subject is designed to reinforce and increase a student's understanding of the aeronautical and aerodynamic factors influencing aircraft performance up to the Airline Transport Licence standard, and to understand the uses of typical flight systems on modern jet transport aircraft.

Content
- Aircraft general knowledge to ATPL;
- engines and engine systems, 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.

Recommended reading

MF241 Theoretical Aerodynamics

10 credit points • 3 hours per week Sem 1 & 2 hours per week Sem 2 • Hawthorn

A second year subject in the Bachelor of Technology (Aviation)

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, aerofoils, wings, force and moment coefficients, steady flight, aircraft performance, static stability.

Recommended reading

MF250 Human Factors and Performance

15 credit points • 3 hours (2 sems) • Hawthorn

A second year subject in the Bachelor of Technology (Aviation)

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 in 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

MF260 Advanced Propulsion and Aircraft Systems

10 credit points • 2 hours per week (2 sems) • Hawthorn

A second year subject in the Bachelor of Technology (Aviation)

Objectives
This subject is designed to provide students with an advanced understanding of the operation and maintenance of the propulsion and activating elements of the aircraft they will be using to the level of Airline Transport Pilot Licence.

Content
Gas turbines, operations, propulsion developments, inspection technology, engine balancing, engine bearings, engine condition, trend monitoring, managing the aging aircraft fleet.

Recommended reading
Dept. of Transport and Communications. Basic Functional Devices and Systems, Canberra, AGPS, 1989
McCormick, B. Aerodynamics, Aeronautics and Flight Mechanics.
New York, Wiley, 1979
Robinson, T., Dept. of Transport and Communications, Gas Turbine Powerplants and Their Maintenance on Aircraft, Canberra, AGPS, 1987

**MF270 Aircraft Materials and Structures**

14 credit points • 3 hours per week (2 sems) • Hawthorn

A second year subject in the Bachelor of Technology (Aviation)

**Objectives**

This subject is designed to provide students with an introduction to the strength 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**

11 credit points • 2 hours (over 2 semesters) • Hawthorn

A second year subject in the Bachelor of Technology (Aviation)

**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**

Analog electronic circuits based on the operational amplifier and its application. Digital electronics based on sequential logic and Boolean algebra application. Computer systems and the integration of electronic systems within aircraft.

**Recommended reading**

Helfrick, Modern Aviation Electronics, 2nd edn, Prentice Hall, 1995
Hughes, Electrical Technology, 7th edn, Longmans, 1995
Eismen, Aircraft Electricity and Electronics, 5th edn, McGraw-Hill, 1994
Floyd, T. L. Electronic Devices. Merrill

**MF290 Aviation Business Management**

6 credit points • 2 hours (1 sem) • Hawthorn

A second year subject in the Bachelor of Technology (Aviation)

**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**

CAOs 80 and 100-104 series. CASA
CARS. CASA

**MF310 Instrument Rating Theory**

4 credit points • 2 hours per week (1 sem) • Moorabbin

A third year subject in the Bachelor of Technology (Aviation)

**Objectives**

This subject is designed to give students an extensive knowledge of instrument and procedural theory applicable to the Command Instrument Rating.

**Content**

Instrument flight rules
Flight planning
Airways procedures
Operations
Instrument departure
Departure and approach procedures

**Recommended reading**

CASA, Regulators, AIP, Orders etc. with amendments

**MF320 Principles of Instruction**

4 credit points • 2 hours (1 sem) • Moorabbin

A third year subject in the Bachelor of Technology (Aviation)

**Objectives**

This subject is designed to give students an extensive understanding of the principles of instruction and to develop practical instructional techniques.

**Content**

Definition of learning, human behaviour, lesson planning and presentation.

**Recommended reading**

MF330  Ground School

7 credit points  •  3 hours per week (1 sem.)  •  Hawthorn
A third year subject in the Bachelor of Technology (Aviation)

Objectives
This subject is designed to provide students with the experience of undergoing a regular ground school as used by airlines for the introduction of crew to a new type of aircraft. Actual training methods will be used where possible backed up by a simulation of these methods where necessary.

Content
- Aircraft layout;
- description of the aircraft systems;
- engine performance and limitations safe operating conditions;
- aircraft performance and flight envelope;
- weight and balance determinations;
- emergency procedures.

Recommended reading
As supplied and depending on the particular aircraft type under consideration.

MF340  Advanced Aerodynamics

12 credit points  •  2 hours per week (2 sems)  •  Hawthorn
A third year subject in the Bachelor of Technology (Aviation).

Objectives
This subject is designed to provide students with an advanced understanding of the aerodynamic factors influencing the flight of an aircraft and to develop theoretical explanations for observed effects.

Content
Airscrew theory, Lanchester-Prandtl (wing theory), the theory of compressible flow, supersonic Prandtl-Meyer flow, wave drag, effects of wing sweep, dynamic stability of a rigid aircraft.

Recommended reading

MF350  Human Factors and Leadership Training

16 credit points  •  3 hours per week (2 sems)  •  Hawthorn
A third year subject in the Bachelor of Technology (Aviation)

Objectives
The aim of this subject is to develop further understanding of aviation human factors with emphasis on the psychology of learning, and the importance of resource management and leadership and teamwork.

Content
This course will examine the theoretical aspects and practical applications of the psychology of learning, crew resource management and enhanced teamwork and leadership training.

Recommended reading
Johnston, N., McDonald, N. and Fuller, R. (Eds),  Aviation Psychology in Practice. Aleresht, UK, Avebury, 1994
Hurst, I. and L.  Pilot Error. Granada, 1976
Weiner, E.L. and Nagel, D.C.  Human Factors in Aviation. 1988

MF360  Aviation Project

22 credit points  •  4 hours per week (2 sems)  •  Hawthorn
A third year subject in the Bachelor of Technology (Aviation)

Objectives
This subject is designed to provide students with the opportunity to conduct a major project research exercise in the field of aviation and present the finding to a group forum for critical appraisal.

Content
This is a major project and should be of a practical nature, relating to the aviation industry, linking the aspects of the course with the specific task chosen by the student. The project may be selected from a list supplied by the supervising staff or by negotiation between the student and the supervising staff. The project may be carried out independently or in groups of two, provided the extent of each student's contribution is clear.

Recommended reading

MF370  Aircraft Design

16 credit points  •  3 hours per week (2 sems)  •  Hawthorn
A third year subject in the Bachelor of Technology (Aviation)

Objectives
This subject is designed to provide students with a comprehensive understanding of the principles behind the design of an aircraft.

Content
A selection of two topics taken from the following list will be offered in any one year. For example airframe design, component design, aerodynamic and performance design, environmental comfort, Noise Vibration Harshness (N.H.V) design.

Recommended reading

**MF380  Aircraft Navigation and Control Systems**

8 credit points • 2 hours per week (2 sems) • Hawthorn

A third year subject in the Bachelor of Technology (Aviation)

**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**

CASA, *Operational Notes on NDB & ADF, DME, VOR, ILS and Area Navigation Systems*
Etkin, B., *Dynamics of Flight*.
Stevens, B.L., and Lewis, F.L. *Aircraft Control and Simulation*, New York, Wiley, 1992

**MF390  Aviation Facilities Management**

15 credit points • 3 hours per week (2 sems) • Hawthorn

A third year subject in the Bachelor of Technology (Aviation)

**Objectives**

This subject is designed to provide students with an understanding of the requirements for managing aviation facilities.

**Content**


**Recommended reading**

CASA, *Regulations, Order, etc. with amendments*
Creighton, W.B. *Understanding Occupational Health and Safety Law in Victoria*. North Ryde, N.S.W., CCH Australia, 1986
Merritt, A. *Guidebook to Australian Occupational Health and Safety Laws*. 2nd edn, North Ryde, N.S.W., CCH Australia, 1986

**MM130  Engineering Materials**

10 credit points • 45 hours per week average • Hawthorn • Assessment: practical work and examination

A first year subject in the Bachelor of Engineering

**Objectives**

The subject aims to develop a broad understanding of the principles from which materials derive their properties, their failure modes, and hence develop a sound basis for material selection and application.

**Content**

Technology and Application

Liquid and solid processing techniques and their application to materials classes, (metals, plastics and ceramics).

Material Properties

Mechanical properties, particularly strength and toughness, and their relationship to the atomic and molecular microstructures of the different material classes. Electronic properties, electrical, magnetic, optical, thermal, and their relationship to the various bonding regimes of the material classes.

Environmental Deterioration and Failures

Studies of the mechanical, chemical and electrical aspects and their interaction with the atomic and molecular structures present in the material classes.

Case Studies in Materials Selection

These are from a variety of applications from aerospace to medicine.

The course is supported by four practical sessions of two hours duration each, introducing the students to the
concepts of strength, toughness, and environmental deterioration.

**Recommended reading**

**MM140 Energy Systems**
10 credit points • 4.5 hours per week average • Hawthorn • Assessment: practical work and examination
A first year subject in the Bachelor of Engineering

**Objectives**
To develop:
- a broad understanding of the principles of energy conversion and transmission derived from as much problem based learning as possible;
- a clear understanding of the concepts of: heat, work, power, conservation of mass, conservation of energy;
- proficiency in conceptualising and solving problems;
- an awareness of the environmental aspects of energy systems.

**Content**

**MM180 Construction Materials**
3 hours per week • Hawthorn • Instruction: lectures, tutorials, laboratory work • Assessment: examination 80%, reports 20%
A second year subject in the Bachelor of Engineering (Manufacturing) and (Mechanical)

**Content**
This subject is intended to give students an understanding of the behaviour of building materials such as timbers, bricks and blocks, cement and concrete, bituminous materials so that they can determine whether traditional materials are being used correctly and appraise new materials.
This subject also provides an introduction to other materials used in buildings, and joining methods.

**Recommended reading**
Van Vlack, L.H., Materials for Engineering, Reading, Mass., Addison-Wesley, 1982

**MM215 Machine Dynamics**
10 credit points • 4 hours per week • Hawthorn • Assessment: examination and tests
A second year subject in the Bachelor of Engineering (Manufacturing) and (Mechanical)

**Objectives**
To develop an understanding of and a functional familiarity with the physical principles and mathematical instruments that form the basis of the engineering analysis of the dynamic behaviour of particles and rigid bodies in plane motion.

**Content**
Kinematics of a particle
Rectilinear motion • review: plane motion, rectangular coords, normal and tangential coords, polar coords.
Kinetics of a particle in plane motion
Kinetics of a particle in plane motion using F = ma, work and energy, impulse and momentum.
Rigid body kinematics
relative velocity, instant centres, relative acceleration.
Analysis of mechanisms; degrees of freedom, four bar chains, Grashof mechanisms.
Rigid body kinetics
Rigid body kinetics: translation, fixed axis rotation
Rigid body kinetics: plane motion - force, mass, acceleration, work and energy, impulse and momentum

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

MM225 Solid Mechanics 1
10 credit points • 4 hours per week • Hawthorn • Assessment: examination and laboratory
A second year subject in the Bachelor of Engineering (Manufacturing) and (Mechanical)

Objectives
To develop the ability to synthesise and solve problems involving force equilibrium, deformation and stressing of machine components and structures.

Content
Review of axial, bending, shear and torsion actions in frames and machines.
Analysis of stresses in plane frames.
Analysis of stresses in machines.
Review of torsion.
Plane stress and strain: Transformations, principal stresses and strains, maximum shear stresses and strains, orientations, Mohr's circle, simple 3D cases.
Static indeterminacy in axial loading and torsion.
Failure theories: Maximum shear stress (Tresca) maximum principal stress (Rankine) and maximum shear strain energy (Von Mises)
Combined loading: Strain gauge and rosettes, beams, shafts and C frames.
Laboratory Experiments
Combined Bending and Torsion.

Text
Recommended reading

MM235 Engineering Materials
10 credit points • 4.5 hours per week • Hawthorn • Assessment: examination, laboratory and assignments
A second year subject in the Bachelor of Engineering (Manufacturing and Mechanical).

Objectives
• To provide students with an understanding of the essential properties of the major classes of materials by explaining their microstructure/property relationships.
• To provide students with an understanding of the principles of Materials selection based on materials properties and failure analysis.
To develop communication skills by formal reporting of experiments carried out in the laboratory.

Content
Metals: Ferrous
Major categories of steels/cast irons and applications
Microstructural phase constituents and property relationships.
Metals: Non-ferrous
Aluminium alloys, cast and wrought, copper-based alloys, high temperature alloys, phase diagrams, microstructure/properties.
Materials selection.
Plastics and composites
Addition and condensation polymerisation, stereoisomeric forms. Crystalline and amorphous microstructures, physical properties
TTT diagrams: polymer additives
Adhesive joining.
Composite. Composites: nature of composite materials, strength, isostress, isostrain
Failure of Materials
Energy processes involved in fast fracture, toughness of materials as a design parameter.
Friction and wear
Ceramics
Processing of ceramic products.
Ceramic structures, AX. Phase diagrams
Mechanical properties.
Laboratory Experiments
Environmental stress cracking steel. Fatigue. Polymer Processing.

Recommended reading
Callister, W.D., Materials Science and Engineering, 3rd edn, Wiley, 1994
Reference
MM245 Thermodynamics 1
10 credit points • 4.5 hours per week average • Hawthorn •
Assessment: examination and laboratory
A second year subject in the Bachelor of Engineering (Manufacturing) and (Mechanical)

Objectives
- To develop the fundamentals of thermodynamics;
- To cover the Second Law, entropy and conservation laws;
- To apply these concepts to heat exchangers, boiling condensation and radiation.

Content
Revision of steady flow
Second law of thermodynamics
The heat engine; Entropy; T-s diagram. Reversible processes and the T-s diagram. Irreversible processes. Energy.
Power cycles
Reciprocating gas compressors
Reciprocating IC engines
Fouriers law of conduction
Refrigeration and heat pumps

Experiments

Recommended reading

MM246 Fluid Mechanics 1
10 credit points • 4.5 hours per week • Hawthorn •
Assessment: examination and laboratory
A second year subject in the Bachelor of Engineering (Manufacturing) and (Mechanical)

Objectives
To develop the fundamentals of fluid mechanics to cover fluid statics, momentum and energy principles and boundary layer theory.
To apply these fundamentals to turbo-machinery and conduit flow.

Content
Introduction to fluid mechanics
Fluid properties
Fluid statics
Fluids in motion
Continuity. Acceleration. Control volumes. Pressure variation flowing fluids
Momentum principle
Energy principle
Hydraulic and energy lines.
Flow in conduits

Recommended reading

MM269 Services
2 hours per week • Prerequisite: MM169 Services •
Instruction: lectures, tutorials and field excursions •
Assessment: examination 70%, assessed work 30%
This is a subject in the Bachelor of Technology (Building Surveying)

Content
This subject deals with the services encountered in industrial and low rise buildings. The following topics are covered:
Air-conditioning basic principles of human comfort requirements. Equipment type. Integration in buildings.
Electrical services principles of illumination, emergency and exit lights. Communication systems. Specialty services trade waste disposal.

Recommended reading
MM273 Manufacturing Technology 1

10 credit points • 4.5 hours per week • Hawthorn • Assessment: examination, assignments and laboratory

A second year subject in the Bachelor of Engineering (Manufacturing) and (Mechanical)

Objectives
- To provide a general understanding of the role of manufacturing technology in industry and how the selection and application of different technologies relates to a range of manufacturing requirements.
- To develop foundation knowledge of some of the more commonly encountered manufacturing technologies.

Content
Manufacturing technology within the total manufacturing system, relationships with design and product requirements.
Manufacturing processes: Introduction to the broad groups of processes - casting and forming of metals, powder metallurgy, manufacture of polymer products, material removal processes.
Basic calculations in machining. Concept of machinability - criteria, introduction to tool wear mechanisms and simple tool life relationship.
Economics of machining: Criteria, mathematical modelling, data bases.
Polymers in manufacturing: Forming and moulding techniques, applications.
Extrusion: Effects of process parameters on product quality.
Injection moulding: Effects of process parameters on product quality.
Introduction to manufacturing automation: The impacts of conventional automation, Numerical Control, Robotics on the attainment of efficiency and quality through manufacturing technology.
CNC machine tools: Applications, relative merits, fundamentals of programming.
Introduction to engineering dimensional metrology: Standards, common practices and equipment used in the measurement of length. Accuracy and uncertainty of measurement, calibration systems.
Measurement of other engineering quantities - Surface texture, angle, roundness, flatness, etc.
Introduction to optical measurement techniques.
Quality in manufacturing: Concepts of quality, quality control and quality assurance. Systematic management of quality: Accreditation to National and International standards (introductory only)
The use of in-process quality control tools in the attainment of manufacturing quality.
Other quality control tools.
Advanced manufacturing Technologies: Introduction to advanced and emerging technologies.

MM276 Computer Aided Design

10 credit points • 4 hours per week • Hawthorn • Assessment: tests/exam, tutorials, lab/project work

A second year subject in the Bachelor of Engineering (Manufacturing) and (Mechanical)

Objectives
- To introduce the fundamentals of computer aided drafting, computer aided design and computer aided manufacturing.
- To provide experience in practical 2D and 3D geometric modelling with application to computer aided manufacture.

Content
Computer Aided Design (2D)
Introduction to CAD, hardware and software.
Mechanical engineering conventions, threads, gears, etc.
Symbol libraries. Assembly drawings. Parametric drawings.
CAD/CAM
Introduction to CAD/CAM.
Tool path generation, verification techniques.
Demonstration of machining of models on CNC machines.

Text
Autocad R13 for Windows.

Reference
MM295 Measurement and Control systems
10 credit points • 4 hours per week • Hawthorn • Assessment: examination, assignments, laboratory
A second year subject in the Bachelor of Engineering (Manufacturing and Mechanical).

Objectives
To provide knowledge of:
- electronics principles of measurement and control systems;
- industrial measurements and associated instrumentation;
- mathematical modeling of physical components;
- dynamic behaviour of instruments and control systems;
- communication between control devices;
- typical applications of instrumentation in automatic control systems.

Content
System Components

Microcomputers. Analogue components.

Linear amplifiers (AC and DC): characteristics, functions of transient amplifiers, input/output signals, amplifiers, conditioning of signals.

Transducers: Active and passive. Circuits (bridges).

Properties: piezoelectric, optical, resistive, capacitive, inductive.

Interfacing computers to the outside world: A/D and D/A conversion. Sampling. Protection, isolation and transformation

Practical work to: reinforce the theory covered and to learn how to use instruments


Second: order systems - step, ramp and sinusoidal input. Frequency response of higher order systems

Stability analysis of control systems: Routh and Nyquist stability theorems, Bode diagrams

Experimental methods for: Determining transfer functions. Determining the stability of a system.

Recommended reading
Richards, R.J., Solving Problems in Control. Longman Scientific and Technical, 1993

MM302 Energy Systems
8 credit points • 4 hours • Hawthorn
A third year subject in the Bachelor of Engineering (Manufacturing)

Content
Thermodynamics

Fluid mechanics
Dimensional analysis and similarity. Methods of dimensional analysis; dimensionless groups associated with problems occurring in fluid flow including effects of natural and forced convection; modelling. Solution of turbulent flow problems; friction factor for laminar and turbulent steady, incompressible, viscous flow in pipes and ducts; series and parallel arrangements. Rotodynamic machinery; Classification and external considerations, power/flow characteristics, efficiency, similarity laws, system matching.

Recommended reading

MM321 Fluid Mechanics
7 credit points • 3 hours per week • Hawthorn
• Assessment: examinations and practical work
A third year subject in the Bachelor of Engineering (Manufacturing) and (Chemical)

Content
Kinetic and potential energy, the equivalence of pressure and head. Bernoulli equation and its application to Pitot tube, orifice plate and Venturi, and weir plates.

Momentum and the momentum equation. Viscosity, its measurement and use. Criteria of similarity; dimensional analysis and its application to the derivation of the Stanton chart. Equivalent length and diameter. Stanton and von Karman charts. The Hagen-Poiseille equation.

Operation and characteristics of centrifugal pumps and fans; means of output control. The virtual head equation. Use of dimensionless groups relating pump head, throughput, power consumption and efficiency with impeller diameter and speed. Specific speed; cavitation and NPSH; relationships between frictional head loss in pipework and head development by pump or fan.
Application of the above concepts to the solution of problems.

**Recommended reading**


**MM330 Advanced Materials**

2 credit points • 1 hour per week • Hawthorn

- Assessment: examinations and assignments

A third year subject in the Bachelor of Engineering (Manufacturing)

**Content**

Fracture mechanics

Plane strain fracture toughness testing. Valid stress test sample, term of stress intensity factor, toughness determination for a variety of materials.

Fibre composite materials

Fabrication and manufacture of fibre reinforced composites.

Failure modes, analytical design, empirical design.

Laminate composite analysis, examples of laminate analysis using computer packages.

Surface engineering

Nature of wear, quantitative description of wear, testing and evaluation for wear resistance.

Review of industrial systems for modification of surfaces by infusion treatments and surface coatings.

Structure modifications, properties and applications resulting from

- transformation hardening
- electrochemical techniques
- thermochemical techniques
- physical and chemical vapour deposition

Selection of surface modification techniques.

Development of expert systems.

**Recommended reading**


Tsai, S.W., *Composites Design*. 4th edn, Dayton, Ohio, Think Composites, 1992

**MM350 Design for Manufacture**

10 credit points • 4 hours per week • Hawthorn

- Assessment: examinations, assignments and project work

A third year subject in the Bachelor of Engineering (Manufacturing) (Production stream)

**Content**

Design of tools for metalworking cutting tools, high removal tools, single points, multipoint and special form tools design.

Design of diesets for sheetmetal work blanking, bending, deep drawing diesets design.

Dies and fixtures design, locating, clamping and other elements design. Dimensional analysis calculation of locating errors.

Kinematics of non uniform motion theory and practice.

Design of cams and cam followers, linkages design.

Automation of production logic circuits, pneumatic circuits and electropneumatic circuits design. Circuits design with P.L.C.S., hydraulics, introduction to robotics.

Major project automation of manual tasks. Thirteen weeks duration.

**Recommended reading**


**MM351 Design for Industry**

10 credit points • 4 hours per week • Hawthorn

- Assessment: projects and assignments on topics

A third year subject in the Bachelor of Engineering (Mechanical)

**Objectives**

To develop students in design aspects of common industrial systems and to consolidate their first industrial experience into the design process.

**Content**

Design process: advanced aspects of decision-making strategies within Australian industry. Further consideration of techniques applicable to divergent idea generation and convergent solution selection processes.


Fluid power systems: design characteristics of hydraulic and pneumatic systems. Symbols for circuit components and functions. Linear actuators, pumps and motors. Control.
valving for pressure, directional and flow control. Open loop system analysis, including frictional losses. Pressure and flow variations during fluid system cycles.

Pressure vessel design: introduction to AS1210 Unfired Pressure Vessels. Design aspects of available materials, vessel features, cylindrical shells, dished ends and quick-actuation closures. Inspection openings and bolted connections with gaskets. Computations for pressure vessels and submission to local regulatory authorities.

**Recommended reading**


**MM355 Mechanical Design**

- 10 credit points • 5 hours per week • Hawthorn • Assessment: Assignments and examination
- A third year subject in the Bachelor of Engineering (Mechanical and Manufacturing)

**Objectives**

To understand and apply the theories of failure and the fundamentals of machine component design.

**Content**

Introduction to design

Fatigue, tribology and surface engineering: fatigue strength variation, effect of mean stress, S-N curves, randomly varying loads, reversed stresses, bearing stresses, fracture fatigue approach and life estimation techniques, conformal and counterformal contract, lubrication of bearings and gears, ceramic coatings, hard facing and electroplating.

Fundamentals of machine components design: cams, energy storage, design, selection and application of springs, design for impact, fasteners and joints and gaskets, rivets, welding and bonding.

Machine power transmission components: shafts, sliding and rolling element bearings, gears, belts and chains drives, couplings, clutches and brakes.

**Recommended Readings**


**MM360 Ergonomics**

- 7 credit points • 3 hours per week • Hawthorn
- A third year subject in the Bachelor of Engineering (Mechanical)

**Objectives**

To expand on the material introduced in the second year subject MM260.

**Content**

Ergonomics systems concepts: ergonomic systems modelling, approaches to problem analysis and design synthesis.

Human body functional anatomy: human skeletal and muscular system of hand-arm-shoulder and spinal structures; structure of eye, vision characteristics and limitations; structure of ear, hearing characteristics and limitations, influence of noise.

Biomechanics of work tasks: application to lifting, pulling, pushing tasks.

Engineering and psychology: quantification of human information processing to perception, cognition and motor tasks.

Vigilance and attention: signal detection theory, reaction time, decision making; strategies, concepts of utility, subjective probability and expected values. Physical environmental factors.

Thermal stress: measurement indices, alleviation and control techniques. Illumination: principles related to human operators, physical relationships, definitions, spectral characteristics and measurement of variables, introduction to standards and codes.

Noise: physical quantities and definitions, spectral characteristics and measurements, effect on human operators threshold limits, introduction to standards regulations and codes of practice. Vibration: physical sources and effects on human body structures, measurement techniques, introduction to standards and codes of practice.


Work organisation: application of skills and task analysis to job design, worker stress, motivation theories, effects of job type on worker performance, shiftwork.

**Recommended reading**

- Wickens, C.D., *Engineering Psychology and Human Performance*. Columbus, Merrill, 1984

**MM365 Design for Manufacture**

- 10 Credit Points • 4 hours per week • Hawthorn • Assessment: Projects and examination
- A third year subject in the Bachelor of Engineering (Mechanical and Manufacturing)

**Objectives**

To provide a basis for making decisions concerning the design of high quality and reliable components, design of tools for manufacturing processes and the design of systems for automation.
Content
Tolerances for quality production
Design of components for assembly
Design for automated assembly
Design of components for various production processes, including mould castings, plastic moulding, die casting, forging, sheet-metal forming, machining, welding and powder metallurgy
Design of tools for forming processes
Design and selection of cutting tools
Logic circuit design
Design of pneumatic and hydraulic circuits

Recommended Reading

MM370 Manufacturing Technology
12 credit points • 5 hours per week • Hawthorn • Assessment: assignments and tests
A third year subject in the Bachelor of Engineering (Manufacturing – Production stream)

Content
Sheetmetal work: presses; classification, drive systems and mechanisms, evaluation of different types, operation, applications, selection. Press feed mechanisms; types, advantages and disadvantages, applications. Die cushions. Bending of sheetmetal; analysis of die types, forces, recoil, springback, blank development. Deep drawing; planning, force requirements, variables, effects of clearance, cutting with shear, stripping force. Materials selection for press forming; general requirements, mechanical tests, tensile test, analysis of stress-strain curves and parameters, r and n values, tests to simulate processes, stretch forming tests, deep drawing tests, bending tests, forming-limit diagrams, applications. Function and terminology for die components; blanking dies, commercially available die sets, punches and accessories.
Numerical control; introduction to NC machine tools, comparison with conventional, hardware configurations, software implementation, control systems, machine control subject, feedback, sensitivity. NC system components; comparison of actuation systems, electric, hydraulic, pneumatic. Design considerations for NC machine tools; design differences between conventional and NC machines, mechanical design considerations, control system design considerations. System input/output; types of input media, symbolic codes, tape input format, communication with MCU. NC programming; programming methods, computer assisted NC programming [processors, post, processors], part programming languages APT. Computer Numerical Control (CNC), Direct Numerical Control (DNC); comparison, management implications.

Plastics and rubbers; overview of processes. Melt forming, rheology, mathematical analysis of pseudoplastic, dilatent, newtonian flow, time dependent flow, thixotropy, viscosity, fractional viscosity. Extrusion defects; causes and prevention. Extrusion die design. Single and multiple screw extrusion; hardware and product characteristics. Injection moulding; mould design, basics of the moldflow philosophy, cooling systems. Thermoforming die design. Elastomers; C black, other additives, compounding. Compression and injection moulding.

Recommended reading

MM380 Productivity Improvement
4 credit points • 2 hours per week (1 sem.) • Hawthorn • Assessment: final examination and assignments
A third year subject in the Bachelor of Engineering (Manufacturing)

Content
Productivity definition, social and economic implications, waste reduction attitudes. Productivity measurement systems and benchmarking.
Work study method study, time measurement, (stopwatch, predetermined methods, work sampling).
Value analysis and engineering.
Ergonomics basic ideas related to method study.
Laboratory exercises will be conducted on relevant issues.

Recommended reading
Kobayashi, I. Twenty keys to Workplace Improvement, Productivity Press, 1990

MM381 Managerial Economics
4 credit points • 2 hours per week • Hawthorn • Assessment: assignments and examinations
A third year subject in the Bachelor of Engineering (Manufacturing)

Content
I. Economics and finance
Topics will be drawn from
• Supply and demand, elasticity, pure competition, monopoly and oligopoly

Swinburne University of Technology 1997 Handbook 439
- Macroeconomics of cost, profit marginal concepts
- Source of finance and cost of capital
- Macroeconomic fundamentals
- Banking system and credit
- National accounts, GDP, government controls
- Markets, resource allocation
- Share market
- Economic indicators

II. Accounting
- introduction to accounting
- financial accounting and annual reports, financial ratios
- management accounting, budgeting, standard costing, historical costing, marginal costing, Activity Based Costing (ABC).

Recommended reading

MM385 Engineering Management
10 credit Points ● 4 hours per week ● Hawthorn ● Assessment: Assignments and examination
A third year subject in the Bachelor of Engineering (Mechanical and Manufacturing)

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 management 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
Samson, D., Management for Engineers, Longmire Cheshire, 1995
Eunson, B., The Communication skills series, Wiley, 1993
Schemerhorn, J.R., Management for Productivity, Wiley, 1993

MM386 Ergonomics
40 credit points ● 4½ hours per week ● Hawthorn ● Assessment: Assignments, laboratory work and examination
A third year subject in the Bachelor of Engineering (Mechanical Manufacturing)

Objectives
To introduce fundamental principles of ergonomics and develop an understanding of its nature and application.

Content
Introduction to the Science of ergonomics
Human interaction with physical environments: hearing and noise, sight and lighting, and vibration, use of standards
Functional anatomy and human interaction with the workplace: musculoskeletal structure of human body, human performance, shift work, importance of anthropometry in workplace design
Introduction to task evaluation and workplace design principles: manual handling and keyboard design
Health and safety practice: safety management methods, legislation, machine guarding, fire and explosion, building safety requirements, electrical safety, hygiene factors, toxicology, chemical hazards and biological diseases
Engineering psychology: cognitive processing, attention, memory, perception, vigilance, reaction time, psychophysics and signal detection theory, human stress, controls and displays, screen based equipment.
Laboratory exercises will be conducted on relevant issues.

Recommended Reading
Grandjean, E., Fitting the Task to the Man, Taylor & Francis, 1988
Kroemer, K., Kroemer, H and Kroemer-Elbert, K., Ergonomics, 1988
Various OH&S Regulations and Codes of Practice

MM396 Computer Science
4 credit points ● 2 hours per week ● Hawthorn ● Prerequisite: MM297 ● Assessment: test and assignment
A third year subject in the Bachelor of Engineering (Manufacturing)

Objectives
To show how computer systems can be used effectively in manufacturing environments. This has two levels on technical level the way processes, machines are controlled and on production level how the computers are used to organise databases, manipulate data, by design of a system in-house or applications of packages (off-shelf).

Content
Computer architectures, with emphasis on special purpose systems to support real time systems, communication between computers and machines, processes, etc.; database including an overview of mostly used systems; detailed discussion of relational databases including normalisation of data, design
approached, query languages; overview of a database package such as DBase III-V; spreadsheet modelling, implementation using a package.

**Recommended reading**
Saola, P., DBase III Workbook. Swinburne Bookshop

**MM414 Stagewise Processes**

12 credit points • 5 hours per week • Hawthorn • Prerequisites: MM211 and MM221 • Assessment: examinations and practical work

A fourth year subject in the Bachelor of Engineering (Manufacturing – Chemical Stream)

**Content**

Applications of mass transfer operations such as distillation, gas absorption, liquid -- liquid extraction and leaching, in chemical manufacturing; descriptions of the equipment in which these operations are carried out.

Behaviour of plate and packed columns; characteristics of packings; bubble cap and sieve trays, weirs and downcomers; flooding, hold-up and pressure drop; selection of optimum column diameter.

The concept of the equilibrium stage as applied to distillation, liquid - liquid extraction, leaching and other mass transfer operations. Graphical and computer-based design techniques employing this concept McCabe-Thiele, Sorel, and Ponchon-Savarit methods; batch and continuous operation.

**Recommended reading**

**MM415 Mass Transfer**

10 credit points • 4 hours per week • Hawthorn • Assessment: examinations, laboratory work, assignments

A fourth year subject in the Bachelor of Engineering (Manufacturing – Chemical Stream)

**Content**

Mass transfer theory Fick’s law of diffusion; steady state diffusion in single-phase systems; multicomponent and transient diffusion; determination of diffusion coefficients.

Convective mass transfer; mass transfer coefficients; interphase mass transfer. Theory and design of continuous differential contactors; mass transfer with chemical reaction; mass, heat and momentum transfer analogies.

**Recommended reading**

**MM420 Energy Systems**

9 credit points • 4 hours per week • Hawthorn • Assessment: examination and practical work

A fourth year subject in the Bachelor of Engineering (Mechanical)

**Content**

Thermodynamics


Fluid mechanics

Rotodynamic machinery; internal characteristics, cavitation, significance of net positive suction head and fan total static pressure system matching and analysis. Fluid drag, boundary layers and wakes. Flow about submerged bodies; pressure drag; boundary layer theory; Navier-stokes equation, momentum and thermal boundary layer equations, effect of transition, separation and streamwise pressure gradient; skin friction; wake flows. Compressible flow energy equation with variable density, gas and vapour flow through nozzles and diffusers, critical pressure ratio, choked flow, metastable flow, normal shock waves.

**Recommended reading**


**MM440 Mechanics and Machine Systems**

11 credit points • 5 hours per week • Hawthorn

A fourth year subject in the Bachelor of Engineering (Mechanical)

**Objectives**

To extend previous studies in mechanics and machine systems.

**Content**

Mechanics of Materials

This topic provides experience and understanding of experimental methods of stress analysis and extends the student’s ability to apply basic principles to more complex problems covering.

Topics covered include:
Thin plates and shells. Deformations symmetrical about an axis. Experimental stress analysis.
Vibration and Noise Control
This topic provides basic understanding of noise control and extends the earlier study of vibrations.
Continuous and branched systems. Vibration measurement. Balancing of solid rotors field balancing.
Control Engineering
Transient response and the root locus method. Frequency response analysis; Modern control and state space techniques;

**Recommended reading**

**MM440 Control Systems**

4 credit points • 2 hours per week • Hawthorn • Assessment: assignment and examination

A fourth year subject in the Bachelor of Engineering (Manufacturing)

**Content**
An introduction to classical methods of analysis for linear control systems.
Introduction to closed-loop control definitions, terminology and examples. Mathematical modelling of physical systems transfer functions, linearisation, block diagrams of closed-loop systems. Transient analysis the inverse transform and the time solution of linear models, response of first and second order systems to a subject impulse and subject step inputs. Stability analysis Routh’s stability criterion for linear control systems. Frequency response analysis steady state solution to sinusoidal inputs and the frequency response function G(jw), representation on logarithmic plots — Bode diagrams, nyquist stability criterion.

**Reference**

**MM450 Design for Manufacture**

10 credit points • 4 hours per week • Hawthorn • Assessment: assignments, project work and examination

A fourth year subject in the Bachelor of Engineering (Production)

**Content**
This subject forms the second part of design for manufacture and aims to prepare students with further knowledge of the design of tooling, machinery and systems for quality production.
Tooling design for metal working economy and batch quantity, relationship. Tool design for cold and hot forging, and diecasting.
Computer aided design CAD systems, processing and techniques. NC programming, kinematics and robotics.

**Recommended reading**

**MM451 Design for Industry**

10 credit points • 4 hours per week • Hawthorn • Assessment: projects, assignments and examination

This is a subject in the Bachelor of Engineering (Mechanical)

**Objectives**
To allow students to develop a knowledge of design aspects of advanced industrial systems and to provide competence in project engineering work ready for industrial employment.

**Content**
Topics covered include design analysis of thermo-fluid systems and design characteristics of fluid flow equipment such as: Pumps and fans, compressors and turbines. Vessels, valves, piping and flanges. Heat exchanger design options, configurations and insulation. System flow sheeting.
MM460  Ergonomics

8 credit points  3 hours per week  Hawthorne Assessment: assignments and laboratory

A fourth year subject in the Bachelor of Engineering (Mechanical)

Objectives
At the completion of this subject students should be able to demonstrate competence in ergonomic Assessment: of workplaces.

Content
The major assignment for this subject will take the form of an ergonomic design of a workplace.

Ergonomics systems concepts application of modelling processes to design solutions and problem analysis.

Human body. Kinesiology lower body elements, locomotion and gait cycle in walking, running and jogging.

Engineering psychology memory modelling, mental loading, application to task design, attitude survey design and administration, Assessment: of physical quantities using psychophysics methodology.

Physical environmental factors. Illumination design criteria, application of lighting standards and codes to various workplace situations. Noise application of standards, codes and regulations, hearing conservation processes and programs.

Acceleration sources and effects on human body elements, impact loading effects, alleviation of dynamic loading.

Human-environment-workplace interface. Workplace requirements for screen based equipment, hand tools, work benches and desks, seating. Strain injury analysis application to manual material handling, slipping, tripping and falling incidents, design criteria, relevant standards. Occupational overuse injury types, origins, task design criteria, control measures.

Occupational health and safety issues. Occurrence analysis introduction to accident causation philosophy, energy damage model, generalised time sequence model, Rowe’s risk estimation model, application of the models to accident investigations. Safety health and safety program design, H. and S. management principles, injury claims management.

Recommended reading
Accident Compensation Act. 1985

MM470  Computer Interfacing and Microprocessors

5 credit points  2 hours per week  Assessment: project work and examination

A fourth year subject in the Bachelor of Engineering (Manufacturing)

Objectives
To provide students with a sound introduction to basic computer architecture, interfacing and networking principles as they relate to advanced manufacturing technology and mechatronic systems.

Content
Boolean algebra, number systems, Karnaugh maps, sequential state machines and microprocessor architecture.


Recommended reading

MM471  Numerical Engineering

4 credit points  2 hours per week  Assessment: tutorial assignments and examination

A fourth year subject in the Bachelor of Engineering (Mechanical)

Objectives
To develop an understanding of the mathematics of Finite Element Analysis and the application of FEA to engineering problems.

Content
Interpolation of data. Lagrange polynomial. Inner products and orthogonality. Piecewise linear and quadratic Lagrange interpolation. Method of weighted residuals for ordinary differential equations with homogeneous and non-homogeneous boundary conditions. Linear and cubic Hermite basis functions, applications including beam problems. Three dimension, boundary condition, mesh generation. Introduction to STRAND 6.1; zone based mesh generation, linear analysis, dynamic analysis, load and reaction recovery. Examples and assignments on finite element analysis, using a microcomputer based finite element program.

Recommended readings
Burnett, D.S., Finite Element Analysis From Concepts to Applications. Reading, Mass, Addison-Wesley, 1987


**MM472 Manufacturing Technology**

12 credit points • 5 hours per week • Hawthorn • Assessment: assignments and tests

A fourth year subject in the Bachelor of Engineering (Manufacturing - Production Stream)

**Content**


**Recommended readings**


**MM480 Facilities Planning and Design**

7 credit points • 3 hours per week • Hawthorn • Assessment: project, exam and assignments

A fourth year subject in the Bachelor of Engineering (Manufacturing - Production Stream)

**Objectives**

To introduce methods of analysis and planning of facilities layout considering products, processes, effective material handling facilities, etc. Relevant quantitative techniques such as COMUPERT, will be introduced where they are needed for design of facilities.

**Content**


**Recommended reading**


**MM481 Decision Analysis**

4 credit points • 2 hours per week • Hawthorn • Assessment: project, assignment and examination

A fourth year subject in the Bachelor of Engineering (Manufacturing)

**Objectives**

To introduce the decision making methodology and techniques available. To emphasise the need for formal approaches and the gain of structured, formal decisions. To examine several areas in manufacturing environments where crucial decisions benefit from the use of these methods.

**Content**

Introduction to the DM methodology is followed by details of techniques. Single criteria decisions cost consideration in decisions (cash flow). Effect of uncertainty, meaning of probability, encoding probability distributions. Tree structure of problems (a computer package will be used). Decision/outcomes under uncertainty. Risk attitudes, utility functions. Approaching real world problems, a cyclical approach, strategy tables, influence diagrams. Sensitivity analysis. Obtaining information from tree analysis. Value of information control. Presentation of decision results. Multi criteria decisions traditional approaches such as Delphi technique reviewed. The analytical hierarchy process, methodology, modelling. Structuring the problem, judgements. Group decisions with AHP, other methods. Sensitivity analysis and presentation of results. Use of a computer package to experiment with AHP.

**Recommended reading**


Shayan, E., *Notes on Decision Analysis*. 

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MM482 Manufacturing Operations Management

4 credit points • 2 hours per week • Hawthorn • Assessment: assignments, project and exam

A fourth year subject in the Bachelor of Engineering (Manufacturing)

Objective

To achieve a thorough understanding of all functions and their relationships in a manufacturing system, how it is planned, operated and controlled.

Content

Structure of a manufacturing system via models such as SADT, ICAM, IDEF functions and management of an enterprise (production/service); manufacturing function; development function-production function; support function; data processing; technology and manufacturing FMS, CAD/CAM; scheduling techniques at shop floor level; inventory control policies and models; MRP, MRPII, methodology; introduction to a computer implemented MRPII, hands on experience; requirements for successful MRP implementations; Forecasting techniques including exponential smoothing, seasonal forecasting regression, Box Jenkins methodology.

Recommended reading


Wight, O., Manufacturing Resource Planning, MRPII Unlocking America's Productivity Potential. Rev. edn, Essex Junction, Oliver Wight, 1984


MM483 Engineering Management

8 credit points • 4 hours per week • Hawthorn

A fourth year subject in the Bachelor of Engineering (Mechanical) • Brian Iorns

Content

This subject provides both an introduction to fundamental of financial and commercial engineering management and consideration of organisational environment effects on engineering outcomes. Such studies are to be reinforced by students being required to report on management and organisational aspects related to their work experience.

Topics covered include commercial management; financial management; people management; project management.

Recommended reading


Plus supporting references

MM500 Manufacturing Project

20 credit points • 6 hours per week • Hawthorn • Assessment: thesis and observed technique

A fifth year subject in the Bachelor of Engineering (Manufacturing)

Content

The aim of this subject is to develop the students' skills in planning and executing a major individual project which draws upon and integrates the wide range of skills and knowledge acquired during the course. It is a major component of the final year.

This subject is the major individual research project in the course. At the end of the fourth year academic period, each student will be given, or allowed to select, a research project related to manufacturing engineering.

The student will be expected to make all preparations, designs, literature surveys, during the fourth year industrial training session. At the beginning of the final semester of the course, the student may be required to give a short oral presentation of the aims, Objectives and experimental method to be followed.

MM501 Engineering Project

16 credit points: 137 hours over 18 weeks • Hawthorn • Assessment: report, project, management, seminar

A fifth year subject in the Bachelor of Engineering (Mechanical)

Objectives

- To allow students to integrate the knowledge and skills they have gained throughout the course into a targeted engineering investigation with the aim of producing a substantial report and, if appropriate, usable equipment;
- To develop individual initiative in pursuing an engineering objective;
- To plan and manage, in conjunction with a staff member, the progress of an engineering project.

Content

Topics are selected by students from a list prepared by academic staff or students may suggest their own topic based on an individual's interest or industrial experience. Projects may be university based or industry based. The project may take various forms in which technology, research and development, experimental work, computer analysis, industry liaison and business acumen vary in relative significance.

MM509 Engineering Mathematics

4 credit points • 2 hours per week • Hawthorn • Assessment: tutorial assignments, practical work and examination

A fifth year subject in the Bachelor of Engineering (Manufacturing)

Objectives

To round off the student's knowledge of mathematical methods required by practising engineers and to place these methods into perspective through a study of different
mathematics structures used in the mathematical modelling of engineering systems.

Content

Recommended reading

MM510 Combined Heat and Mass Transfer
10 credit points • 5 hours per week (65 hours) • Hawthorn • Assessment: examination, assignments and practical work
A fifth year subject in the Bachelor of Engineering (Manufacturing - Chemical Stream)

Objectives
To apply the theories of heat and mass transfer studied in the fourth year of the course, to the design of equipment for the operations listed below.

Content
Industrial applications of heat and momentum transfer. Diffusional operations drying, crystallisation, water cooling and humidification. Single and multi-effect evaporator systems; thermal and mechanical recompression. Operation, control and economics of evaporation systems.

Recommended reading

MM511 Chemical Engineering Design
9 credit points • 5 hours per week (65 hours) • Hawthorn • Assessment: examination, assignments and practical work
A fifth year subject in the Bachelor of Engineering (Manufacturing - Chemical Stream)

Objectives
To acquaint the student with the responsibilities of the professional chemical engineer and some of the issues that may be confronted.

Content
A separate segment seeks to consolidate the student's previous work in computer programming by applying it to problems relevant to his/her future career. The syllabus covers aspects of chemical plant design formulating the design; the design procedure; flowsheets and their uses in design work; safety and health considerations; economic aspects; plant layout.

Computer aided design the use of software packages for flowsheeting, flowsheet preparation and layout; exercises in preparation of computer solutions to problems in momentum, heat and mass transfer.

Recommended reading
Ross, G., Computer Programming Examples for Chemical Engineers. Amsterdam, Elsevier, 1987

MM520 Engineering Science
8 credit points • 4 hours per week • Hawthorn • Assessment: examination, assignments reports
A fifth year subject in the Bachelor of Engineering (Mechanical)

Objectives
This subject aims to provide students with an opportunity to pursue a number of engineering science areas in depth.

Content: Thermo/Fluid Mechanics
The syllabus includes three topics selected from turbulence theory equations of continuity and motion for turbulent mean flow; methods of solution. Flow of an ideal fluid: circulation, vonicity, stream function, velocity potential and flow nets, basic flow patterns and combinations of same; aerofoil theory. Low Reynolds number flows: steady laminar flow in pipes and between parallel plates; measurement of viscosity; fundamentals of the theory of hydrodynamic lubrication. Two-phase flows: slurries and particle/carrier gas flows. Supersonic flow: oblique shock waves, subsonic and supersonic combustion ramjets, supersonic inakes.

Recommended reading
Cameron, A., Basic Lubrication Theory. 3rd edn, Chichester, E. Horwood, 1981

Content: Energy Systems
The syllabus contains three topics, two of which are supported by laboratory work.

Solar energy spectral energy distribution, atmospheric scattering and absorption, collector geometry, optical properties of transparent and opaque materials, internal and external heat transfer processes and efficiency, thermophon circulation.

Heat transfer numerical methods applied to multi-dimensional unsteady conduction with boundary
convention and radiation and extended surfaces.
One topic selected from heat and mass transfer in direct contact processes, turbocharged internal combustion engines, available energy and direct energy conversion.

**Recommended reading**

**Content: Energy Modelling**
This subject aims to introduce students to the application of numerical methods to the solution of engineering problems. Students will gain experience in applying finite difference and finite element techniques to selected problems in thermo/fluid mechanics where alternative solutions are available from physical measurements or analytical solutions.

The program includes introduction to available numerical packages for thermo/fluid modelling. Demonstrate. Select an energy system problem (heat transfer or boundary layer) amenable to solution by a Runge-Kutta technique. Write a suitable numerical model, code and compare to alternative solution. Select an energy system problem suitable for solution with one of the standard packages (e.g. MSC/PAL, NASTRAN, FIDAP, INFERNO). Write a report covering both tasks and addressing the above Objectives.

**Recommended reading**

**MM540 Mechanics and Machine Systems**
*8 credit points • 4 hours per week • Hawthorn • Assessment: Examination, Assignments, reports* 
A fifth year subject in the Bachelor of Engineering (Mechanical) *Mal Buley*

**Objectives**
Students must select two subjects from the selection offered below. The subjects within this group offer advanced studies in both the theoretical and applied aspects of mechanics and machine systems. The subjects offered each year depend on demand and availability of staff.

**Content: Mechanics of Solids**
The subject covers advanced topics in the analysis and design of machine components and structures.


**Recommended reading**

**Content: Vibration and Modal Analysis**
The subject includes advanced topics in the theoretical and experimental analysis of vibration in machines and structures.


**Recommended reading**

**Content: Control Engineering**
The subject includes advanced topics in the analysis and design of engineering control systems.

Topics will be offered from the following list:

**Recommended reading**

**Content: Machine Systems and Simulation**
The subject includes advanced application in the analysis, synthesis and design of machines and mechanisms.

Topics are selected from the following list:
Synthesis of mechanisms and linkages. Mechanism simulation, single and multi degree of freedom applications.

**Recommended reading**


**Content: Engineering Ergonomics**

The syllabus covers postural strain and overuse injuries; types, origins, pathology, task design criteria, management strategies for risk control. Overload injuries; types, origins, pathology, task design criteria, management strategies for risk control. System design and developing design strategies for socio-technical systems; physiological and socio factors. Human-computer interaction: input device characteristics: screens, keyboards, mice, graphic tablets, balls, gloves, voice recognition, touch screens, new techniques. Output: screen displays, voice synthesis, printers, character based screens versus high resolution graphics. Computer control versus user control, causes of user anxiety. Control techniques: windows, menus, buttons, command keys.

**Recommended reading**


**Content: Engineering Technologies**

Experimental Design: Scaling, Orthogonal arrays. Factorial designs. Multi-factor experiments. Determination of significant effects.  
Multi-level experiments. Confounding: Fractional factorials.  

**Recommended reading**


**Content: Equipment Life Cycle**

Types of equipment

Fixed and mobile equipment acquisition and procurement cycle; major equipment acquisition, minor equipment acquisition, forecasts, budgets and estimates, conception
definition and realisation.
Design research and development
FMECA and LSA, adaptive design and off-the-shelf design options. Equipment trialling, testing and demonstration; user requirements, engineering requirements, reliability, maintainability, maintenance and logistic support requirements, trials, tests and demonstration plans and contracting for reliability.

Maintenance strategy
Types and approaches, preventive maintenance, condition monitoring, on condition maintenance and breakdown maintenance. Maintenance economics and ORTL.
Integration and commissioning process
Systems management and systems effectiveness, the operational system, the maintenance sub-system, the training and documentation package, ISR and inventory stocking levels, and warrants period.

Maintenance operations
Maintenance planning and control, work planning, resource analysis and allocation, plant inventories and records. Repair parts scaling and spares Assessments. Maintenance activities; repair and performance and condition monitoring, replace, diagnose, isolate, test, calibrate, overhaul, rebuild, rectification, downtime and equipment availability.
Maintenance access and creation of maintenance windows. Measures of maintenance effectiveness.

Configuration
Configuration control and modification.
Decommissioning, disposal and system replacement.

Recommended reading
Byrt, W.J. and Masters, P.R., The Australian Manager. 2nd edn, Melbourne, Macmillan, 1982

Content: Occupational Risk
Occupational hygiene; methods and limitations of sampling and measurement of contaminants, control aspects of occupational hygiene.
Toxicology: routes of entry, dose-response relationships, threshold limit values and other measures applied to chemicals, noise, vibration and radiation.
Chemical hazards and effects: solvents, dusts, welding fumes, heavy metals, sensitisation, cancer, respiratory and other systemic effect; respiratory protection against dusts, mists and vapours, equipment types, effectiveness and program requirements.

Radiation: ionising and non-ionising, uses and applications, damage-risk criteria, control methods.
Biological hazards: Legionnaire's disease, zoonoses, AIDS, bacterial infection, principals and control.
Engineering risk control for external energy sources mobility of energy source and recipient, passive and active control, organisational requirements for control.
Engineering risk control for internal energy sources principals or organisational and technical controls.
Application of event synthesis techniques machines, processes.
Application of event analysis technique to a class of events, application of fault tree analysis, machines, processes capable of experiencing that class of events.
Machinery safeguarding design legal principals and requirements, design methodology.
Isolation procedures and work permit systems definitions, isolation and work permit procedure components, factors influencing design, reliability of procedures.
Electrical safety: effects of electricity on the human body. MEN electrical system, earth leakage circuitry breaker and applications, EMR, spectral characteristics, effects on human body elements.
Fire and explosion: principles and practices, ignition sources, fuels, fire loading computations, detection and control, codes of practice.

Recommended reading
Cooper, W.F., Electrical Safety Engineering. 3rd edn, London, Butterworth, 1993

Content: Technology Modelling
The art of modelling mathematical and physical modelling. An introduction to the tools; materials; technique and process of modelling.
Fundamentals of modelling and diagnostics.
The modelling process needs, Objectives, understanding phenomena, literature, systems and subsystems, refinement, verification and communication; modelling materials: fundamental physical laws, constitutive relations, equations of engineering science, derived formulae, constraints, sources.

Building techniques Objectives, failure models; system diagrams, decomposing into subsystems; parameter
reasoning.
Refinement techniques aesthetics; dimension checking; comparing magnitudes; analysing sensitivity and verifying results.
Modelling techniques in thermo-fluids engineering theoretical and experimental; predictive; computational; experimental methods; dimensional analysis and similitude; engineering decisions in modelling and power plants, bolter design and hydraulic plants.

**Recommended reading**


**MM554 Technology Modelling**

*Hawthorn*

This is a subject in the Bachelor of Engineering.

**Objectives**

- To develop the ability to craft a mathematical model of a technological system.
- To develop the ability to implement that model in a high level computing language.
- To develop skills in professional documentation of modelled system

**Content**

The subject will use the software Mathematica as the programming and documentation system modelling.


**Recommended Reading**

Mathematica: A system for doing mathematics by computer, 3rd ed, Addison Wesley 1996


**MM556 Reactor Design**

*4 credit points • 2 hours per week • Hawthorn • Assessment: examination*

A fifth year subject in the Bachelor of Engineering (Manufacturing – Chemical Stream)

**Objectives**

To give students a basic understanding of the principles involved in the design of batch and continuous reactors, and to specifically study the operation of small scale batch plant as used in many Australian industries.

**Content**

Reactor design a review of chemical reaction, kinematics, flow kinematics of various reactor types including batch, tubular and CSTR, temperature and pressure effects on reactor performance. Adiabatic and isothermal operation. Gas and liquid phase reactions. Heterogeneous operations. Batch processes unsteady state operation of chemical plant with examples including batch distillation, batch drying, batch filtration, batch reactors and batch leaching and absorption, solvent extraction, ion exchange, semibatch operation.

**Recommended reading**


**MM570 Manufacturing Technology**

*6 credit points • 5 hours per week • Hawthorn • Assessment: assignments and tests*

A fifth year subject in the Bachelor of Engineering (Manufacturing – Production Stream)

**Objectives**

To complete the work commenced in MM472. In the plasticity section emphasis is placed on the analysis of hot working techniques and on load bounding methods.

**Content**

The automation section emphasises the techniques applied in automation and the use of industrial robots and the plastics and rubbers section completes the development of these techniques.


**References**


MM580 Management Practices
5 credit points • 3 hours per week • Hawthorn
• Assessment: examination, assignment and class participation
A fifth year subject in the Bachelor of Engineering (Mechanical)

Objectives
To address the key issues for managing productive and innovative engineering environments and to provide further elective study in management practice areas of prime student interest.

Content
This subject includes managerial concepts and practices that engender a cooperative working environment required for ‘World Class’ productive and innovative engineering. It consists of a compulsory core in which the key elements for managing productive and innovative (typically that associated with research and development) environments are studied. Students then select an elective from one of the following

Engineering leadership: project management, research and development management, risk management, occupational health and safety management, maintenance management, informatics management, production management.

Elements of a productive environment: the working environment; factors contributing to work performance, structures of control, alternative social relations of production, managerial goals and organisational structure; impact of technology on work, social environment, occupational health and safety. The engineering environment; optimisation of a system of technology and people for maximising the desired engineering outcomes; new applications of technology, socio-technical systems analysis for specification, selection and implementation of total technical and working environment requirements.

Job design to sustain cooperative and productive engineering environment: perspectives of the labour process and factors contributing to the design of jobs, needs and policies in the recruitment and selection of achievers, socio-technical analysis and design of optimum engineering system and people combinations.

Elements of an innovative environment: relationship between work design and engineering innovation (e.g., flexible specialisation). Managing change; understanding the psychology of change, specifying, designing, planning, negotiating and implementing change. Managing innovation; social dimensions of creativity, invention and technology; technological diffusion and economic analysis of innovation.

Recommended reading
MacLeod R., (ed.), Technology and the Human Prospect Essays in Honour of Christopher Freeman. London, Frances Pinter, 1986
Rothwell, R. and Zegveld, W., Innovation and the Small and the Medium Sized Firm Their Role in Employment and in Economic Change. London, Frances Pinter, 1982
Windolf, P. and Wood, W., Recruitment and Selection in the Labour Market A Comparative Study of Britain and West Germany. Aldershot, Avebury, 1988

MM581 Manufacturing Systems Modelling
4 credit points • 2 hours per week • Hawthorn
• Assessment: assignment, projects and exam
A fifth year subject in the Bachelor of Engineering (Manufacturing)

Objectives
To introduce modelling concepts, techniques and solutions applied to manufacturing systems as tools in identification, structuring and analysis of problems leading to real decision making.

Content
The syllabus covers modelling concept, classifications; optimisation models applied to resource allocation, networks, capacity planning, maintenance, assembly lines; introduction to a commercial LP/NLP package and its application to some cases; stochastic models, applications in reliability, maintenance; markovian analysis; simulation modelling; concept, benefits, applications, languages, packages; introduction to and applications of a commercial simulation package (simfactory); statistical analysis, reliability modelling.

Recommended reading
Williams, H.P., Model Building in Mathematical Programming. 3rd edn, Chichester, Wiley, 1990

MM582 World Class Manufacturing Systems
4 credit points • 2 hours per week • Hawthorn
• Assessment: project work or assignment, exam
A fifth year subject in the Bachelor of Engineering (Manufacturing) Ebrahim Shayan

Objectives
To give the student an understanding of the current trends in manufacturing via thorough investigation of Content, relevance and interrelationships of JIT, TQC, quality circles, maintenance, reliability. Discussions to be supported by video and seminars.

Content
Theory Z management style resembling the Japanese approach towards management, productivity through employee involvement, trust and respect for the individual, implicit control.
VAM concept/philosophy, definitions, planning, implementation.
JIT concept, elements/levels, comparison with traditional method, requirements, training, government participation.
TQC concept, management improvement, employees attitude, environmental implementation.
Quality circles people's participation in problem solving.
management attitudes, scope of problem, levels of circle, training, approaches, examples.

**Recommended reading**


**MM583 Industrial Management**

Jit Chan

4 credit points • 4 hours per week • Hawthorn • Assessment: assignments and examination

A subject in the Bachelor of Engineering (Manufacturing)

**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**


**MM605 Design for Manufacture**

13 credit points • 4 hours per week • Hawthorn • Assessment: assignments, project work and examination

A subject in the Graduate Diploma in Manufacturing Technology

**Content**

The subject forms the second part of Design for Manufacture to prepare students with further knowledge of the design of tooling, machinery and systems for quality production.

Tooling design for metalworking economy and batch quantity, relationship. Tool design for cold and hot forging, and diecasting.


Computer aided design CAD Systems, processing and techniques. N C programming, kinematics and robotics.

**Recommended reading**


MM606  Manufacturing Technology

15 credit points  ●  5 hours per week  ●  Hawthorn  ●  Assessment: assignments and tests

A subject in the Graduate Diploma in Manufacturing Technology

Content
Sheetmetal work presses; classification, drive systems and mechanisms, evaluation of different types, operation, applications, selection. Press feed mechanisms; types, advantages and disadvantages, applications. Die cushions. Bending of sheetmetal; analysis of die types, forces, recoil, springback, blank development. Deep drawing; planning, force requirements, variables, effects of clearance, cutting with shear, stripping force. Materials selection for press forming; general requirements, mechanical tests, tensile test, analysis of stress-strain curves and parameters, r and n values, tests to simulate processes, stretch forming tests, deep-drawing tests, bending tests, forming-limit diagrams, applications. Function and terminology for die components; blanking dies, commercially available die sets, punches and accessories.

Numerical control; introduction to NC machine tools, comparison with conventional, hardware configurations, software implementation, control systems, machine control unit, feedback, sensitivity. NC system components; comparison of actuation systems, electric, hydraulic, pneumatic. Design considerations for NC machine tools; design differences between conventional and NC machines, mechanical design considerations, control system design considerations. System input/output; types of input media, symbolic codes, tape input format, communication with MCU. NC programming; programming methods, computer assisted NC programming [processors, post; processors], part programming languages APT. Computer Numerical Control (CNC), Direct Numerical Control (DNC); comparison, management implications.

Plastics and rubbers; overview of processes. Melt forming, rheology, mathematical analysis of pseudoplastic, dilatent, newtonian flow, time dependant flow, thixotropy, viscosity, trational viscosity. Extrusion defects; causes and prevention. Extrusion die design. Single and multiple screw extrusion; hardware and product characteristics. Injection moulding; mould design, basics of the moldflow philosophy, cooling systems. Thermoforming die design. Elastomers; C black, other additives, compounding. Compression and injection moulding.

Recommended reading
Roe, G., Elements of Metalworking Theory. London, Edward Arnold, 1979

MM607  Manufacturing Technology

15 credit points  ●  5 hours per week  ●  Hawthorn  ●  Assessment: assignments and tests

A subject in the Graduate Diploma in Manufacturing Technology

Content


Recommended reading
Roe, G., Elements of Metalworking Theory. London, Edward Arnold, 1979

MM608  Manufacturing Technology

15 credit points  ●  5 hours per week  ●  Hawthorn  ●  Assessment: assignments and tests

A subject in the Graduate Diploma in Manufacturing Technology

Content
Calndering and coating. Manufacture of PVC products.

Analysis of film blowing and printing.

**Recommended reading**


**MM626 Advanced Mathematics**

6 credit points • 2 hours per week • Hawthorn • Assessment: assignments/examination

A subject in the Graduate Diploma in Computer Integrated Manufacture (CIM)

**Objectives**

To develop an understanding of mathematical techniques for computer applications.

**Content**

Computational linear algebra with applications to sparse matrices and three dimensional geometry. Finite differences methods in ordinary and partial differential equations. Interpolation and splines.

MATLAB - the software package will be used through the whole course.

**Recommended reading**


**MM630 Mathematics and Computing**

6 credit points • 2 hours per week • Hawthorn • Assessment: assignment/examination

A subject in the Graduate Diploma in Computer Integrated Manufacture (CIM)

**Objectives**

This subject aims to develop an understanding of mathematical and statistical techniques for solving problems in management science.

**Content**

Topics are selected from:

- Linear programming: simplex method, big M method, two phase method, duality, dual simplex method, sensitivity, revised simplex technique, bounded variables, parametric programming, decomposition, applications, use of computer packages such as SAS/OR, industrial applications.
- Multiple linear regression: review of linear regression with one predictor.

**Recommended reading**


**MM641 Computer Aided Design**

15 credit points • 4 hours per week • Hawthorn • Assessment: assignments, projects and examination

A subject in the Master of Engineering (CIM) and the Graduate Diploma (CIM) and the Graduate Certificate (CAD/CAM).

**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

**Recommended reading**


**MM642 Manufacturing Management Systems**

20 credit points • 4 hours per week • Hawthorn • Assessment: assignments, projects and examination

A subject in the Master of Engineering (CIM) and the Graduate Diploma (CIM) and the Graduate Certificate (CAD/CAM).

**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
- Management of technology
- Decision making in manufacturing
- Project management
Reliability and maintenance management

**Recommended reading**

**More papers and texts in class**

**MM643 Robotics and Automation**

7.5 credit points • 2 hours per week • Hawthorn • Assessment: assignments & examination

A subject in the Master of Engineering (CIM) and the Graduate Diploma (CIM) and the Graduate Certificate (CAD/CAM).

**Objectives**
The aim of this subject is to provide students with an understanding of the rationale for dedicated/flexible/low cost/capital intensive automation systems and a knowledge of the design of such systems.

**Content**
Logic circuit design
Low cost automation
Introduction to robotics
Robot languages and programming methodologies
Analysis of robot performance
Robot and effector design
Robots and sensor systems
Technical, financial and social evaluation of robotic installations

**Recommended reading**

**MM644 Numerical Control**

7.5 credit points • 2 hours per week • Hawthorn • Assessment: assignment, project work and examination

A subject in the Master of Engineering (CIM) and the Graduate Diploma (CIM) and the Graduate Certificate (CAD/CAM).

**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.

**Content**
Introduction to N/C: nature of N/C, distinction between generic N/C, LNL, DNL, DDNL.
N/C systems: structure of N/C controllers, types of motors, feedback, tool management systems.
N/C programming methods: manual, computer assisted, interactive graphic, CAD/NC.
N/C applications: appropriate applications areas, flexibility and the contexts in which N/C can be exploited.

**Recommended reading**

**MM651 Intelligent Manufacturing Systems**

7.5 credit points • 2 hours per week • Hawthorn • Assessment: projects and examinations

A subject in the Master of Engineering (CIM) and the Graduate Diploma (CIM) and the Graduate Certificate (CAD/CAM).

**Objectives**
To provide the knowledge and skill used in recent advancements with design, managements and production issues in an automated manufacturing environment and to contribute to better understanding of developments and applications of intelligent manufacturing systems.

**Content**
Flexible manufacturing systems
Concurrent engineering
Rapid product development
Future trends in intelligent manufacturing

**Recommended reading**

**MM652 Computer Control and Sensing**

20 credit points • 4 hours per week • Hawthorn • Assessment: project and examination

A subject in the Graduate Diploma in Engineering (Computer Integrated Manufacture) and the Master of Engineering (Computer Integrated Manufacture).

**Objectives**
To provide an understanding or 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
Interfacing - basic stages in the closed loop

Swinburne University of Technology 1997 Handbook 455
Interfacing elements - analog circuit components
Interfacing elements - basic transducers and sensors
Interfacing elements - advanced feedback sensors
Computer control fundamentals and advanced topics

**Recommended reading**

**MM653 Expert Systems, Simulation and Modelling**
- 7.5 credit points • 2 hours per week • Hawthorn
- Assessment: assignments and examinations

A subject in the Graduate Diploma in Engineering (Computer Integrated Manufacture) and the Master of Engineering (Computer Integrated Manufacture).

**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**
Tools for modelling manufacturing systems
Simulation strategies and methods
Simulation methodology
Simulation packages
Simulation and expert systems
Introduction to expert systems
Knowledge representation and reasoning methodology
Problem solving in expert systems
Tools for building expert systems

**Recommended reading**

**MM654 Computer Modelling and FEA**
- 15 credit points • 4 hours per week • Hawthorn • *Assessment: assignments, project and examinations *

A subject in the Graduate Diploma in Engineering (Computer Integrated Manufacture) and the Master of Engineering (Computer Integrated Manufacture).

**Objectives**
To provide a working knowledge of advanced computer aided design techniques, modelling, analysis and its applications.

**Content**
Finite element analysis
Parametric design
Form feature design and solid modelling
Space curves and surfaces
NC machining of CAD models

kinematic and robotics modelling

**Recommended reading**

**MM661 Project**
- 30 credit points • 12 hours per week • Hawthorn • *Assessment: progress report and presentation *

A subject in the Master of Engineering (Computer Integrated Manufacture).

**Objectives**
To provide 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 a 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.

**MM710 Introduction to Risk**
- 7 credit points • 2 hours per week • Hawthorn

- *Instruction: lectures and tutorials *

**Objectives**
To introduce the philosophy and the terminology concerning the idea of risk, understand the nature of human perception and experience of risk and introduce techniques in the analysis of risk related incidents.

**Content**
Risk terminology and system modelling nature and origin of uncertainty; phenomenology of risk and the application of the scientific method; risk measurement; concept of causation; objectivity and subjectivity related to risk occurrence; types of risk: voluntary and involuntary.
Introduction to risk modelling description of models for risk analysis the Heinrich model; risk psychological models; energy damage model and the generalised time sequence model.
Human perception of risk human response to uncertainty; terminology and concepts: social cognition, perception; personal and social attribution with regard to risk; attitudes and attitude change; motivation; theory of cognitive dissonance.
Group dynamics in relation to personal risk situations.
**Recommended reading**

Selected papers and course notes


**MM711 Quantitative Risk**

6 credit points • 2 hours per week • Hawthorn

- **Instruction**: lectures, tutorials and workshops

**Objectives**

To introduce students to the nature of statistical methods and develop skills in application of the various methods.

**Content**

Descriptive statistics. Nature of variables, frequency, distribution, mean, median, mode, normal curve, variance, standard deviation. Exploratory data analysis, data distribution and specification, ranges and interpretation. Distributed data representation, data plots as histograms, polygons and relative frequency histograms. Applications to risk management.

Inferential statistics. Significance testing, null hypothesis, comparison of data sets. Interpretation of distributed data, samples and populations, confidence levels, variance analysis, chi-square testing. Applications to risk management.

Probability. Basic theory; probability of success and failure, addition and multiplication theorems, permutations and combinations. Exponential distributions; reliability, reliability function, MTBF, failure rate, failure analysis, characteristics of exponential distributions.

Systems reliability; series and parallel reliability, mission profile, failure patterns, complete system reliability function. Weibull distribution; analysis of uncensored reliability data, use of Weibull graph, interpretation of results. Analysis of censored data. Binomial distribution; characteristics of binomial random variable, binomial distribution, general case.

Poisson distribution; characteristics of Poisson random variable, Poisson distribution, general case, relationships to the binomial distribution. Applications to risk management.

**Recommended reading**


**MM621 Risk Engineering Statistics Class Notes**. Melbourne, Swinburne Press, current year edition


**MM712 Risk Law**

6 credit points • 2 hours per week • Hawthorn

- **Instruction**: lectures and tutorials

**Objectives**

To provide an introduction to principles of health and safety law and the related legal obligations of people.

**Content**

Historical outline of the development of health and safety law and doctrines common employment, contributory negligence and voluntary assumption of risk.

Common law principles in the areas of occupation, public and product health and safety; duty and standard of care; tests of negligence.

Legal relationships involving employers, employees, manufacturers and suppliers, service providers, consumers and occupiers.

The role of the Australian Federal Government in health and safety legislation.

The role of law in the control of health and safety, critical evaluation of relevant statutes in Victoria. Includes the *OH&S Act*, *Dangerous Goods Act* and *Accident Compensation Act*, *Occupiers Liability Act*, and *Trade Practices Act*.

The role and standing of codes of practice and standards.

Legal implications of product guarantees, warranties and usage information.

The role of an expert witness.

Companies Act requirements of directors and officers, liabilities and consequences.

Introduction to the Building Code of Australia and Fire Regulations.

**Recommended reading**


**MM713 Risk Management Principles**

6 credit points • 2 hours per week • Hawthorn

- **Instruction**: lectures and tutorials

A first year subject in the Graduate Diploma of Risk Management.

**Objectives**

To introduce fundamental principles related to loss prevention and to develop a basic understanding of how risk can be managed.

**Content**

Risk control concepts and definitions; organisational and risk management.

**Objectives**

Overview of risk management models: process model, assets, vulnerabilities, exposure and threats model, functions and activities model; risk control principles and practice; decision making. Insurance: the history and role of insurance, principles of insurance: Content, claims estimates, premium determination, types of premiums, reinsurance, the role of brokers; liability insurance concerning products, employers, employees and the public. Professional indemnity: contract types and administration catastrophic loss insurance: contract types and administration; captive insurance organisations, self insurers, bank guarantees.
MM714 Risk Analysis

6 credit points • 2 hours per week • Hawthorn • Instruction: lectures and tutorials
A first year subject in the Graduate Diploma of Risk Management

Objectives
To further develop principles and techniques of risk assessment, analysis and control.

Content
Historical overview of health and safety within society; pre-scientific attitudes to causation and early scientific approaches to risk analysis.
Risk analysis and use of modelling application of risk estimation, psychological, energy damage and generalised time sequence models.
Risk diagrams and analysis of risk related data; recording of data.
Occurrence investigation the Objectives and training requirements.
Information systems classification, analysis and use of data.

Recommended reading
De Jonghe, P., Readings in Risk Management, Risk Transfer & Insurance. Melbourne, Swinburne Institute of Technology, 1983

Viner, D., Accident Analysis and Risk Control. Carlton South, VJR Delphi, 1991

MM715 Risk Engineering

7 credit points • 3 hours per week • Hawthorn • Instruction: lectures and tutorials
A first year subject in the Graduate Diploma of Risk Management

Objectives
To provide students with further experience in the application of risk estimation and analytical techniques.

Content
Risk estimation and loss rate concept.
Risk diagrams and risk modelling principles.
Risk modelling using computer simulations.
Outcome analysis and event trees.
Fault tree analysis techniques and applications.
Failure modes and effects analysis and methodology.
Sources of risk data probability, failure and reliability.
Hazard and operability studies.

Recommended reading
Viner, D., Accident Analysis and Risk Control. Carlton South, VJR Delphi, 1991

MM716 Risk Evaluation Principles

6 credit points • 2 hours per week • Hawthorn • Instruction: lectures and tutorials
A first year subject in the Graduate Diploma of Risk Management

Objectives
The objective of this subject is for students to understand the application of risk evaluation and decision making within human social structures and the implications for human organisation activities.

Content
Risk evaluation and the role of decision making problem solving and decision making; case studies; personal and small group risk evaluation principles; the balance between risk benefits and costs (including disbenefits); acceptability of risk; basis upon which people respond to risk situations; controlability of risk; control techniques and trend analysis.
Human social organisations fundamentals of human social organisation; nature and operation of groups; nature and experience of risk within groups; organisational behaviour in situations of change.

Recommended reading

MM718 Financial Risk Management

6 credit points • 2 hours per week • Hawthorn • Instruction: lectures and tutorials • Assessment: assignments
A first year subject in the Graduate Diploma of Risk Management

Objectives
To further develop a practical understanding of how risk may be effectively managed, and how this relates to the various financial structures within the country.

Content
Risk management systems organisational and national structures, crisis management systems, and Assessment: of organisation effectiveness; types of financial risk; financial instruments and their use; the timing of financial risk; tax effects associated with financial risk; cost benefit analysis principles and techniques; forecasting techniques; project financing.

Reference
MM740 Instrumentation and Measurement Systems

5 credit points • 2 hours per week • Hawthorn

Objectives
A first year subject in the Graduate Diploma of Risk Management

Content
Principles and role of sensors for the measurement of displacement, time velocity, force, pressure, flow-rate, density and temperature. Transducing elements for conversion among mechanical, thermal and electrical quantities, including examples of electro-mechanical, capacitance, piezo-electric, resistance, inductance, and thermo-electric transducers. Analysis of the static and dynamic performance of electro-mechanical transducers, input-output characteristics of transducers; compatibility of transducers, amplifiers, measuring circuits and recorders in measuring systems. Applications of digital measurement techniques, digital type transducers, digital to analogue and analogue to digital conversions, data transfer and communications between microcomputers.

Recommended reading

MM741 Control Engineering

4 credit points • 2 hours per week • Hawthorn

Objectives
To introduce classical methods of analysis for linear control systems.

Content
Introduction to closed-loop control definitions, terminology and examples. Mathematical modelling of physical systems transfer functions, linearisation, block diagrams of closed-loop systems. Transient analysis the inverse transform and the time solution of linear models, response of first and second order systems to a subject impulse and subject step inputs. Stability analysis Routh’s stability criterion for linear control systems. Frequency response analysis steady state solution to sinusoidal inputs and the frequency response function $G(j\omega)$, representation on logarithmic plots. Bode diagrams, nyquist stability criterion.

Recommended reading

MM755 Equipment Life Cycle

4 credit points • 2 hours per week • Hawthorn

Objectives
To introduce students to engineering aspect of equipment life cycle; from conception through definition, realisation, integration, commissioning, life usage and ultimate decommissioning/disposal.

Content
Types of equipment; fixed and mobile: equipment acquisition and procurement cycle; design research and development; equipment trialling, testing and demonstration. Maintenance strategy types and approaches, preventive maintenance, condition monitoring. Integration and commissioning process. Maintenance operations maintenance planning and control, work planning, resource analysis and allocation, maintenance activities, repair and performance and condition monitoring. Maintenance access and creation of maintenance windows. Measures of maintenance effectiveness.

Configuration configuration control and modification. Decommissioning, disposal and system replacement.

Recommended reading
Byrt, W.J. and Masters, P.R., The Australian Manager. 2nd edn, Melbourne, Macmillan, 1982
Kelly, A., Maintainance Planning and Control. London, Butterworths, 1984

MM756 Chemical Engineering Design 3

4 credit points • 2 hours per week • Hawthorn

Objectives
To give students a basic understanding of the principles involved in the design of batch and continuous reactors, and
to specifically study the operation of small scale batch plant as used in many Australian industries.

Content
Reactor design a review of chemical reaction kinematics, flow kinematics of various reactor types including batch, tubular and CSTR, temperature and pressure effects on reactor performance. Adiabatic and isothermal operation. Gas and liquid phase reactions. Heterogeneous operations.

Batch processes — unsteady state operation of chemical plant with examples including batch distillation, batch drying, batch filtration, batch reactors and batch leaching and absorption, solvent extraction, ion exchange, semibatch operation.

Recommended readings
Levenspiel, O., Introduction to Reaction Engineering

MM810 Risk Engineering Science

6 credit points • 2 hours per week • Hawthorn • Instruction: lectures and tutorials • Assessment: assignments
A second year subject in the Graduate Diploma of Risk Management

Objective
To introduce scientific principles concerning the interaction of humans with their environment and the performance of physical materials, as contributing factors to situations of risk.

Content
Ergonomic principles: physical environment influences on human performance due to noise and lighting; cognitive psychology: concepts, displays and controls; error and reliability, workplace design requirements: basic anthropometry, human anatomy and physiology, injury causation due to material handling, slips, trips and falls.

Material science principles nature and property of metal and polymer materials; fundamentals of corrosion: material failure due to overload, fatigue and corrosion; mechanisms of wear and principles of lubrication.

Energy principles the nature of fire; brief introduction to terminology of force, stress, pressure; application to fluid flow.

Environmental principles.

Recommended reading

MM811 Management Practices (Health and Safety)

6 credit points • 2 hours per week • Hawthorn • Instruction: lectures and tutorials • Assessment: assignments
A second year subject in the Graduate Diploma of Risk Management

Objectives
To provide an introduction to the terminology and principles influencing the practice of risk management in practical areas of health and safety.

Content
The syllabus will comprise a common subject applicable to all three streams of health and safety, plant and practice, and maintenance, followed by a subject covering specific management practice topics applicable to health and safety.

Common subject loss forecasting and estimation; the structure of loss data management systems; review of risk identification principles: data surveys, work-group input, computerised data bases; data interpretation and reporting; review of risk interpretation techniques. Management program audit and assessment processes.

Management practice applied to health and safety historical precepts of injury control; examples of application of Victorian legislation: acts, regulations and codes. Health and safety program principles, design and strategies; introduction to H&S program evaluation techniques.

Recommended reading

Other literature to be advised

MM812 Risk Management Practices (Plant and Property)

6 credit points • 2 hours per week • Hawthorn • Instruction: lectures and tutorials • Assessment: assignments
A second year subject in the Graduate Diploma of Risk Management

Objectives
To provide an introduction to the terminology and principles influencing the practice of risk management in practical areas of property and production.

Content
The syllabus will comprise a common subject applicable to all three streams of health and safety, plant and practice, and maintenance, followed by a subject covering specific management practice topics applicable to health and safety.

Common subject loss forecasting and estimation; the structure of loss data management systems; review of risk identification principles: data surveys, work-group input, computerised data bases; data interpretation and reporting;
MM814 Risk Technology (Health and Safety)
6 credit points ● 2 hours per week ● Hawthorn ● Instruction: lectures and visits ● Assessment: assignments
A second year subject in the Graduate Diploma of Risk Management

Objectives
To develop safety engineering skills relevant to health and safety issues.

Content
Technology and practices in the safe operation and use of hazardous chemicals storage, handling and transport, machinery and tools (e.g., power presses, woodworking, metalworking, construction equipment), with particular reference to guarding requirements. Compressed fluids storage and transport, piping and tankage requirements, vehicles (fork lift trucks, mobile equipment, trucks and heavy transport), lifting equipment (cranes, slings, hoists), stairs, steps, ladders, walkways, platforms.

Personal protection equipment selection, implementation and use.

Emergency equipment and procedures breathing apparatus, gas and smoke detection devices, procedures design and maintenance.

Particular industry practices.

Recommended reading
Australian Standards and Codes of Practice
Various government, industry association and union publications

MM815 Risk Technology (Plant and Property)
6 credit points ● 2 hours per week ● Hawthorn ● Instruction: lectures and tutorials ● Assessment: assignments
A second year subject in the Graduate Diploma of Risk Management

Objectives
To develop the use of standards concerning natural and industrial hazards.

Content
Historical development of standards; use of design principles to prevent loss; human element factors in risk management programs; risk management simulations and applications.

Development of skills and techniques to identify and control particular hazards endemic to property loss.

Fire flame, heat and smoke detection, extinguishing systems; water, CO2, dry chemical, halon and foam, water sprinkler system design, Australian and US standards and codes.

Explosion detection and suppression, dusts, boilers and pressure vessels, gas trains.

Flammable substances handling and storage, Victorian and Australian Regulations.

Protection against natural hazards floods, wind, storms, earthquakes and fire.

Protection within the confines of industry heating and
Recommended reading
Code, AS1940 Flammable Liquids Code, AS1596 LP Gas Code
Dangerous Goods Act (Storage and Handling) Regulations 1989, Victorian Government Printer
Factory Mutual System, various data sheets
National Fire Protection Association, various Codes of Practice

MM816 Risk Technology (Maintenance)
4 credit points • 2 hours per week • Hawthorn • Instruction: lectures, seminars and site visits • Assessment: assignments
A second year subject in the Graduate Diploma of Risk Management

Objectives
To provide an overview of maintenance practices and technologies used to predict plant performance reductions from the onset of damage and to introduce methods used to improve operating performance through monitoring procedures.

Content
Designing a maintenance program, selection procedures and parameters.
Monitoring systems, performance and condition for thermography, noise, vibration power, efficiency.
Noise control, sound measurement and analysis, sound propagation predictions, acceptability and standards, noise reduction methods.
Vibration control, vibration measurement, analysis and control, machinery balancing.

Computer modelling, language and program structure, and flow in real systems.

Recommended reading
Beebe, R.S., Machine Condition Monitoring. 2nd edn, Victoria, Engineering Publications, 1988
Thompson, W.T., Theory of Mechanical Vibrations. Unwyn, 1987

MM817 Risk Research
7 credit points • 2 hours per week • Hawthorn • Instruction: lectures, group work and tutorials • Assessment: assignments
A second year subject in the Graduate Diploma of Risk Management

Objectives
To encourage students to develop skills and techniques for conducting and reporting on research in the field of risk management.

Content
Research methodology and orientation.
Resource gathering techniques; data acquisitions and analysis.

Use of library as resource centre.
Research communication techniques.

Recommended reading
Lane, N., Techniques for Student Research. Melbourne, Longman Cheshire, 1989
Leedy, P.D., Practical Research Planning and Design. 5th edn, New York, Macmillan, 1993

MM818 Risk Engineering Science (Health and Safety)
6 credit points • 2 hours per week • Hawthorn • Instruction: lectures and tutorials • Assessment: assignments
A second year subject in the Graduate Diploma of Risk Management

Objectives
To extend the MM810 introductory work in practical applications as indicated below.

Content
Engineering risk control for external and internal energy sources.
Application of the event synthesis technique to a class of events and of the fault tree analysis to a typical machine or process.
Justification, priority setting and work scheduling for risk control tasks.
Machinery safeguarding design, legal principles and requirements, design criteria, codes and standards, process of design of safeguards.
Isolation procedures and work permit systems, definitions, components, procedure design reliability.
Work procedure design: principles of design, practicability and legal criteria, reliability and behavioural control measures.
Electrical safety, MEN system, earth leakage systems, EMR effects, static electricity.

Recommended reading
Cooper, W.F., Electrical Safety Engineering. 3rd edn, London, Butterworths, 1993
Various standards on machine safeguarding

MM819 Risk Engineering Science (Plant and Property)
6 credit points • 2 hours per week • Hawthorn • Instruction: lectures and tutorials • Assessment: assignments
A second year subject in the Graduate Diploma of Risk Management
Objectives
To extend the MM810 introductory work in practical applications as indicated below.

Content
Risk control models applied to fire phenomena, human element programs.
Physical protection against natural disasters, fire, flood, windstorm, earthquake.
Design of automatic suppression systems for fire control.
Electrical equipment characteristics. Explosion initiation, effects, control design criteria.

Recommended reading

MM820 Risk Engineering Science (Maintenance Engineering)

6 credit points • 2 hours per week • Hawthorn • Instruction: lectures and tutorials • Assessment: assignments
A second year subject in the Graduate Diploma of Risk Management

Objectives
To extend the MM810 introductory work in practical applications as listed below.

Content
Material fundamentals, metals, non-metals, applications, selection criteria.
Corrosion, mechanism, types prevention and protection strategies. Failure mechanisms, fracture, overload, fatigue, fractography, cleavage, striation, environmentally assisted cracking, stress corrosion, hydrogen embrittlement, corrosion fatigue, design strategies to minimise failure.
Tribology, friction, wear, lubrication. Surface engineering, surface variation, surface coatings.

Recommended reading

MM821 Risk Management Practices (Health and Safety)

6 credit points • 2 hours per week • Hawthorn • Instruction: lectures and tutorials • Assessment: assignments
A second year subject in the Graduate Diploma of Risk Management

Objectives
To provide an understanding of the practical applications of management functions arising from risks associated with health and safety requirements and the prevention of loss to organisations.

Content
Sources of information risk and control information.
Organisational design of effective implementation and continuation of H&S programs roles, responsibilities, communication processes, program audits.
Implementation and evaluation of control measures for buildings, machinery and equipment.
Rehabilitation and claims management.
Risk Assessment: for public and product risk methods, criteria, and program elements, incident reporting systems, design and disposal screening.
Public health and safety program design and implementation.
Contingency and emergency planning; damage control strategies.

Recommended reading
Mathews, J., Health and Safety at Work. 2nd edn, Sydney, Pluto Press, 1993

MM822 Risk Management Practices (Plant and Property)

6 credit points • 2 hours per week • Hawthorn • Instruction: lectures and tutorials • Assessment: assignments
A second year subject in the Graduate Diploma of Risk Management

Objectives
To provide an understanding of the practical applications of management functions arising from risks associated with the prevention of loss to property and production within an organisation.

Content
Determination of levels of insurance cover, deductibles, reinsurance, self insurance, limits of cover, perils, environmental, public and product liability, business interruptions and construction exclusions, marine insurance, transit and cargo.

Resource management environmental requirements, emergency and evacuation procedures; security concerning physical facilities; document and other security requirements.
Building services requirements energy management (heat and cooling), fire protection, repairs and improvements, acquisition and divestment of plant and property.

Design of management systems control strategy, financing and reporting.

Application of information systems.

Recommended reading
Energy Guidelines for Building Owners & Managers. Current edn, Melbourne, BOMA
Kletz, T.A., Cheaper, Safer Plants or Wealth and Safety at Work. 2nd edn, Rugby, England, Institute of Chemical Engineers, 1985

**MM823 Risk Management Practices**  
(Maintenance Engineering)

*6 credit points • 2 hours per week • Hawthorn • Assessment: assignments • Instruction: lectures*

A second year subject in the Graduate Diploma of Risk Management

**Objectives**
To provide an understanding of the practical applications of management functions arising from risks associated with maintenance requirements and the prevention of loss within an organisation.

**Content**
Strategies for systems operation and support.  
Maintenance operations selection of maintenance strategies based on management decisions, maintenance planning, resource allocation, plant inventory, maintenance control, plant records.  
Stores and spares inventory scientific inventory control, inventory analysis and strategies, stores and spares management policy Assessments.  
Work measurement in maintenance method study, work improvement, work sampling in maintenance; Just In Time programs.  
Information management technical and management database Assessment: and management (search, retrieval, Assessment: and consolidation).  
Computer applications software for maintenance, evaluation of commercial packages.

**Recommended reading**

**MM824 Risk Technology**  
(Health and Safety)

*6 credit points • 2 hours per week • Hawthorn • Instruction: lectures and tutorial workshops • Assessment: assignments*

A second year subject in the Graduate Diploma of Risk Management

**Objectives**
To introduce students to the risks associated with occupational hygiene factors and to emphasise control methods.

**Content**
The course of study examines occupational hygiene factors, invasive mechanisms and methods of control to reduce the risk of damage to recipients.  
Control and measurement aspects of occupational hygiene.  
Toxicology; dose response relationships, TLVs applied to chemicals, noise, vibration, radiation.  
Chemical hazards and their effects, medical monitoring programs.  
Respiratory protection, equipment types, ventilation requirements for extraction and dilution.  
Noise and vibration control programs, hearing conservation programs.  
Thermal stress and comfort measures of stress and comfort.  
Radiation, ionising and non-ionising, uses and applications, exposure risks.  
Biological hazards, legionsnaire’s disease, zoonoses, AIDS, bacterial infections.  
Stress, physical, psychological and social stressors.

**Recommended reading**

**MM825 Risk Technology**  
(Plant and Property)

*6 credit points • 2 hours per week • Hawthorn • Instruction: lectures and tutorials • Assessment: assignments*

A second year subject in the Graduate Diploma of Risk Management

**Objectives**
To introduce the practical application of risk control techniques in areas of safety.

**Content**
Australian industry requirements with required safety protection.  
Fire detection and protection equipment and techniques operations and use of sprinklers; fire pumps and water supplies, carbon dioxide suppression systems; protection against flammable liquids and explosive atmospheres.

**Recommended reading**
Periodical *Reliability Engineering & System Safety.* (Current issues) Standards Association of Australia, (current relevant standards)

**MM826 Risk Technology**  
(Maintenance)

*6 credit points • 2 hours per week • Hawthorn • Instruction: lectures, laboratory work and site visits • Assessment: assignments*

A second year subject in the Graduate Diploma of Risk Management

**Objectives**
To provide an overview of maintenance practices and technologies used to predict plant performance reductions from the onset of damage and to introduce methods used to
improve operating performance through monitoring procedures.

**Content**
Condition monitoring, noise, vibration, performance.
Non destructive testing, oil and wear debris analysis, spectroscopy, ferrography, wear atlas, centrifugal method.
Fluid system diagnostics.
Case studies illustrating techniques.

**Recommended reading**

**MP180 Construction Materials 1**

*3 hours per week* • Hawthorn • Prerequisites: nil •
Instruction: lectures, tutorials, laboratory work • Assessment: examinations 65%, assignments and lab reports 35%
This is a first year subject in Bachelor of Technology (Building Surveying).

**Content**
This subject will assist students to understand the relationship between the structures and properties of material and to be able to apply this to the selection of materials for typical building applications. Case studies and laboratory experiments will be used to describe the relationship between performance, properties and structure of the following materials: metals, concrete, glass, brick and timber.

**Recommended reading**

**MP280 Construction Materials 2**

*3 hours per week* • Hawthorn • Prerequisites: MP180 •
Instruction: lectures, tutorials, laboratory work • Assessment: examination 65%, assignments and lab reports 35%
This is a second year subject in Bachelor of Technology (Building Surveying).

**Content**
The aim of this subject is to develop and extend students’ knowledge of the properties and behaviour of materials relevant to building applications. This subject will give detailed treatment of metals with particular reference to steel and aluminium. Processes for forming, strengthening, heat treatment, joining and modes of failure will be examined.

**Recommended reading**

**MP107 Engineering Drawing**

*5 credit points* • 2 hours per week • Hawthorn
A first year subject in Bachelor of Applied Science (Environmental Health).

**Content**
Introduction to the technique of engineering drawing equipment, methods and standards.
Illustration of buildings, equipment, materials in drawn form including concept of scaling.
Interpretation of symbols relative to the illustration of buildings, equipment and materials.
Topics will include dwelling construction, ventilation systems, waste disposal equipment, drains and pipeworks.

**Objective**
To extend students’ knowledge of material behaviour relevant to building construction.
MP711  Mass Transfer
9 credit points  4 hours per week  Hawthorn  Assessment: laboratory work, assignment and examination

Objectives
To provide the student with an insight into the theory, and physical reality of diffusional mass transfer.

Content
Mass transfer theory Fick's Law of diffusion; steady state diffusion in single-phase systems; multicomponent and transient diffusion; determination of diffusion coefficients.

Convective mass transfer; mass transfer coefficients; interphase mass transfer. Theory and design of continuous differential contactors; mass transfer with chemical reactions; mass, heat and momentum transfer analogies. Gas absorption, liquid/liquid extraction.

Recommended reading

MP712  Unit Operations
10 credit points  4 hours per week  Hawthorn  Assessment: practical work and examination

Objectives
To impart understanding of physical phenomena involving particles, and the importance of these in chemical manufacturing.

Content
Fluid/particle systems hydraulic classification, hindered settling, thickening. Flow through packed beds, sand filters, fluidisation, pneumatic and hydraulic conveying, filtration and centrifuging.

Handling and transport of powders, powder mixing, crushing, grinding and screening.

Recommended reading

MP713  Chemical Engineering Design 1
8 credit points  4 hours per week  Hawthorn  Assessment: assignments and examination

Objectives
To instruct students in the fundamentals of chemical engineering thermodynamic and the basic principles of mass and energy balances as a basis for further study in chemical process technology.

Content
Basic design techniques mass and energy balance calculations; flowsheets; stoichiometry calculations involving bypass, recycle and purge; combustion and heat engine calculations.

Chemical engineering thermodynamics physical equilibrium, bubble and dewpoint relations, phase diagrams, activity and activity coefficients, Gibbs Duhem equation, chemical reaction equilibria, heats of reaction and mixing.

Recommended readings

MP714  Stagewise Processes
12 credit points  5 hours per week  Hawthorn  Assessment: practical work and examination

Objectives
To give students a general understanding of industrial mass transfer operations, and of stagewise methods for the design of mass transfer equipment.

Content
Applications of mass transfer operations such as distillation, gas absorption, liquid-liquid extraction and leaching in chemical manufacturing; descriptions of the equipment in which these operations are carried out.

Behaviour of plate and packed columns; characteristics of packings; bubble cap and sieve trays, weirs and downcomers; flooding, hold-up and pressure drop; selection of optimum column diameter.

The concept of the equilibrium stage as applied to distillation, liquid-liquid extraction, leaching and other mass transfer operations. Graphical and computer-based design techniques employing this concept McCabe-Thiele, Sorel and Ponchon-Savit methods.

Recommended reading

MP715  Heat Transfer
12 credit points  5 hours per week  Hawthorn  Assessment: practical work and examination

Objectives
To provide the student with a sound approach to the design and selection of heat transfer equipment.

Content
Description and characteristics of shell and tube exchangers, and alternative geometries; boilers, condensers, etc. with examples of their use.

Review of previous work in heat transfer, namely uni-dimensional conduction, Newton's Law of cooling, overall heat transfer coefficients.

Prediction of heat transfer coefficients by the mechanisms of natural and forced convection, film and dropwise condensation, nucleate and film boiling. LMTD, FT and ENNTU methods to determine temperature driving forces. Thermal rating of shell and tube exchangers; pressure drop in heat exchangers.

Recommended readings
**MP717  Industrial Processes and Pollution Control**

4 credit points • 4 hours per week • Hawthorn

- Assessment: assignment and class participation

**Objectives**
To teach students by the use of case studies and other means to scientifically assess the possible pollution outcomes of various processes.

**Content**
Use of process flow diagram. Simple process calculation stoichiometry, combustion, heat and mass balances. Disposal and dispersal of efficient, stack heights, etc. Description of major industries and their problems (aluminium industry, electroplating, etc.). Major environmental issues of general concern (acid rain, atomic power, PCBs, dioxide, dumping of toxic waste).

**MP719  Occupational Health and Safety**

4 credit points • 4 hours per week • Hawthorn

- Assessment: assignments and examination

**Objectives**
To provide a working knowledge of types of hazards encountered in the workplace and means by which these may be overcome.

**Content**

**MP724  Chemical Engineering Design**

9 credit points • 5 hours per week • Hawthorn

- Assessment: assignments, practical work and examination

**Objectives**
To acquaint the student with the responsibilities of the professional chemical engineer and some of the issues he or she may have to confront.

To consolidate the student's previous work in computer programming by applying it to problems relevant to his or her future career.

**Content**
Computer-aided design the use of software packages for flowsheeting, flowsheet preparation and layout; exercises in preparation of computer solutions to problems in momentum, heat and mass transfer.

**Recommended reading**

**MP751  Design Applications**

9 credit points • 5 hours per week • Hawthorn • Assessment: assignments, practical work and examination

**Objectives**
To apply the theories of heat and mass transfer studied in the fourth year of the course.

**Content**
To the design of equipment for the operations listed below. Industrial applications of heat and momentum transfer. Diffusional operations drying, crystallisation, water cooling and humidification.

Single and multi-effect evaporator systems; thermal and mechanical recompression. Operation, control and economics of evaporation systems.

 Similarity studies mixing.

**Recommended reading**

**Reference**

**SA203  Building Standards**

5 credit points • 4 hours per week • Hawthorn

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

**Content**
Introduction to the elements of construction with particular emphasis on housing including timber-framed, brick veneer and cavity brick dwellings. Examination of foundations, footings, internal/external claddings, framing and roof structures.

Water disposal theory with reference to vented, vented modified, single stack, single stack modified systems. Standards of installation, applications and inspection methods.

Consideration of various forms of construction practices related to concrete, steel, timber and masonry.

Relevant provisions of building and plumbing legislation, codes and standards.

Plan review technique.
SA508    Industry Based Learning
50 credit points
A six-month period of employment experience occurring as part of the third year of the course leading to the degree of Bachelor of Applied Science (Environmental Health). Students are supervised by a member of the academic staff, and are required to complete a Competency Attainment Program.

SA608    Industry Based Learning
50 credit points
A six-month period of employment experience occurring as part of the third year of the course leading to the degree of Applied Science (Environmental Health). Students are supervised by a member of the academic staff and are required to complete a Competency Attainment Program.

SC100    Environmental Health
5 credit points • 2 hours per week • Hawthorn
This is a first year subject in the Bachelor of Applied Science (Environmental Health)

Content
Historical background: a history of public health in Victoria and the impact of environmental health on the prevention of spread of disease.
Professional role and practice of the environmental health officer in government and industry. Concepts of environmental health.
Administration: the structure and role of state and local government agencies involved in environmental health and pollution control.
Overview of appropriate legislation that the environmental health officer is required to administer.

SC108    Biology
10 credit points • 4 hours per week • Hawthorn
A first semester subject offered for first year students enrolled in the Bachelor of Applied Science (Applied Chemistry), (Biochemistry/Chemistry) and (Environmental Health)

Objectives and 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 osmolarity.

SC109    Biology
10 credit points • 4 hours per week • Hawthorn
A first semester subject offered for first year students enrolled in the Bachelor of Applied Science (Applied Chemistry), (Biochemistry/Chemistry) and (Environmental Health).

For details, see SC108 Biology.

SC127    Chemistry
10 credit points • 4 hours per week • Hawthorn
This is a first year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

Content
Quantitative aspects of chemical reactions with strong emphasis on writing and using balanced chemical reactions. Properties of chemical reactions; extent and equilibria involving gases and solutions.
Electrical energy and chemical reactions — redox; galvanic cells, electrode potentials and the Nernst equation. Heat energy and chemical reactions — thermochemistry; Enthalpy and Hess’s Law, calorimeters.
Kinetics of chemical reactions; order, rate equation.
Organic chemistry; nomenclature, and classes of compounds.
Corrosion and protection of metals, crystal types and packing models.
Environmental Chemistry, acid rain and water pollution.
Practical chemistry; predicting chemical reactions, equilibria, kinetics, potentiometric titration, metals, solution skills.
SC127E Chemistry
10 credits points • 5 hours per week • Hawthorn
This is a first year subject in the Bachelor of Applied Science (Environmental Health) for students who do not possess Year 12 Chemistry.

Content
Quantitative aspects of chemical reactions with strong emphasis on writing and using balanced chemical reactions. Properties of chemical reactions; extent and equilibria involving gases and solutions. Electrical energy and chemical reactions — redox; galvanic cells, electrode potentials and the Nernst equation. Heat energy and chemical reactions — thermochemistry; Enthalpy and Hess's Law, calorimeters. Kinetics of chemical reactions; order, rate equation. Organic chemistry; nomenclature, reactions and classes of compounds. Corrosion and protection of metals, crystal types and packing models. Environmental Chemistry, acid rain and water pollution.

SC133 Chemistry
7.5 credits points • 3 hours per week Hawthorn
This is a first year subject in the Bachelor of Applied Science (Psychology and Psychophysiology)

Content
Quantitative aspects of chemical reactions with strong emphasis on writing and using balanced chemical reactions. Properties of chemical reactions; extent and equilibria involving gases and solutions. Electrical energy and chemical reactions — redox; galvanic cells, electrode potentials and the Nernst equation. Heat energy and chemical reactions — thermochemistry; Enthalpy and Hess's Law, calorimeters. Kinetics of chemical reactions; order, rate equation. Organic chemistry; nomenclature, reactions and classes of compounds. Corrosion and protection of metals, crystal types and packing models. Environmental Chemistry, acid rain and water pollution.

SC133P Chemistry
7.5 credits points • 3 hours per week • Hawthorn
This is a first year subject in the Bachelor of Applied Science (Psychology and Psychophysiology) for students who do not possess Year 12 Chemistry.

Content
Quantitative aspects of chemical reactions with strong emphasis on writing and using balanced chemical reactions. Properties of chemical reactions; extent and equilibria involving gases and solutions. Electrical energy and chemical reactions — redox; galvanic cells, electrode potentials and the Nernst equation. Heat energy and chemical reactions — thermochemistry; Enthalpy and Hess's Law, calorimeters. Kinetics of chemical reactions; order, rate equation. Organic chemistry; nomenclature, reactions and classes of compounds. Corrosion and protection of metals, crystal types and packing models. Environmental Chemistry, acid rain and water pollution.

SC154 Chemistry
10 credit points • 5 hours per week • Hawthorn
This is a first year subject in the Bachelor of Applied Science (Chemistry) and (Biochemistry/Chemistry)

Content
Quantitative aspects of chemical reactions with strong emphasis on writing and using balanced chemical reactions. Properties of chemical reactions; extent and equilibria involving gases and solutions. Electrical energy and chemical reactions — redox; galvanic cells, electrode potentials and the Nernst equation. Heat energy and chemical reactions — thermochemistry; Enthalpy and Hess's Law, calorimeters. Kinetics of chemical reactions; order, rate equation. Organic chemistry; nomenclature, reactions and classes of compounds. Corrosion and protection of metals, crystal types and packing models. Environmental Chemistry, acid rain and water pollution. Practical chemistry; predicting chemical reactions, equilibria, kinetics, potentiometric titration, metals, solution skills.

SC154N Chemistry
10 credit points • 5 hours per week • Hawthorn
Content
Quantitative aspects of chemical reactions with strong emphasis on writing and using balanced chemical reactions. Properties of chemical reactions; extent and equilibria involving gases and solutions. Electrical energy and chemical reactions — redox; galvanic cells, electrode potentials and the Nernst equation. Heat energy and chemical reactions — thermochemistry; Enthalpy and Hess's Law, calorimeters. Kinetics of chemical reactions; order, rate equation. Organic chemistry; nomenclature, reactions and classes of compounds. Corrosion and protection of metals, crystal types and packing models. Environmental Chemistry, acid rain and water pollution. Practical chemistry; predicting chemical reactions, equilibria, kinetics, potentiometric titration, metals, solution skills.
environmental aspects. Corrosion and protection of metals, crystal types and packing models.

Practical chemistry: predicting chemical reactions, equilibria, kinetics, potentiometric titration, metals, solution skills.

SC154P Chemistry
10 credit points ● 3 hours per week ● Hawthorn

Content
Quantitative aspects of chemical reactions with strong emphasis on writing and using balanced chemical reactions.

Properties of chemical reactions; extent and equilibria involving gases and solutions.

Electrical energy and chemical reactions — redox; galvanic cells, electrode potentials and the Nernst equation. Heat energy and chemical reactions — thermochemistry; Enthalpy and Hess's Law, calorimeters.

Kinetics of chemical reactions; order, rate equation.

Organic chemistry; nomenclature, and classes of compounds.

Corrosion and protection of metals, crystal types and packing models.

Environmental Chemistry, acid rain and water pollution.

Practical chemistry; predicting chemical reactions, equilibria, kinetics, potentiometric titration, metals, solution skills.

SC173 Biology
16.6 credit points ● 4 hours per week ● Hawthorn

A first semester subject offered for first year students enrolled in the Bachelor of Arts program.

Objectives and 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 osmolarity.

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 reticuloendothelial system. Inflammation, phagocytosis; lymphocytes, cell-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.

SC174 Biology
16.6 credit points ● 4 hours per week ● Hawthorn

A second semester subject for first year students enrolled in the Bachelor of Arts program.

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

Basic microbiology. Elements of microbial world covering viruses, rickettsia, bacteria, algae, protozoa and fungi.

Methods of growing, isolating and handling microorganisms. Microbes and pathogenicity.


Practical work covering the above topics.

Recommended reading


**SC208  Cell Biology**

10 credit points • 4 hours per week  • Hawthorn  
*Instruction: lectures, laboratory work*  
*Assessment: tests 30%, examination 70%*

**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**
Basic microbiology. Elements of microbial world covering viruses, rickettsia, bacteria, algae, protozoa and fungi. Methods of growing, isolating and handling microorganisms. Microbes and pathogenicity.
Practical work covering the above topics.

**Recommended reading**

**SC209  Biology**

10 credit points • 4 hours per week  • Hawthorn

This is a first year subject in the Bachelor of Applied Science (Environmental Health)
For details see *SC208 Biology*.

**SC252  Biological Chemistry**

10 credit points • 5 hours per week  • Hawthorn
*Prerequisites: SC109 Biology*  
*Assessment: examination/assignment/practical work.*

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

**Objectives**
- To study the structure and function of important biological molecules.

**Content**
Organic chemistry alkanes, alkenes, alkynes; benzene and derivatives; alcohols, aldehydes ketones, acetals, ketals, carboxylic acids; esters, ethers; amines, amides; IUPAC nomenclature; polymers.
Chemistry of living cells cellular homeostasis; major organic groupings in tissues; biologically useful energy and ATP.
Protein structure and function relation to catalysis, transport, pumping. Membrane structure and function; membrane potentials; impulse transmission. Generation of ATP; glycolytic pathway; anaerobic ATP generation; Krebs cycle; fatty acid oxidation; electron transport; oxidative phosphorylation.

**Practical work:**
A selection of experiments to illustrate organic and biochemical reactions.

**Textbook**
Beltelheim and March, General,* Organic and Biological Chemistry.*

**SC254  Chemistry**

20 credit points • 12 hours per week  • Hawthorn  
*Assessment: subject tests, end of semester exams, practical reports and laboratory performance*

This is a first year subject in the Bachelor of Applied Science (Chemistry) and  
(Biochemistry/Chemistry)

**Content**
Chemical bonding. Electronic structure of atoms spectra, energy levels, electronic configuration of elements, periodic table. Electronic structure of molecules-arrays; covalent, ionic, polar, metallic and multiple bonds; resonance; shapes of molecules; molecular orbital theory; hybridisation; hydrogen bonds, intermolecular forces.
Organic chemistry: alkenes and alkynes; benzene and other aromatic compounds; alcohols; alkyl halides; ethers; nitriles and amines; aldehydes and ketones; carboxylic acids and their derivatives; general reaction mechanisms.
Inorganic chemistry: ionic and metallic bonding, and crystal structure.
Analytical chemistry: precipitation equilibria; complex ion equilibria; the Nernst equation.
Physical chemistry: thermodynamics, first law; thermochemistry; second law; entropy; free energy and equilibria; kinetics.
Practical chemistry: analytical-volumetric, gravimetric, instrumental; inorganic: synthesis, reactions; organic: techniques, synthesis, reactions, characterisation of products.
SC318  Microbiology
7.5 credit points • 4 hours per week • Hawthorn
Prerequisites: SC108, SC208.

This is a second year subject in the Bachelor of Applied Science (Biochemistry/Chemistry)

Content

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.

Recommended reading

SC349  Microbiology
10 credit points • 4 hours per week • Hawthorn
Prerequisites: SC109, SC209

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

Content

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.

Recommended reading

SC353  Applied Chemistry
10 credit points • 4 hours per week • Hawthorn

This is a second year subject in the Bachelor of Applied Science (Chemistry)

Content

Inorganic reactions a study of the major classes of inorganic reactions and associated equilibria. Application of such reactions to the separation and identification of common metal cations and anions in multi-component solutions and commercial products. This component of the course is done as practical work.

Kinetics of complex reactions Consecutive, parallel and reversible first-order reactions; non-equal initial concentrations; enzyme kinetics; free radical and chain reactions; the internal combustion engine and air pollution; batch and flow reactions.

Introduction to the chemical industry and chemical processing fluid flow; heat transfer; separation processes; process analysers; process control.

SC360  Practical Chemistry
15 credit points • 7 hours per week • Hawthorn

This is a second year subject in the Bachelor of Applied Science (Chemistry)

Content
Quantitative analysis manual titration, colorimetry, atomic absorption, electrodeposition, GC, HPLC and a project in quantitative atomic absorption.

Physical chemistry experiments in phase equilibria and spectroscopy.

SC370  Chemistry
15 credit points • 6 hours per week • Hawthorn

This is a second year subject in the Bachelor of Applied Science (Chemistry)

Content
Thermodynamics formation; reaction; variations with temperature; chemical potentials; available work.

Phase equilibria one and two component systems, with emphasis on practical applications.

Chemical organic aromaticity.

Chromatography general principles; column chromatography, GC, HPLC.

Analytical chemistry sampling.

Spectroscopy basic instrumentation; atomic, UV/visible and IR spectra.

SC372  Biochemistry
10 credit points • 6 hours per week • Hawthorn

This is a second year subject in the Bachelor of Applied Science (Biochemistry/Chemistry)

Content
Introduction to biomolecules monosaccharides, disaccharides, polysaccharides, amino acids, polypeptides, structure of proteins, lipids, nucleotides, enzymes, coenzymes, nucleic acids.

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 practical program include protocol interpretation and design, and calculations and interpretation of data from quantitative analyses.

**SC380  Practical Chemistry**

*7.5 credit points ● 3 hours per week ● Hawthorn*

This is a second year subject in the Bachelor of Applied Science (Biochemistry/Chemistry)

**Content**

Analytical techniques: volumetric analysis, analysis using an atomic absorption spectrometer, UV/visible spectrometer, gas chromatograph and high performance liquid chromatograph.

Physical experiment: phase equilibria.

**SC390  Computers in Chemistry**

*7.5 credit points ● 3 hours per week ● Hawthorn*

This is a second year subject in the Bachelor of Applied Science (Chemistry) and (Biochemistry/Chemistry)

**Content**

Computer jargon, external and internal computer structure, operations of hardware and software, binary and hexadecimal notation and ASCII codes.

Disc and file operation using DOS, sub-directories and DOS Shell and Windows.


Molecular Modelling using Desk-Top Molecular Modeller. Simulation of chromatographic resolution and kinetics.

**SC418  Microbiology**

*7.5 credit points ● 3 hours per week ● Hawthorn*

This is a second year subject in the Bachelor of Applied Science (Biochemistry/Chemistry)

**Content**

Taxonomy and identification of the major groups of bacteria with particular reference to those organisms which are associated with food poisoning (e.g. staphylococci, salmonella) or whose pathogenic characteristics might be associated with ingestion of food.

**SC451  Food Microbiology**

*10 credit points ● 5 hours per week ● Hawthorn*

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

**Content**

Food Hygiene

Microbiological factors — micro-organisms involved in food spoilage (especially in relation to the dairy, meat, wine, canning and bottling industries). Conditions that promote or inhibit food spoilage during food handling and storage. Pathogenic micro-organisms commonly transmitted via foods. Methods used to minimise unwanted microbial growth. Determination of shelf life.

Interpretation and application of the microbiological aspects of the Food Code. Food toxins of microbiological origin.

Use of micro-organisms

Use of micro-organisms in the flavouring of foods.

Use of micro-organisms in the preserving of foods (e.g. yoghurt, cheese, beer, wine).

Use of micro-organisms in the manufacture of foods (e.g. vinegar, alcoholic beverages, cheese, sour cream, vitamins, etc.).

**SC460  Practical Chemistry**

*15 credit points ● 7 hours per week ● Hawthorn*

This is a second year subject in the Bachelor of Applied Science (Chemistry)

**Content**

Organic techniques: syntheses, identification and characterisation of individual compounds and mixtures using chemical tests and physical measurements.

**SC467  Environmental Health Practice (1)**

*7.5 credit points ● 5 hours per week ● Hawthorn*

**Prerequisites:** SC100 Environmental Health

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

**Content**

Food establishment evaluation design and construction standards, hygienic practices, auditing and registration procedures.

Cleaning and sanitisation procedures for food plant and equipment.

Liquid domestic waste management and disposal. Approval procedures.

**SC468  Environmental Science**

*10 credit points ● 5 hours per week ● Hawthorn*

**Prerequisites:** SC1500, SC252, SP236. **Assessment:** Examination/Practical Work

This is a first year subject in the Bachelor of Applied Science (Environmental Health)
Objectives
- To study water chemistry in terms of sources of pollutants and their effects
- To study the analysis of water for polluting potential
- To study swimming pool chemistry
- To study the chemistry of selected household products
- To study meteorology and related phenomena.

Content
Meteorology atmospheric variables, measurement of humidity, air pollution, atmospheric stability, inversion, plume behaviour, local effects.
Swimming pool chemistry: Domestic chemistry. Chemistry in the household (detergents, pesticides, renovating chemicals, motor chemicals, swimming pool chemicals, proper handling and disposal of domestic chemicals).
Practical work: 20 hours. Focuses on water analysis, stream surveys and swimming pool water analysis.

Recommended reading

SC469 Epidemiology
7.5 credit points • 3 hours per week • Hawthorn
This is a second year subject in the Bachelor of Applied Science (Environmental Health)

Content
Overview, nature and scope of epidemiology. Nature, transmission and control of various diseases of public health importance including exotic diseases, sexually transmitted diseases, mycobacterial and viral infections, food-borne diseases, skin contact diseases, parasitic infections and zoonotic diseases.
Immunology and immunisation procedures with particular reference to Australian requirements.

SC470 Chemistry
15 credit points • 5 hours per week • Hawthorn
This is a second year subject in the Bachelor of Applied Science (Chemistry) and (Biochemistry/Chemistry)

Objectives
To use physical properties of elements and compounds to interpret the chemical properties and structure.
To use physical properties and the periodic table to predict the chemical and structural properties of the less well structured or unknown elements

Content
Descriptive Inorganic chemistry: Chemistry of the main group elements and their compounds. Chemistry of lanthanide elements. The emphasis is on interpretation of chemical behaviour from physical properties. The thermodynamics of formation will be studied
Organic chemistry: acidity, basicity, carbanions and application to synthesis.
Coordination chemistry fundamentals.

SC472 Biochemistry
12.5 credit points • 6 hours per week • Hawthorn
This is a second year subject in the Bachelor of Applied Science (Biochemistry/Chemistry)

Content
Anabolic pathways biosynthetic 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 will be drawn from fermentation pathways.
Written assignments will form a major part of the subject.
Laboratory exercises include protein purification and analysis, and 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 oxygen electrode.

SC473 Applied Chemistry
12.5 credit points • 4 hours per week • Hawthorn
This is a second year subject in the Bachelor of Applied Science (Chemistry)

Content
Organophosphorus/silicon chemistry. Basic NMR. Preparation, reactions and reaction mechanisms of organophosphorus and silicon compounds, using examples of industrial importance. An introduction to basic proton NMR is also included.
Polymer chemistry
Classification of polymers. Introduction to polymerisation reactions, including industrial polymerisation processes. Characteristic properties of polymers and their measurement, including molecular weight determinations and crystallinity by X-ray spectroscopy.
Polymer coatings
Applications of protective organic surface coatings; non-convertible and convertible surface coatings, their chemistry and properties.
Analysis and identification of polymers; differential thermal analysis; gel permeation chromatography; polymer applications of infrared and NMR spectroscopy; pyrolysis gas chromatography.
Catalysis
An introduction to catalysis with emphasis on acid/base catalysis and examples drawn from the petrochemical industry.
SC480  Practical Chemistry
7.5 credit points  4 hours per week  Hawthorn
This is a second year subject in the Bachelor of Applied Science (Biochemistry/Chemistry)

Content
Organic techniques; syntheses, identification and characterisation of compounds using chemical tests, physical measurements.

SC490  Computers in Chemistry
7.5 credit points  3 hours per week  Hawthorn
This is a second year subject in the Bachelor of Applied Science (Chemistry) and (Biochemistry/Chemistry)

Content
Statistical treatment of chemical data using spreadsheets errors, distributions, confidence limits, significancetests, lines and curves of best fit, quality control charts.
Internet communications.
Exercises using the Acid-Base package.

SC504  Human Biochemistry
4 credit points  2 hours per week  Hawthorn
This is a fourth year 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 chemical analysis in the treatment and diagnosis of disease.
Clinical biochemistry.
Organisation of clinical laboratories automation and quality control.
Computers in the clinical laboratory.

SC507  Chemical Engineering Management
10 credit points  4 hours per week  Hawthorn
Instruction: lectures, tutorials  Assessment: examination 40%, assignments 40%, tutorial participation 20%
A fifth year subject in the Bachelor of Chemical Engineering

Objectives
To introduce and develop (or further develop) an understanding of the role of management with respect to innovation and enterprise, project management, engineering finance and accounting, industrial relations, engineering law, leadership and human resource management in the context of chemical engineering projects and industry.

Content
Topics will encourage students to develop and demonstrate an understanding of the responsibilities and processes associated with effective management in chemical engineering industries.
Topics will include
- the role of innovation and enterprise;
- role of research and development;
- project management, project initiation, organisation, evaluation and review;
- finance and accounting processes, balance sheets, capital investment issues, sources of finance;
- principles of human resource management, the role of leadership, industrial relations, resolution of conflict;
- legal environment with respect to engineering operations, legal obligations, contracts, property, professional liability.

Recommended reading
Samson, D., Management for Engineers, Longman, Cheshire, 1995
Schermerhorn, J.R., Management for Productivity, Wiley, 1993

SC508  Industry Based Learning
50 credit points
A six-month period of employment experience occurring as part of the third year of the course leading to the degree of Bachelor of Applied Science Biochemistry/Chemistry and 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.

SC509  Research Skills
7.5 credit points  2 hours per week  Hawthorn
This is a fourth year subject in the Bachelor of Applied Science (Environmental Health)

Content
Students are introduced to research methods, both quantitative and qualitative, in preparation for a major research project.

SC553  Applied Chemistry
12.5 credit points  7 hours per week  Hawthorn
This is a fourth year subject in the Bachelor of Applied Science (Chemistry)

Content
Introduction to catalysis.
Applied Organic Chemistry
Chemistry of natural products saccharides.
Organic synthesis general principles. Reagents. Planning and design of syntheses. Practical aspects and synthetic techniques. Industrial versus academic syntheses.
Computer-aided syntheses.
Photochemistry free radicals and their reactions;
photochemical reactions; industrial photochemistry.

Polymer Chemistry
Polymer coatings applications of protective organic surface coatings; non-convertible and convertible surface coatings, their chemistry and properties.

Colloid and Electrochemistry
Colloid chemistry origin of the electrical double layer; potentials at interfaces; potential determination 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.

SC560 Practical Chemistry
15 credit points • 7 hours per week • Hawthorn
This is a fourth year subject in the Bachelor of Applied Science (Chemistry)

Content
Selected experiments in electrochemistry and colloid chemistry.
Qualitative analysis of an unknown liquid mixture using distillation, physical measurements, an infra-red spectra, PMR spectra, CMR spectra and mass spectra. Stereochemistry experiment, infra-red data station experiment and UV experiment.

SC562 Analytical Biochemistry
6 credit points • 3 hours per week • Hawthorn • Assessment: assignments and a final examination • Prerequisites: SC372 Biochemistry
This is a fourth year subject in the Bachelor of Applied Science (Biochemistry/Chemistry)

Objective
Provide students with knowledge of a 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.

SC565 Practical Biochemistry
10 credit points • 6 hours per week • Hawthorn • Assessment: practical reports submitted during the semester
This is a fourth year subject in the Bachelor of Applied Science (Biochemistry/Chemistry)

Objective
To enable students to gain competency in the use of a number of common biochemistry laboratory techniques.

Content
Experiments in protein and DNA purification and analysis. Cell fractionation techniques. Enzyme purification and analysis. Physical techniques will include use of spectroscopy and fluorescence spectroscopy, various forms of gel electrophoresis, molecular weight determinations and use of the ultracentrifuge.

SC567 Environmental Health Practice (2)
7.5 credit points • 3 hours per week • Hawthorn • Prerequisites: SC100 Environmental Health, SC467 Environmental Health Practice (1)
This is a fourth year subject in the Bachelor of Applied Science (Environmental Health)

Content
Food law a detailed examination of the role and function of the National Food Authority and appropriate committees. A study of the Food Standards Code. The role of the environmental health officer in food inspection, sampling and seizure procedures. Accommodation standards: examination of environmental health risks associated with residential accommodation (hostels, rooming houses, etc.), and temporary accommodation facilities including camping areas. Role of the environmental health officer in ensuring health and safety of occupants.

SC568 Applied Food Science and Inspection
7.1 credit points • 3 hours per week • Hawthorn • Prerequisites: SC3400, SC451, Food Processing and Analysis, SC467 Environmental Health Practice
This is a fourth year subject in the Bachelor of Applied Science (Environmental Health)

Content
A detailed study of food manufacturing methods and processes highlighting activities that may prevent or cause health hazards, spoilage and/or contamination. Quality Control and Quality Assurance in the food industry incorporating the principles of HACCP.

SC569 Urban Ecology
10 credit points • 4 hours per week • Hawthorn • Assessment: end of semester exam, assignment and verbal presentation.
This is a first year subject in the Bachelor of Applied Science (Environmental Health)

Content
Basic ecology definitions, ‘indicator’ organisms and their role in ecosystems, nutrient cycles and the effects of human-made imbalances, biological effects of heavy metals contamination, sewage treatment, biological aspects of soil bioremediation, case studies. Hazardous substances and hazardous waste overview;
underlying chemistry; types of hazardous substances and associated environmental and health hazards (including class labelling of dangerous goods, material safety data sheets, human and ecotoxicity); environmental chemical processes in the unpolluted environment (air, water and soil), nature, sources, transport, monitoring and removal of pollutants; overview of Melbourne's sewage and stormwater systems and environment protection in Victoria; industrial waste (trade waste, prescribed waste, priority waste) treatment and disposal.

Contaminated sites sources of contamination, organics, heavy metals; site remediation including vapour extraction, bioremediation, stabilisation; soil washing, cap and contain, removal and disposal.

Environmental auditing.

Case studies.

**SC570 Chemistry**

15 credit points • 6 hours per week • Hawthorn

This is a fourth year subject in the Bachelor of Applied Science (Chemistry) and (Biochemistry/Chemistry)

**Content**

Electrochemistry: Fundamental thermodynamic, kinetic and instrumental aspects of electrochemistry.

Applications of Electrochemistry: Electrosynthesis, batteries, fuel cells, analytical chemistry.

Liquid surfaces: 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 • 3 hours per week • Hawthorn

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 • 3 hours per week • Hawthorn

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 • Hawthorn

This is a fourth year subject in the Bachelor of Applied Science (Chemistry) and (Biochemistry) course which requires student performance and participation throughout the four years of the course.

**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.

**SC604 Biotechnology**

6 credit points • 3 hours per week • Hawthorn

This is a fourth year subject in the Bachelor of Applied Science (Biochemistry/Chemistry)

**Content**

- Microbial genetics and gene manipulation: Recombinant mechanisms in bacterial microbial genetics and industrial fermentation processes.
- Fermentation technology, nutrition and kinetics in batch, and continuous fermentations. Design of bioreactors.
- 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 uses of a range of selected enzymes. Immobilised enzymes cells, organelles and co-enzymes and their industrial and analytical uses;
- Downstream processing: Factors and problems involved in scale-up to pilot plant and production stages.

**SC608 Industry Based Learning**

50 credit points

A six-month period of employment experience occurring as part of the third year of the course leading to the degree of Bachelor of Applied Science Biochemistry/Chemistry and 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.
SC609  Health Promotion
10 credit points  2 hours per week  Hawthorn
This is a fourth year subject in the Bachelor of Applied Science (Environmental Health)

Content
The course begins by reviewing key concepts and strategies in community health early identification, treatment, disease prevention, health promotion.

After considering significant historical developments in the area of health education, the following topics will be treated:

- social, cultural and psychological factors involved in health promotion and disease prevention behaviours;
- health promotion programs, opportunities and responsibilities for environmental health officers;
- health promotion strategies and techniques for environmental health officers;
- instructional techniques and communication skills for health educators;
- needs Assessment: techniques;
- program evaluation strategies, performance indicators;
- public health plans;
- review of health promotion programs.

SC653  Process Chemistry
10 credit points  5 hours per week  Hawthorn
This is a fourth year subject in the Bachelor of Applied Science (Chemistry)

Content
Extraction of metals free energy relationships applied to metal extraction; thermodynamic basis of free energy relationships.

Pyrometallurgical processes for the extraction of metals from their ores.

Explanation of various aspects of these processes in terms of free energy relationships.

Catalysis and selected chemical processes catalysts used in the large-scale industrial production of organic chemicals. The concepts of organometallic chemistry to a level sufficient to allow an understanding of the design, preparation and mechanisms of such catalysts will be presented. Students will also work in groups to prepare a written report on a selected catalytic process.

Treatment of industrial wastes control and treatment of industrial waste. The Environmental Protection Act and its administration. Types, source and effect of pollution with regard to natural ecosystems and human health. Disposal of domestic and industrial wastes, including microbiological bases physico-chemical and other methods. Hazardous and intractable wastes.

Analysis and identification of polymers; differential thermal analysis; gel permeation; applications of infrared and NMR spectroscopy; pyrolysis gas chromatography.

The application of HPLC to the analysis of small molecules, amino acids, polymers, peptides and proteins.


Immunoassays — types and examples. Immunochemical techniques.

SC660  Practical Chemistry
12.5 credit points  7 hours per week in sem. 8  Hawthorn
This is a fourth year subject in the Bachelor of Applied Science (Chemistry)

Content
HPLC and GUMS experiments.

Analysis of a food product using an atomic absorption spectrometer.

Project.

SC661  Environmental Analysis and Control
7.5 credit points  4 hours per week  Hawthorn
Prerequisite: SC468 Environmental Science
Assessment: examination/ assignment/practical work.

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

Objectives
- To study specific analytical methods for the analysis of environmental samples;
- to study engineering processes and environmental control.

Content
Analysis:

Review of analytical methods as applied to environmental analytes. Covers compleximetric, acid-base, chromatographic, electrochemical and spectrochemical techniques.

Practical work:

Related to these techniques.

Control:

Use of process flow diagrams. Simple process calculations (stoichiometry, combustion, heat and mass balances).

Disposal and dispersal of pollutants — air, water and land pollution. Current issues acid rain, greenhouse effect, ozone depletion, photo chemical pollution.

Case studies/field trips.

SC662  Analytical Biochemistry
4 credit points  2 hours per week  Hawthorn
Assessment: tests and a final examination
Prerequisites: SC372 Biochemistry

This is a fourth year subject in the Bachelor of Applied Science (Biochemistry/Chemistry)

Objective
To provide students with a knowledge of analytical techniques of Biochemistry.

Content
Radionuclide methods. Immunochemistry and its applications in chemical and biochemical analysis.
Computer analysis in biochemistry. Use of spectroscopy for biochemical analysis (e.g. NMR, mass spec.).

**SC665  Practical Biochemistry**

*7.5 credit points • 4 hours per week • Hawthorn*

**Assessment:** major reports, seminar presentation, project supervisor assessment

This is a fourth year subject in the Bachelor of Applied Science (Biochemistry/Chemistry)

**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.

**SC667  Environmental Health Practice (3)**

*5 credit points • 2 hours per week • Hawthorn*

**Prerequisites:** SC100 Environmental Health, SC109 Biology, SC209 Biology, SC467 Environmental Health Practice (1), SC567 Environmental Health Practice (2)

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

**Content**
Applied pest control encompassing principals of taxonomy, lifecycles and general characteristics of insect species, pest species detection and identification, control measures and techniques.

**SC668  Research Project**

*16 credit points • 8 hours per week • Hawthorn*

This is a fourth year subject of the Bachelor of Applied Science (Environmental Health)

**Content**
Students undertake a research program on an environmental health topic which can include science, engineering, law, administrative or social issues.

**SC670  Chemistry**

*10 credit points • 4 hours per week • Hawthorn*

This is a fourth year subject in the Bachelor of Applied Science (Chemistry) and (Biochemistry/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 • 3 hours per week • Hawthorn*

This is a fourth year subject in the Bachelor of Applied Science (Biochemistry/Chemistry)

**Content**
HPLC and GC/MS experiments.

Analysis of a food product using an atomic absorption spectrometer.

Molecular modelling using the IRIS computer.

**SC690  Computers in Chemistry**

*5.5 credit points • 3 hours per week • Hawthorn*

This is a fourth year subject in the Bachelor of Applied Science (Chemistry) and (Biochemistry/Chemistry)

**Content**
Use of macros to automate spreadsheets.

ANOVA, regression and experimental design.

Simplex optimisation.

HPLC optimisation.

Forecasting.

Project Management.

**SC708  Scientific Communication 7**

*2 credit points • 1 hour per week • Hawthorn*

This is a fourth year subject in the Bachelor of Applied Science (Chemistry) and (Biochemistry/Chemistry)

**Content**
Training and practice in the presentation of oral reports to industrial, scientific and general audiences.

Special requirements of oral reporting, including the use of audio-visual aids.

**SC709  Employment Experience**

*30 credit points*

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.

**SC716  Basic Colloid Science**

*7.5 credit points • 4 hours per week • Hawthorn*

This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

**Content**
SC717  **Basic Surface Science**  
*7.5 credit points • 4 hours per week • Hawthorn*

This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

**Content**
Surface models, surface thermodynamics and the properties of curved surfaces. Liquid surfaces and the concept of surface tension. Methods for measuring surface tension. Spreading of liquids; wetting, contact angles and adhesion. Adsorption and orientation of monolayers and of surfactants at interfaces.

SC718  **Surface Characterisation**  
*7.5 credit points • 4 hours per week • Hawthorn*

This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

**Content**
Determination of surface area and particle size using, for example, photon correlation spectroscopy. Surface spectroscopy (including electron microscopy), other aspects of light scattering and traditional (UV, IR) spectroscopy. Rheological characterisation. Macroscopic phenomena such as the order/disorder transition. Flocculation kinetics. Osmotic compressibility, advanced techniques for measuring zetapotential, and other techniques for characterising macroscopic colloidal behaviour such as long-term stability. Porosimetry and the adsorption of gases.

SC719  **Chemistry of Inorganic Colloids**  
*7.5 credit points • 4 hours per week • Hawthorn*

This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

**Content**
Van der Waals forces — deficiencies of the classical microscopic approach. Interaction energies calculated from dielectric and spectral data. Application of Van der Waals forces to contact angles, wetting, spreading and adhesion. The charge and potential characteristics of a number of different types of colloidal material. Differences in the origin of charge between common dispersions, eg. clays and sulphides, and its influence on particle stability. Application of colloidal dispersions to industry.

SC720  **Applied Chemical Techniques**  
*12.5 credit points • 4 hours per week • Hawthorn*

*Assessment: Instruction: lectures and assignment work*

This is a subject of the Graduate Diploma of Applied Science (Industrial Chemistry/Biochemistry)

**Content**
Computers in chemistry. 
Spectroscopy IR, UV/visible and atomic. 
Chromatography GC and HPLC.

SC721  **Properties of Colloids and Interfaces**  
*12.5 credit points • 4 hours per week • Hawthorn*

*Assessment: Instruction: lectures/tutorials*

This is a subject of the Graduate Diploma of Applied Science (Industrial Chemistry/Biochemistry)

**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. 
Throughout the lecture course, strong emphasis is given to applying the basic concepts and principles to practical examples of the uses of colloids.

SC723  **Industrial Chemistry**  
*12.5 credit points • 4 hours per week • Hawthorn*

*Assessment: Instruction: lectures/tutorials/assignments*

This is a subject of the Graduate Diploma of Applied Science (Industrial Chemistry/Biochemistry)

**Content**
NMR spectroscopy, mass spectrometry and Fourier transform techniques. 
Liquid surfaces. Electrical phenomena. 
Electrochemistry.

SC725  **Practical Chemistry**  
*12.5 credit points • 4 hours per week • Hawthorn*

*Instruction: practical work*

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 • 4 hours per week • Hawthorn*

This is a subject of the Graduate Diploma of Applied Science (Industrial Biochemistry)

**Content**
Students study subject areas from six options.
The subject areas are:
- microbial genetics
- fermentation technology
- fermentation reactions
- enzyme technology
- waste treatment and disposal
- downstream processing.
**SC731  Practical Biochemistry**
12.5 credit points • 6 hours per week • Hawthorn

*Instruction: practical work*

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 • 4 hours per week • Hawthorn

This is a subject of the Graduate Diploma of Applied Science (Industrial Chemistry)

**Content**
Liquid surfaces and electrochemistry experiment. Qualitative analysis of an unknown liquid mixture using distillation, physical measurements, infra-red spectra, PMR spectra, CMR spectra and mass spectra.

**SC733  Practical Techniques in Colloid Science**
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn

This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

**Content**
Preparation and characterisation of simple colloids. Potentiometric and conductimetric titrations of colloids to yield surface charge. Influence of electrolyte concentration and pH on surface charge. Micro-electrophoresis and the measurement of electrophoretic mobility (for colloids), which results in measurement of the zetapotential. The influence of zetapotential and electrolyte concentration (and type) on colloidal stability.

**SC734  Practical Techniques in Surface Science**
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn

This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

**Content**

**SC735  Elective Practical Skills**
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn

This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

**Content**

**SC736  Research Skills, Part 1**
5 credit points • 2 hours per week for 5 weeks • Hawthorn

This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

**Content**
Experimental design including the importance of the null result and 'blank' experiment, choice of experimental points, parameter variation and chemimetrics. The importance of prior preparation and choice of experimental variables. Literature searching skills and background theory. A major portion of this subject will be devoted to designing a project to be carried out either in SC538 or SC757.

**SC737  Research Skills, Part 2**
5 credit points • 2 hours per week for 5 weeks • Hawthorn

This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

**Content**
Data manipulation and presentation, including statistics and methodology of data handling. Use of software packages in data manipulation. Presentation of data including an oral presentation involving work carried out either in SC538 or SC757.

**SC738  Minor Research Project**
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn

This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

**Content**
A minor research project carried out either at the student's place of work or at Swinburne and involving a closely supervised project of the student's choice.

**SC739  Colloid Rheology**
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn

This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

**Content**
Simple and complex rheology. Include complex rheology using dynamic oscillatory rheology.
SC740 Chemistry of Surface Coatings
7.5 credit points • 4 hours per week for 5 weeks
• Hawthorn
This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

Content

SC741 Physical Properties of Surface Coatings
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn
This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

Content

SC742 Corrosion and Protection of Metals
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn
This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

Content
Electrochemical principles of corrosion. Thermodynamic aspects of corrosion. Pourbaix diagrams, protective measures. Kinetics of corrosion; electrochemical techniques for determining corrosion rate, corrosion inhibition, inhibitors, passivation, anodic and cathodic protection. The subject will include some practical work on corrosion measurement and galvanic corrosion.

SC743 Food Colloids
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn
This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

Content
Emulsion theory and colloid rheology as applied to foods. Common emulsifiers in food and their safety, use, detection purpose. Wettability of non-aqueous materials (eg. fats, flour) in the presence and absence of emulsifiers. Applicability of colloid theory to foods.

SC744 Chemistry of Surfactants
7.5 credit points • 4 hours per week for 5 weeks
• Hawthorn • Prerequisites: SC717 Surface Characterisations, and SC716 Basic Colloid Science is recommended
This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

Content

SC745 Solution Behaviour of Surfactants
7.5 credit points • 4 hours per week for 5 weeks
• Hawthorn • Prerequisites: SC717 Basic Surface Characterisations, SC716 Basic Colloid Science and SC744 Chemistry of Surfactants are recommended
This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

Content
Phase behaviour, diagrams and maps for surfactant systems at an advanced level. Properties, detection and thermodynamics of surfactant phases such as micelles, liquid crystals and lamellae. Preparation of soap, tertiary oil recovery and other uses of phase maps. Properties, preparation, characterisation and uses of microemulsions.

SC746 Advanced DLVO Theory
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn • Prerequisite: SC716 Basic Colloid Science
This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

Content
DLVO (Deryagin-Landau-Verwey-Overbeek) theory - mathematical interpretation of colloidal stability based on the addition of attractive dispersion forces and repulsive electrostatic forces. Interaction between atoms, leading to an overall generalisation for macroscopic interactions. Derivation of the relationship between charge and potential under conditions of constant charge, constant potential or charge regulation. Free energy of the electrical double layer. The role of DLVO theory to the adsorption of small ions. Detailed derivation of the Poisson-Boltzmann equation which relates charge and potential.
SC747  Adsorption from Solution
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn •
Prerequisites:  SC716 Basic Colloid Science and SC717 Basic
Surface Science (SC747 Adsorption from Solution is advised)
This is a subject of the Graduate Diploma of Applied
Science (Applied Colloid Science)

Content
An overview of forces involved in adsorption from solution. The role of electrostatics, solvation and chemical terms. Chemical modelling (site binding).
Uptake onto colloidal materials of toxic aqueous pollutants such as heavy metals, anions, organics and polymers. Industrial significance of adsorption and its implications in waste water treatment. Practical aspects of adsorption phenomena including experimental design. Adsorption of simple electrolytes.

SC748  Water Treatment Technology
7.5 credit points • 4 hours per week for 5 weeks
• Hawthorn • Prerequisites: SC716 Basic Colloid Science and
SC717 Basic Surface Science (SC747 Adsorption from Solution is advised)
This is a subject of the Graduate Diploma of Applied
Science (Applied Colloid Science)

Content
Implications of colloidal chemistry in waste water treatment. The role of adsorption phenomena in waste water treatment. Biological and non-biological treatment technologies. An overview of common and advanced treatment technologies including alum flocculation, biochemical treatment, cellular foam microbial degradation and adsorbing colloid flotation. Emphasis will be placed on those technologies using colloidal principles to separate contaminant from clean water.

SC749  Polymer Flocculation
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn •
Prerequisites: SC716 Basic Colloid Science and SC717 Basic Surface Science (SC747 Adsorption from Solution and SC752 Polymer Stabilisation Technology are advised)
This is a subject of the Graduate Diploma of Applied
Science (Applied Colloid Science)

Content

SC750  Detergency
7.5 credit points • 4 hours per week for 5 weeks
• Hawthorn • Prerequisites: SC744 Chemistry of Surfactants and SC717 Basic Surface Science (SC716 Basic Colloid Science is advised)
This is a subject of the Graduate Diploma of Applied
Science (Applied Colloid Science)

Content
Detergent action and the role of contact angle, adhesion, cohesion, micellisation and emulsification. Methods of analysis ranging from cloud point determination and two-phase titrations to infra-red and NMR analysis. Detergent biodegradability.
Detergent formulation for specific needs, e.g., softeners, conditioners. Specific examples of interest, e.g., removal of lanolin from wool and the formulation of hair shampoos.

SC751  Emulsion Technology
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn •
Prerequisites: SC744 Chemistry of Surfactants, SC716 Basic Colloid Science and SC717 Basic Surface Science This is a subject of the Graduate Diploma of Applied
Science (Applied Colloid Science)

Content
Common methods for obtaining emulsions and their subsequent use. Emulsion polymerisation and the properties of polymer latices.
The theory of emulsion stability. Long range (DLVO) and short range (Gibb's-Marangoni) stability. Surface chemical factors and the application of the DLVO theory. Surface elasticity and surface viscosity. The role of macromolecules as emulsion stabilisers. Stabilisation by finely divided solids and the properties of thin films (e.g., rupture). Breakdown of emulsions (thermodynamics). Applications to cosmetics, food, bitumen, wax, etc.

SC752  Polymer Stabilisation Technology
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn •
Prerequisite: SC716 Basic Colloid Science
This is a subject of the Graduate Diploma of Applied
Science (Applied Colloid Science)

Content
SC753 Thin Films and Foams
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn • Prerequisites: SC716 Basic Colloid Science, SC717 Basic Surface Science (SC744 Chemistry of Surfactants and SC751 Emulsion Technology are advised)
This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

Content
The properties, stability and rupture of foams. Disjoining pressure, calculation of electrostatics, VOW and steric components of disjoining pressure. Instability and rupture of thin films (advanced). Evidence pertaining to short range hydration and hydrophobic forces, based on experimental studies and statistical mechanical treatments of fluids at interfaces. Application of flotation emulsions and the stability of froths and foams.

SC754 Light Scattering and Concentrated Dispersions
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn • Prerequisites: SC716 Basic Colloid Science and SC717 Basic Surface Science (SC718 Surface Characterisation and SC719 Chemistry of Inorganic Colloids are advised)
This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

Content
Radial distribution function \( g(r) \) — relationship between \( g(Q) \) and \( S(Q) \) (\( Q \) is the scattering vector) — potential of mean force and its link to \( g(r) \). Measurement of \( g(r) \) through the scattering of radiation and its angular variation — determination of \( S(Q) \) using theoretical models, link between \( S(Q) \) and osmotic compressibility.
Photon correlation spectroscopy, small angle neutron scattering and low angle X-ray diffraction. Concept of the scattering density parameter, particle form factor \( P(Q) \) and the structure factor \( S(Q) \). Application to microemulsions, latices and pigment dispersions.

SC755 Surface Chemistry of Clays and Coal
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn • Prerequisites: SC716 Basic Colloid Science and SC717 Basic Surface Science (SC718 Surface Characterisation and SC719 Chemistry of Inorganic Colloids are advised)
This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

Content

SC756 Mineral Processing
7.5 credit points • 4 hours per week for 5 weeks • Hawthorn • Prerequisites: SC716 Basic Colloid Science and SC717 Basic Surface Science (SC718 Surface Characterisation and SC719 Chemistry of Inorganic Colloids are advised)
This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

Content

SC757 Research Project
50 credit points • 4 hours per week throughout second and third year • Hawthorn
This is a subject of the Graduate Diploma of Applied Science (Applied Colloid Science)

Content
A research project carried either at the students place of work or at Swinburne (or a combination) and involving a supervised project of the student’s choice. The aim of the project is to provide research skills to the student and to allow the student to study, in detail and at an advanced level, one or more of the principles learned during coursework. Selection and details of the project are a joint venture between the student and staff, and may involve several students working on one major project.

SC760 Biochemistry
12.5 credit points • 5 hours per week • Hawthorn • Instruction: lectures
This is a subject of the Graduate Diploma of Applied Science (Industrial Biochemistry)

Content
Students study subjects in human, clinical and pathological chemistry. They also study techniques of extraction of biological molecules, methods of analysis of the structure of peptides and proteins and recombinant DNA technology.

SC808 Scientific Communication
2 credit points • 1 hour per week • Hawthorn
This is a fourth year subject of the Bachelor of Applied Science (Chemistry) and (Biochemistry)

Content
Literature search and written report on current developments in organic chemistry. Obtaining and analysing experimental data.
Experimental design to eliminate common errors of logic.

Case studies.

SC1500 Introductory Chemistry
10 credit points • 5 hours per week
This is a first year subject of the Bachelor of Applied Science (Environmental Health)

Content
Quantitative aspects of chemical reactions with strong emphasis on writing and using balanced chemical reactions.
Properties of chemical reactions; extent and equilibria involving gases and solutions.
Electrical energy and chemical reactions — redox; galvanic cells, electrode potentials and the Nernst equation. Heat energy and chemical reactions — thermochemistry; Enthalpy and Hess's Law, calorimeters.
Kinetics of chemical reactions; order, rate equation.
Organic chemistry; nomenclature, and classes of compounds.
Corrosion and protection of metals, crystal types and packing models.
Environmental Chemistry, acid rain and water pollution.
Practical chemistry; predicting chemical reactions, equilibria, kinetics, potentiometric titration, metals, solution skills.

SC3400 Food Processing and Analysis
10 credit points • 4 hours per week • Hawthorn
This is a second year subject of the Bachelor of Applied Science (Environmental Health)

Content
Food processing introduction to processes used in the food industries for the preparation and processing of foods.
Problems or potential problems associated with those processes that have implications for community health.
Hazard Analysis Critical Control Point.
Food chemistry techniques used in the determination of the amounts of carbohydrate, protein and lipid in foods.
Determination of the amounts of micronutrients in foods.
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 (e.g., determination of sulphur dioxide). 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, regulations controlling use.
Classes of chemical additives to be considered will include the following preservatives, antioxidants, flavouring compounds, colouring compounds, sweetening agents, flavour enhancers, nutrients, emulsifiers.
Natural hazards associated with food.
Practical work Experiments in food analysis — 2 hours per week.

SCE201 Basic Process Analysis and Calculations
10 credit points • 4 hours per week • Hawthorn
Instruction: lectures, tutorials • Assessment: examination 70%, tests 15%, assignments 15%
This is a subject in the intermediate stage of the Bachelor of Engineering (Chemical).

Objectives
To develop competence in the application of physical and chemical principles to determine mass and energy flows and other stream conditions in industrial processing plants.
Upon completion of this subject students should be able to:
- perform unit conversion
- draw process flowsheet and perform flowsheet calculations
- understand simple behaviour of solids, liquids, and gases.

Content
Units and dimensions; unit conversion. Process variables and flowsheets.
Material balances; bypass, recycle and purge. Material balances with chemical reactions; stoichiometry; conversion, yield, and selectivity; calculation of equilibrium composition.
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.
Heat, work and energy; First law of thermodynamics. Energy balances.
Flowsheet calculations using the computer.

Recommended reading

References
SCE203 Industrial Process Engineering and Management

10 credit points  \*  4 hours per week  \*  Hawthorn  \*  Assessment: examination 50%, reports 30%, seminars 20%

This is a subject in the intermediate stage of the Bachelor of Engineering (Chemical).

Objectives
The aim of the subject is to impart a general understanding and appreciation of the following:
- the relationship between process engineering and other branches of engineering
- the steps involved and the various types of knowledge required in the design and operation of a process plant
- the technical and managerial responsibilities of the process engineer
  - the tools of communication used by the process engineer: flowsheets, drawings, reports
- the economical, social and environmental impact of the process industry
  - professional ethics and responsibilities in the work place

Content
History of the development of the process industry. Industrial and social contexts of process engineering. The role of the process engineer: technical and managerial.

Examples of processes from the chemical, mineral, pharmaceutical, food, etc. industries.

Process description and process analysis; flowsheets. The physical and chemical principles involved in a process; the laws of thermodynamics; rate processes: momentum, heat and mass transfer; reaction kinetics and mechanisms; process dynamics and control. Unit operations in process engineering.

General process-design principles; mass and energy balances. Equipment design: materials, piping, instrumentation. Plant design; analysis of technical and economic feasibilities. Quality  \*  Assessment and control. Market research; economic forecasting; cost and risk analysis.

Environmental and social issues; waste management; renewable resources; occupational health and safety; professional ethics.

Responsibilities of the process engineer: design, operation, investigation, research and development, management of people and resources, management of projects.

Engineering tools: process flowsheets; engineering drawings; process/piping and instrumentation drawings (P&ID’s); verbal and written reports; computers and microprocessors; modelling.

Recommended reading

References

SCE204 Biochemistry 1

10 credit points  \*  5 hours per week  \*  Hawthorn  \*  Assessment: examinations 50%, tests 20%, laboratory reports 30%  \*  Prerequisites: SCE108 Biology

This is a subject in the intermediate stage of the Bachelor of Engineering (Chemical).

Objectives
- To acquaint students with 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 appreciation of the techniques for handling delicate 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.

Content
Introduction to biomolecules: monosaccharides, disaccharides, polysaccharides, amino acids, polypeptides, structure of proteins, lipids, nucleotides, enzymes, coenzymes, nucleic acids.

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 practical program include protocol interpretation and design, and calculations and interpretation of data from quantitative analyses.

Recommended reading

SCE205 Chemistry 2

10 credit points  \*  5 hours per week  \*  Hawthorn  \*  Assessment: tests 15%, examination 35%, laboratory work 50%  \*  Prerequisites: SC154N Chemistry

This is a subject in the intermediate stage of the Bachelor of Engineering (Chemical).

Objectives
To build on the many basic concepts acquired elsewhere in Chemistry and to extend this knowledge to a level that is applicable for chemical engineering.

Content
Overview of chemical bonding, electronic structure of
atoms and molecules.

Organic chemistry: alkenes and alkynes; benzene and other aromatic compounds; alcohols; alkyl halides; ethers; nitriles and amines; aldehydes and ketones; carboxylic acids and their derivatives.

Inorganic chemistry: ionic and metallic bonding.

Analytical chemistry: precipitation equilibria; complex ion equilibria; the Nernst equation.

Introduction to kinetics.

Establishing basic laboratory skills in analytical, organic and physical chemistry. Some instrumental analysis will be included.

**Recommended reading**

**SCE206 Fluid Mechanics**

10 credit points • 45 hours per week • Hawthorn

*Instruction: lectures, tutorials, laboratory work • Assessment: examination 60%, assignments 30%, laboratory reports 10%

This is a subject in the intermediate stage of the Bachelor of Engineering (Chemical).

**Objectives**

- To provide students with the ability to design and apply piping and pumping systems as used in the process industries.
- To achieve this major aim, the following knowledge will be provided to students:
  - Fluid Properties
  - Momentum and energy, and equations concerning their conservation.
  - Fluid flow measurement techniques
  - Dimensional analysis and similarity studies
  - Pipeline analysis and design.
  - Centrifugal and other pumps - their construction, operation and design.

**Content**

*Fundamental concepts*

- perfect and real fluids - density, viscosity, compressibility, basic work on Newtonian and Non Newtonian fluids.
- Fluid pressure and its measurement, laws of fluid pressure, Basic fluid dynamics
- Continuity, Energy and Momentum equations, application to devices for measurement of velocity and flow.

Introduction to boundary layer theory

- laminar and turbulent flow, qualitative treatment of boundary layer growth

**Advanced concepts**

- Kinetic and potential energy, The Bernoulli equation, equivalence of pressure and head,
- Criteria of similarity, dimensional analysis and its application to the Moody or Darcy chart
- Comparison of various forms of friction factor charts
- Piping systems and their design, equivalent length for valves and fittings, non circular ducts, the Stanton and von Karman charts
- Laminar flow in pipes, the Hagen Poiseuille equation
- Operation and characteristics of centrifugal pumps, relationships between throughput, power and head for pumps, pump efficiency and its dependence on impeller diameter and speed, specific speed, cavitation, net positive suction head (NPSH).

**SCE206 Recommended reading**


**SCE207 Chemical Engineering Laboratory 1**

10 credit points • 4 hours per week • Hawthorn • Instruction: tutorials, laboratory work • Assessment: tutorials 30%, laboratory reports 40%

This is a subject in the intermediate stage of the Bachelor of Engineering (Chemical).

**Objectives**

- To extend laboratory skills from chemical analysis to applied chemical engineering processes as used in industry.
- To establish skills in the designing of experiments to include those measurements necessary for the monitoring and control of unit operations.
- To demonstrate the application of elementary principles of chemical engineering.

**Content**

Laboratory work will supplement material studied in other subjects - a selection from distillation, filtration, drying, crushing and grinding, mixing, liquid / liquid / gas extraction, cooking, sterilisation.

**SCE302 Chemical Engineering Thermodynamics**

10 credit points • 4 hours per week • Hawthorn • Instruction: lectures, tutorials • Assessment: examination 70%, tests 15%, assignments 15%

This is a subject in the intermediate stage of the Bachelor of Engineering (Chemical).

**Objectives**

- To train students in the application of thermodynamic principles in analyzing engineering problems.
- To provide sound understanding of the fundamental principles and methods of thermodynamics, and underlines the theoretical bases of many chemical engineering operations such as separation processes, vapour cycles and reactive systems.

Swinburne University of Technology 1997 Handbook 487
Content

Review of fundamental concepts: temperature, heat, work and energy; state of a system. Work and heat functions; state functions; reversibility. Kinetic theory of gases. Ideal and real gas behaviour; compressibility; law of corresponding states. Theories of viscosity, thermal conductivity, and mass diffusivity of gases.


Phase equilibria. Degrees of freedom; Gibbs phase rule. Thermodynamics of liquids; vapour pressure; heat of vapourisation; theory of viscosity of liquids. Ideal and non-ideal mixtures; vapour pressure of solutions; Raoult's law and Henry's law. Solubility. Liquid-vapour systems with one, two and three components. Partial molal quantities; chemical potential; Gibbs-Duhem relation; activities and activity coefficients of non-ideal solutions; distribution coefficients. Colligative properties; boiling-point elevation and freezing-point depression.


Recommended reading

SCE304 Microbiology 1

10 credit points • 4 hours per week. Hawthorn. Instruction: lectures, laboratory. • Assessment: examination 70%, laboratory tests 30% • Prerequisites: SCE108 Biology

This is a subject in the advanced stage of the Bachelor of Engineering (Chemical).

Objectives

To develop knowledge and practical skills related to the isolation and identification of bacteria, especially with reference to the food and beverage industries.

Content

Basic microbiology: 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 - anaerobic, enrichment. Counting techniques as a method for measuring bacterial growth. These will also include simple field techniques such as membrane filtration and MPN counts.

Sterilisation methods: a wide range of physical and chemical methods of sterilisation and disinfection will be considered. Practical work will develop the manipulative skills associated with the handling and culturing of microorganisms and the techniques required for the operation of a microbiological laboratory.

Recommended reading

SCE305 Separation Processes

10 credit points • 4 hours per week. Hawthorn. Instruction: lectures, tutorials. • Assessment: examination 70%, assignments 30% • Prerequisites: SCE201 Basic Process Analysis & Calculations; SCE203 Industrial Process Engineering and Management; SCE205 Chemistry 2

This is a subject in the advanced stage of the Bachelor of Engineering (Chemical).

Objectives

• To develop an understanding of the types of separation process 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 the environmental impact of the selection of particular separation processes

Content

Leaching: mass transfer in leaching operations, countercurrent washing of solids, calculation of the number of stages, graphical methods.
Distillation: the methods of distillation (two component mixtures), the fractionating column, multicomponent mixtures, azeotropic and extractive distillation, steam distillation.
Liquid-liquid extraction: extraction processes, calculation of the number of theoretical stages.
Adsorption: the nature of adsorbents, adsorption equilibria.
Membrane separation processes: classification of processes, microfiltration, ultrafiltration.

Recommended reading
Coulson and Richardson: Chemical Engineering, Vol 2 1991
SCE306 Industry Based Learning 1

50 credit points • Assessment: report and satisfactory achievements of employer requirements

This is a third year subject in the Bachelor of Engineering (Chemical).

Objectives
To complete 24 weeks of full time paid employment in an appropriate industrial setting.
To work as an engineering trainee under the direction of a professional engineer and be an effective part of a multi-disciplinary team within the industry.
To develop and document professional engineering practice for all industry assignments and to communicate professionally in written and verbal forms.
To establish and refine personal development skills in order to develop engineering competence towards the professional level.
To implement and gain further understanding of engineering management skills and practices operating within engineering organisational structures.
To observe and appreciate significant trends in employment work groups and industrial relations.
To understand and apply quality control and assurance techniques.

Content
Work requirements are established by the employer in consultation with Swinburne University.

Recommended reading
As suggested by the Swinburne academic supervisor to support the student's task environment.

SCE400 Heat Transfer

10 credit points • 4 hours per week • Hawthorn • Instruction: lectures, tutorials, laboratory work • Assessment: examination 70%, tests 15%, assignments 15% • Prerequisites: Basic Process Calculations, Fluid Mechanics

A fourth year subject in the Bachelor of Chemical Engineering

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
Mechanisms of heat transfer: theory and applications:
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.


Recommended reading

SCE401 Mass Transfer

10 credit points • 4 hours per week • Hawthorn • Instruction: lectures, tutorials • Assessment: examination 85%, assignments 15% • Prerequisites: Basic Process Calculations, Fluid Mechanics

A fourth year subject in the Bachelor of Chemical Engineering

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.
Analogies among momentum, heat, and mass transfer.

**Recommended reading**


**SCE404 Biochemistry 2**

10 credit points • 5 hours per week • Hawthorn •

Instruction: lectures, laboratory work • Assessment: examination 50%, test 20%, laboratory 30% • Prerequisites: SC108 Biology, SCE204 Biochemistry 1, SCE205 Chemistry 2

A fourth year subject in the Bachelor of Chemical Engineering

**Objectives**

- To develop an understanding of the various factors that determine the rates of intra-cellular enzyme reactions (including the roles of coenzymes, cofactors, activators, inhibitors).
- To further develop a practical appreciation of the techniques for handling enzymes.
- To develop a detailed understanding of the main anabolic pathways, especially in relation to the inter-relationships of the pathways.

**Content**

Anabolic pathways: biosynthetic 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 will be drawn from fermentation pathways. Laboratory exercises include protein purification and analysis, and 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 oxygen electrode.

**Recommended reading**


**SCE405 Fluid Particle Systems and Advanced Fluid Mechanics**

10 credit points • 4.5 hours per week • Hawthorn •

Instruction: lectures, tutorials, laboratory work • Assessment: examination 60%, assignments 30%, laboratory work 10% • Prerequisites: SCE206 Fluid Mechanics, SCE302 Chemical Engineering Thermodynamics

A fourth year subject in the Bachelor of Chemical Engineering

**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 segment will investigate mixing and the use of advanced similarity studies which can be applied to this process.

**Content**

Fluid Particle systems:

- Motion of single particles in an infinite medium, hydraulic classification, hindered settling, thickener design.
- Flow through Packed beds
- Handling and transport of powders.
- Powder mixing, crushing grinding and screening. Sieve analysis of particulate matter.
- Mixing and similarity studies
- Types of mixers and mixing processes, power requirements for mixing, dimensional analysis of the mixing process, power number, scale up techniques, similarity studies as applied to the scale up of mixers.

Application of the above concepts to the solution of problems.

**Recommended reading**


**SCE406 Industry Based Learning 2**

50 credit points • Assessment: report and satisfactory achievements of employer requirements • Prerequisites: SCE306 Industry Based Learning 1

A fourth year subject in the Bachelor of Chemical Engineering

**Objectives**

- To complete 24 weeks of full time paid employment in an appropriate industrial setting.
- To work as an engineering trainee under the direction of a professional engineer and be an effective part of a multi-disciplinary team within the industry.
- To develop and document professional engineering practice for all industry assignments and to communicate professionally in written and verbal forms.
- To establish and refine personal development skills in order to develop engineering competence towards the professional level.
- To implement and gain further understanding of engineering management skills and practices operating
within engineering organisational structures.
To observe and appreciate significant trends in employment work groups and industrial relations.
To understand and apply quality control and assurance techniques.

Content
Work requirements are established by the employer in consultation with Swinburne University.

Recommended reading
As suggested by the Swinburne academic supervisor to support the students task environment.

SCE407 Chemical Engineering Laboratory 2
10 credit points  4 hours per week  Hawthorn
Instruction: tutorials 30%, laboratory 70%  Assessment: laboratories 30%, laboratory work 70%  Prerequisites: SCE207 Chemical Engineering Laboratory 1
A fourth year subject in the Bachelor of Chemical Engineering

Objectives
To extend skills from Chemical Engineering Laboratory 1 - in order to be able to measure, control and optimise macro processes and to augment most of the experiments with automatic telemetry using modern process control and instrumentation.
To prepare professional reports for the operation of pilot scale plant studies.

Content
Laboratory work will supplement material studied in other subjects - extensions of Chem. Eng. Lab.1 labwork which may include a selection of 'state-of-art' chemical engineering processes - from ultra filtration, reverse osmosis, UHT, spray drying, freeze drying.
Laboratory Work:
Students will be assigned tasks that further develop laboratory skills and particularly skills of designing experiments. Students will also devise strategies and techniques to measure the relevant and significant parameters necessary to monitor and control unit operations - including the use of instrumentation, datatakers, PLCs and computers for the process control operations.

SCE500 Biotechnology 1
10 credit points  4 hours per week  Hawthorn
Instruction: lectures, laboratory and field work  Assessment: examination 30%, assignment 30%, reports 20%  Prerequisites: SCE204 and SCE304 Biochemistry 1 & 2, SCE402 Microbiology

Content
Fermentation technology, nutrition and kinetics in batch and continuous fermentations. Design of bioreactors.

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 uses of a range of selected enzymes. Immobilised enzymes, cells, organelles and co-enzymes and their industrial and analytical uses.

Waste treatment and disposal, sewage treatment, biological aspects of soil bioremediation, case studies. Processes and organisms involved.

Downstream processing: Factors and problems involved in scale-up to pilot plant and production stages.

Recommended reading

SCE501 Research Project
10 credit points  4.5 hours per week  Hawthorn
Instruction: lectures, project meetings, laboratory work, seminars, poster presentations  Assessment: seminar 10%, poster 30%, thesis 60%
A fifth year subject in the Bachelor of Chemical Engineering

Objectives
To develop collaborative and team work skills
To develop project management skills
To undertake a major project investigation 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.
SCE502  Reactor Design

10 credit points • 4 hours per week • Hawthorn • Instruction: lectures, tutorials • Assessment: examination
70%, assignments 30% • Prerequisites: SCE206 Fluid Mechanics, SCE302 Chemical Engineering Thermodynamics, SCE402 Fluid Particle Systems and Advanced Fluid Mechanics • or demonstrated equivalent knowledge.

A fifth year subject in the Bachelor of Chemical Engineering

Objectives
To provide students with the skills necessary to understand the complexities of industrial chemical reactors and the reactions carried out in them. The analysis and design of reactors will also be studied, as well as the fundamentals of reacting systems.

Content
Review of basic chemistry necessary to study reactors
- Stoichiometry, order of reaction, thermodynamic considerations, especially effect of temperature on heats of reaction and heat capacity data, van’t Hoff equation, Chemical Kinetics and the effect of temperature on rate of reaction, Definition of reaction rate, other variables affecting reaction rate, kinetics of homogeneous reactions.

Interpretation of batch reactor design
- Constant volume batch reactor and analysis of data, Variable volume batch reactor and analysis of data.

Types of ideal reactors
- Definition of ideal reactors, continuous stirred tank reactors, plug flow reactors, mixed flow reactors, reactors in series and parallel

Design for single reactions
- Size comparisons of single reactors, CSTR versus PFR for first and second order reactions.

Temperature and Pressure effects
- Heats of reactions and equilibrium constants - the effect of temperature and pressure, general design procedure, optimum temperature progression, heat effects, adiabatic operation, non adiabatic operation.

Non ideal flow in reactors
- residence time distribution in reactors, age distribution curves, use of tracer information, diagnostics for poorly performing equipment.

Heterogeneous reaction systems.
- Fluid/particle reactions, shrinking core model for particles of unchanging size and associated controlling mechanisms, reaction rates for shrinking particles and associated control mechanisms, non spherical particles, fluidised bed reactors

Application of the above concepts to the solution of problems.

Recommended reading
Levenspiel, O., Chemical Reaction Engineering 2nd ed., John Wiley and Sons 1972

SCE503  Process Control

10 credit points • 3 hours per week • Hawthorn • Instruction: lectures, tutorials • Assessment: examination
70%, assignments 35%

A fifth year subject in the Bachelor of Chemical Engineering

Objectives
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
Introduction to process control
- Steady state, process dynamics, process modelling, closed-loop, process stability

Chemical process Models
- continuity equations, energy equations, transport equations, equations of state, chemical kinetics

Chemical Process Models
- CSTR (series, isothermal, variable hold up), batch reactor, distillation

Process Dynamics
- Time-domain, laplace domain, frequency domain, Nyquist, Bode, Nichols plots

Feed Back Control
- Proportional, integral, derivative, tuning, stability, Routh stability, criterion, Nyquist stability criterion

Feed Forward Control
- Principle of invariance, linear/non-linear systems, dynamic compensatory tuning.

Fuzzy Logic Control Principles

Recommended reading
Palm, W.J., Control Systems Engineering, W.J. Wiley N.Y. 1986
Ogata, K., Modern Control Engineering 2nd Ed. Prentice Hall 1990.

SCE504  Process Equipment Design

10 credit points • 5 hours per week • Hawthorn • Instruction: lectures, tutorials • Assessment: examination
70%, tests 15%, assignments 15% • Prerequisites: CE102 Engineering Design, SCE201 Basic Process Calculations, SCE405 Fluid Particle Systems and Advanced Fluid Mechanics, SCE400 Heat transfer, SCE401 Mass Transfer, SCE305 Separation Processes, MM235 Engineering Materials

A fifth year subject in the Bachelor of Chemical Engineering

Objectives
To apply scientific and economic principles in selecting and specifying major equipment required to carry out particular processes: heat and mass transfer equipment, equipment for storage and transport of fluids. Apart from the physical and chemical principles of the processes, other factors are also
considered such as materials of construction, structural integrity, costs, safety and environmental effects, maintenance requirements and hygiene requirements.

**Content**
Design considerations: process requirements; performance, safety, reliability, maintainability; codes and standards; inspection and testing. Instrumentation. Equipment life, disposal, costs. With particular reference to the food and biological industries, the requirements for bio-compatibility of materials, and maintenance of hygiene.

Strength of materials: stress-strain relationships; failure theories; design criteria; design codes and standards. Effects of corrosion, creep, welding, embrittlement. Effects of vibration.

Piping system design: optimum pipe diameter; pipe stress analysis; pipe fittings; effect of thermal expansion; computer packages for pipe stress analysis. Non-destructive examination and hydrostatic testing. Pump selection; pumping power costs.

Pressure vessel design: design codes; materials and fabrication selection; vessel weight and costs; computations and submission to design authorities; vessel inspection and testing.


Equipment for simultaneous heat and mass transfer: dryers, crystallizers, cooling towers. Maintenance management

**Recommended reading**

**SCE505 Process Plant Design and Economic Evaluation**
20 credit points • 4 hours per week • Hawthorn • Instruction: lectures, tutorials • Assessment: design report 75%, seminar presentation 25% • Prerequisites: SCE504. Process Equipment Design.

A fifth year subject in the Bachelor of Chemical Engineering

**Objectives**
• To apply knowledge acquired during the course to the development and design of a new processing plant, from concept evaluation to final production. The major steps considered in the design process are: economics and market evaluation, social and environmental impact •

• To develop skills in planning, executing and reporting on a major project.

**Content**


Process control. Process dynamics; instrumentation. Quality measurement and quality control.

Plant siting and layout. Factors to consider: raw materials, water, power and fuel, markets, labor, transportation, climate, waste disposal, safety, future expansion, etc.


Introduction to risk engineering and loss prevention.

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 recommendation, environmental impact statement, flowsheets and drawings, material and energy balances, major equipment list and specifications, plant layout, summary of cost and profit analyses, and design data and calculations.

**Recommended reading**

**SCE506 Environmental and Safety**
10 credit points • 3 hours per week • Hawthorn • Instruction: lectures, discussion groups, workshops, seminars • Assessment: seminar presentation 20%, assignment 40%, examination 40%

A fifth year subject in the Bachelor of Chemical Engineering

**Objectives**
To further develop in students knowledge and understanding of the environmental implications of
engineering activities and an understanding of the responsibilities of engineers under the occupational health and safety laws.

**Content**

**Environment**

*Geographical:*

- Global issues such as ozone depletion, atmospheric warming, biodiversity, finite nature of resources and recycling, renewable resources
- Local issues such as lowering levels of ozone-depleting gases, energy generation, waste treatment and disposal
- Physical issues such as cycles of elements, transportation mechanisms
- Social issues such as impact of population, quality of life.

**Prevention and control techniques:**

- Assessment techniques - impact
  - Assessment, auditing, risk
  - Assessment legislation and regulations, management methods
  - Containment of genetically-engineered organisms.

**Treatment techniques:**

- Types and sources of waste, monitoring methods, handling and transport of wastes, processing and resource recovery, final disposal
- Case studies related to problems with gases, liquids and solids in industries such as the chemical industry, food industry, nuclear industry, pharmaceutical industry, and in particular processes such as the combustion processes.

**Cleaner production:**

- Philosophy of 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, and the implications of relevant legislation.

**Recommended reading**

- Bioprocess Engineering
  - Lecture, tutorials, assignments - 30%, examination 70%

**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 the ways in which these problems can be solved or contained. For each topic the biological aspects and implications 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.
- Heat transfer
  - Heat lability; sterilisation and pasteurisation; spray drying and freeze drying; product stability.
- Fluid mechanics
  - Non-Newtonian fluid flow; applications in viscous systems.
- Separations of biological products
  - Membrane technology; filtrations; centrifugation; chromatography; affinity binding; crystallisation.

**Recommended reading**


**SE101 Science for Technology**

- 10 credit points • 3 hours per week • Hawthorn
- Prerequisites: Nil, but must satisfy course entry requirements • Assessment: practical work, assignments and examination

A first year subject in the degree of Bachelor of Applied Science (Multimedia Technology)

**Objectives**

- To provide a basis for specialist scientific disciplines through rigorous development of essential physics principles.
- To provide a coherent and balanced account of the fundamentals of physics.

**Content**

Forces and energy kinematics, linear and circular dynamics, gravitation, kinetic theory, hat.
- Modern physics atomic structure, radioactivity, quantum theory, special relativity.
- Electricity and magnetism magnetic and electric fields, Coulomb’s Law, electromagnetic induction-Lenz and Faraday’s laws, DC circuits.

**Recommended Reading**

- Grianooli, D.C., Physics with Applications, 4th edn, Prentice Hall, 1995
SE104 Psychological Processes
10 credit points ● 4.5 hour per week ● Hawthorn ●
Prerequisites: nil, but must satisfy course entry requirements ●
Assessment: assignments and examination.
A first year subject in the degree of Bachelor of Applied Science (Multimedia Technology)

Objectives
- The course is intended to provide introductory information on the nature of psychological processes.
- Specifically the course introduces information on the brain and the nervous system
- Endocrine Systems: Consciousness, motivation, emotion, learning and visual and auditory perception.
- Understanding how humans attend, process and perceive information from the external environment.

Content
The Brain; The Neuron; The Nervous System; The Endocrine System; Consciousness; Motivation; Emotion; Classical Learning; Operant Learning; Social Learning; Sensation: Vision; Sensation: other senses.

Recommended Reading
TBA

SE106 Psychology of Learning
A first year subject in the Bachelor of Applied Science (Multimedia Technology)

Objectives
Most multimedia applications, even computer games, involve a degree of instruction and guidance. This subject is intended to enable students to understand the cognitive processes behind learning so that more effective user environments can be developed.

Content
Theories of learning
Motivation
Creativity
Social factors influencing learning
Learning from student perspective
Social factors influencing learning.
Personality
Cognitive styles
How students learn/learning styles
Deep learning vs surface learning
Problem solving and decision making
Learning strategies
Learning processes relevant to educational technology
Learning modes

Recommended reading
To be advised

SE110C, SE110M Electronics and Measurement
10 credit points ● 4.5 hour per week ● Hawthorn ●
Prerequisites: nil, but must satisfy course entry requirements ●
Assessment: practical work, assignments and examination.
A first year subject in the degree of Bachelor of Applied Science (Computing and Instrumentation) and (Medical Biophysics and Instrumentation) and (Multimedia Technology).

Objectives
- To provide a grounding in basic analog and digital electronics, as well as an introduction to electrical transducers that are used sensing physical phenomena.
- Principles of electronics measurement are also introduced.

Content
Digital Electronics: Digital logic, Boolean laws and operators, Truth tables, Gate symbols; Design and simplification of logic circuits, Sum of products representation, Kmaps, Combinatorial logic, Sequential logic (including data registers); Ripple counters, Up/Down module x counters, Set up and hold times, Asynchronous set/clear, Propagation delays, Monostables, Tri-state logic.
DC Analogue Electronics: Ohm's law, Voltage loop law, Voltage divider, Current Node law, Current divider; Simplifying resistor networks, Thevenin Equivalent circuit, Network mesh analysis; Power (maximum transfer); Diodes, Capacitors, Simple R-C circuits and transient response; Intro to Operational Amps, Negative feedback, Output transducers (analogue and digital), electromechanical and electronic ammeters, voltmeters, ohmmeters, power meters, DC Wheatstone bridge and applications;
Measurement: SI units, Scientific notation, Presentation of data, Combining uncertainties, Sensors and sensing, Using a transducer to aid our senses; Basic terms and definitions (accuracy, resolution, precision, linearity, sensitivity); Transducer types (active, passive); Transducer classification (resistive, current, voltage, capacitive, inductive); Automatic control (open/closed loop systems); Sine wave response of instruments (zero, 1st and 2nd order response); Information representation, transmission and processing.

Recommended Reading

SE111 Introductory Biophysics A
10 credit points ● 4 hours per week ● Hawthorn ●
Prerequisites: Nil ● Corequisites: Nil
A first year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

Objectives
To appreciate the importance of physical concepts and methods in the articulation of structure and function in biological systems.
Content
This subject provides preliminary material for the Medical Biophysics course. 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, biophysical and physiological material (cellular physiology, immunology, tissues, organs and human anatomy) are included and form the basis for more advanced studies. Students will be provided with practical skills on laboratory report writing and specific exercises illustrating the theoretical material.

SE118C
SE118M Physics 1
10 credit points • 5 hours per week • Hawthorn •
Prerequisites VCE Mathematics Methods Units 3 and 4, VCE Physics Units 1,2,3 and 4 • Assessment: practical work, assignments and examination
A first year subject in the degree of Bachelor of Applied Science (Computing and Instrumentation) and (Medical Biophysics and Instrumentation).

Objectives
- To provide a basis for specialist scientific disciplines through rigorous development of essential Physics principles;
- To provide a coherent and balanced account of the fundamentals of Physics.

Content
Motion and Forces:
Electricity and Magnetism;
Atomic Physics
Nuclear Physics.

Recommended Reading
Physics for Scientists and Engineers with Modern Physics, 4th Edition, Serway (Saunders)
Study Guide with Computer Exercises to accompany Physics for Scientists and Engineers with Modern Physics, 4th Edition, Gordon and Serway (Saunders)

SE120C
SE120M Introduction to Instrumentation
10 credit points • 4 hours per week • Hawthorn •
Prerequisites: SE110C/SE110M • Assessment: CML tests, assignments and examination
A first year subject in the degree of Bachelor of Applied Science (Computing & Instrumentation) and (Medical Biophysics and Instrumentation)

Objectives
Students will be introduced to fundamental concepts of AC analog electronics.
Students will further develop an understanding of transducers and transducer systems.
The concept of a microcontroller will be introduced.

Content
AC Analogue Electronics: Alternating current and voltage, concepts of frequency, period, phase, RMS, dB scales;
Capacitor circuit and reactance • inductor circuit and reactance, sine wave representations; Introduction to impedance and admittance; Series and parallel R-L circuits, Series and parallel R-C filters, Simplifying AC networks.; Resonant circuits and AC bridges; Introduction to power supplies (transformers). Half and full wave rectification, Filtering, Zener diodes and regulators.
Transducer case studies: Detailed case studies exploring the design and limitations of a force sensor, a liquid level sensor, a temperature sensor, and a flow sensor; Operational amplifier circuits for transducers.
Miscellaneous: Safety considerations in education, industry and research; Introduction to circuit design and construction; Introduction to CAD for PCBs; Introduction to microcomputer architecture and microcontrollers.

Recommended Reading
TBA

SE122 Introductory Biophysics B
10 credit points • 4 hours per week • Hawthorn •
Prerequisites: Nil • Corequisites: Nil
A first year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

Content
This subject presents a combination of introductory and advanced theoretical and practical material on cellular, physiological and biophysical systems. Topics covered include: the major organ systems (cardiac, respiratory, nervous, renal and muscular) as well as biomechanics, sports science, endocrinology, control and metabolism. Practical classes use experiments in combination with computer simulations to complement the topics, to provide practical skills and to provide numerical results from normal populations of selected human functions. All topic aspects are covered such that their vocational and practical relevance to the biological, clinical and sports sciences is clear.

SE128C
SE128M Physics 2
10 credit points • 5 hours per week • Hawthorn •
Prerequisites: SE118C/SE118M • Assessment: practical work, assignments and examination
A first year subject in the degree of Bachelor of Applied Science (Computing and Instrumentation) and (Medical Biophysics and Instrumentation)

Objectives
To provide a basis for specialist scientific disciplines through rigorous development of essential Physics principles;
To provide a coherent and balanced account of the fundamentals of Physics.

Content
Vibrations:
Waves and Sound;
Optics;
Thermal Physics;
Nuclear Physics.

Recommended Reading
*Physics for Scientists and Engineers with Modern Physics*, 4th Edition, Serway (Saunders)

Study Guide with Computer Exercises to accompany *Physics for Scientists and Engineers with Modern Physics*, 4th Edition, Gordon and Serway (Saunders)

SE210/SE210C/SE21OM

**Objectives**
- To be familiar with the basic digital building blocks (such as gates, flip-flops, counters etc.);
- To be able to analyse and synthesise digital circuits of moderate complexity;
- To be familiar with the basic analog building blocks (such as amplifiers, filters, non-linear circuits etc);
- To be able to analyse and synthesise analog circuits using operational amplifiers.
- To develop a basic understanding of discrete electronic components (such as diodes and transistors).

**Content**
Digital Electronics: Combinational logic; Review of Boolean algebra analysis and synthesis; K-maps; SSI & MSI Building Blocks: Adders, Subtractors, ALU’s, Multiplexers, Demultiplexers, Encoders, Decoders; Sequential Logic; Latches and Flip-flops; MSI building blocks (counters, registers, shift registers); State Machines; Logic Devices and Family Characteristics: Fan out, loading, propagation delays, power dissipation; Logic levels and compatibility; Three-state and open collector outputs; Programmable Devices: ROMs, PALs, PALS.


Non Linear OP-Amp Applications: Clipping and Clamping Circuits, Precision Diode, Peak Detector, Comparators.

**Recommended Reading**

Solid State Physics: Many body quantum mechanics, identical particles and Pauli exclusion principle; Quantum distribution functions; Free electron theory, Fermi-Dirac distribution, Fermi level; Conductivity in metals, failures of free electron model; Weak binding approximation, forbidden energies and effective mass. Strong binding approximation, band theory and intrinsic semiconductors. Extrinsic semiconductors and semiconductor devices.

Electromagnetism and Optics: Electromagnetism: 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; Magnetostatic problems; Electromagnetic waves in vacuum and in simple non-conducting and conducting media; Reflection and transmission at boundaries.

Optics: 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.

Problem analysis and project description: Stakeholder analysis; Identification of instructional goals; Identifying Learners needs (sensitivity to entry level behaviour); Defining learning objectives.

Instructional analysis and design: Identification of appropriate instructional strategies; Use of criterion referenced instruction and assessment; Incorporation of learner feedback; Programs for novices vs programs for experts; Optimal instructional sequences; Selecting and developing instructional materials; Choice of media/integrating appropriate media.

Measurement of performance: Summative and formative assessment; Assessment of objectives.

Program Evaluation: The importance of building evaluation into program at design phase; Evaluation of all stakeholders (not only program participants).

Recommended Reading
Seels, B. & Glasgow, Z., Exercises in Instructional Design, Merrill Publishing Company, Columbus, 1990

SE218C
SE218M Physics 3

10 credit points • 4 hours per week • Hawthorn • Prerequisites SE128C & SE128M • Assessment: test and examination.

A second year subject in the degree of Bachelor of Applied Science (Computing and Instrumentation) and (Medical Biophysics and Instrumentation)

Objectives
To develop an understanding of fundamental physics, both classical and modern, at post introductory level.

Content
Quantum Mechanics:
Statistical interpretation, Uncertainty principle, Schrodinger’s equation; Particle in a well, Transmission and Reflection at a potential barrier, Quantum Mechanical Tunnelling.

Solid State Physics:

Electromagnetism:
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; Magnetostatic problems; Electromagnetic waves in vacuum and in simple non-conducting and conducting media; Reflection and transmission at boundaries.

Objective
To provide an overview of the systematic approach to the design, implementation and evaluation of instructional programs and learning environments.

Content:
Instructional strategies and models.
Recommended Reading

SE220C Sensors, Interfacing and Control
10 credit points • 4.5 hours per week • Hawthorn • Prerequisites: SE210C/SE120M • Assessment: practical work, assignments, CML tests and examination
A second year subject in the degree of Bachelor of Applied Science (Computing and Instrumentation) and (Medical Biophysics and Instrumentation)

Objectives
To further develop the students understanding in sensors and microcontrollers and now they can be used in various applications.
- To introduce how sensors and actuators can be interfaced to computers and to develop an understanding of control in transducer systems.

Content
Sensors and Applications:
The detection of nuclear and optical radiations; Industrial sensor applications; Medical sensor applications; Chemical and biosensors; Actuators and smart structures; Signal conditioning, shielding and grounding, noise reduction, analog signal processing; Digital signal processing.
Interfacing and Microcontrollers: Digital to analog converters; Analog to digital converters; Serial and parallel communication; Basic computer architecture and 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 and 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, polar plots, bode plots, Nichols chart; Introduction of compensator design, concept of PID controller; Introduction of non-linear systems; Introduction of state space analysis, concept of state feedback controller; Introduction of discrete time systems, digital control scheme; Concept of adaptive control and optimal control, performance index.

Recommended Reading
TBA

SE221 Engineering Business Skills
10 credit points • 4 hours per week • Hawthorn • Prerequisites: Nil • Assessment: CML tests, essays
A second year subject in the degree of Bachelor of Engineering (Electrical)

Objective
This subject is aimed at preparing students for the workforce, particularly for IBL the following semester, through the development of a range of generic personal and professional skills and an introduction to business organisation and operation.

Content
Personal development: Writing of technical reports, proposals & business letters; Preparing a CV & interview skills; Making a presentation; Listening skills; Interpersonal skills: teams, negotiation, supervision; Getting organised: personal time management.
Business fundamentals: Why business exists; investment and profit; Business organisation: R&D, manufacturing, sales & marketing, service; Organisational dynamics; Management & leadership; Business planning: Decision making; Financial management & funding of business; Macroeconomics & infrastructure; Small businesses.
Professional issues: Business etiquette; Professional ethics; Discrimination issues; Occupational Health and Safety in the workplace.

Recommended reading

SE223 Linear Systems
10 credit points • 4.5 hours per week • Hawthorn • Prerequisites: SM233 • Corequisites SM244 • Assessment: practical work, assignments and examination
A second year subject in the degree of Bachelor of Engineering (Electrical)

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.
- The analysis shall be restricted to single input-single output linear systems up to second order.
- The concept of the Fourier series and Fourier transform shall also be introduced.
Content

Transients in single time constant circuits, using DEs 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.

Recommended Reading


SE225 Machine and Power Systems
10 credit points • 4 hours per week • Hawthorn
Prerequisites EE182 • Assessment: assignment, practical work and examination.
A second year subject in the degree of Bachelor of Engineering (Electrical)

Objectives

To introduce the principles of magnetic circuits, electromechanical energy conversion, D.C. machines, transformers, induction machines, and power electronics

Content

Magnetic Quantities: Flux Density, Magnetic Field Intensity, Magnetic Flux, Magnetization, Permeability.
Magnetic Circuits; Series and parallel magnetic circuits, calculations for inductors, transformers, tractive magnets and rotating machines; (Detailed calculation of leakage paths not included); Energy density in a magnetic field, and the general tractive magnet force relationship:
Director Current Machines: Common structural forms, disc and drum types of armature windings, permanent magnet and wound field systems; Armature windings, lap and wave types; EMF and torque equations; Commutation and interpoles; Magnetic effect of armature; Methods of connection: Shunt, series; Torque-speed and voltage-current characteristics; Torque equation including inertia of moving system; (Solution not required) Losses and efficiency, methods of cooling, rating; Starting and speed control methods for motors; Voltage control methods for generators; Power Electronics: Devices; The power diode and the Silicon controlled rectifier.
The Transformer: The single phase transformer equivalent circuit; voltage regulation and efficiency.

Recommended Reading

Lander C.W., Power Electronics

SE226 Computer Communications

10 credit points • 4.5 hours per week • Hawthorn
Prerequisites: SE314T • Assessment CML tests, assessment, prac examination
A second year subject in the degree of Bachelor of Applied Science in Multimedia Technology.

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

Data transmission concepts: Source and channel coding, OSI, layering, hardware and software.
Baseband pulse transmission, decision process: effects of noise and non linearities on binary and multilevel signals; signal shaping and eye diagrams. Shannon and Nyquist limits.
Review of modulation techniques and media, optical media:
Asynchronous and synchronous formats, framing structures.
Bit, byte and frame synchronisation, line codes.
Error control (parity, BCC, CRC), flow control.
LAN technologies.

Recommended reading


SE227 Computer Architecture and Hardware

10 credit points • 4.5 hours per week • Hawthorn
Prerequisites: SE210/T • Assessment prac, assignment and examination
A second year subject in the degree of Bachelor of Engineering (Electrical) and Bachelor of Applied Science in Multimedia Technology

Objectives

The student should be able to understand the capabilities of a computer system to respond to and control external systems. The student will become familiar with the operation of computer systems at several levels and understand the interaction between these levels. (HLL « Assembly language « hardware « I/O)

Content:

Overview of computer systems: System components (CPU, Memory, I/O devices, Buses)
Assembly language introduction: Data types & codes (binary, ASCII, 2s complement); Programmers model & register set; Instruction set & addressing modes; Memory model; Structure of programs

Assemblers & Compilers: Operation & Compilation/Assembly process; Assembler facilities (directives, labels & symbols); Intermediate stages, Linking & relocation

Introduction to C Programming in a hardware environment: Access to hardware resources; Use of casts

HLL <-> machine code interface: Parameter passing; Equivalence between HLL and Assembly code

Interrupts and exceptions: Interrupt process; Priority & Nested interrupts; Interrupt handlers at Assembly and C language level

I/O Devices & Hardware interfacing:
Programmable interfaces & timers; Serial interfaces; DMA & Interfacing; Algorithms for real-time interaction with external components; Polled versus interrupt driven

Computer structure: Memory types: RAM, ROM, EPROM, EEPROM; dynamic vs static memory; Buses & memory decoding; Timing diagrams; DMA

Recommended reading

SE229 Computer Learning & Authoring

10 credit points • 4 hours per week • Hawthorn
Prerequisites: SE215 • Assessment: Assignments and examination

A second year subject in the degree of Bachelor of Applied Science in Multimedia Technology

Objectives
To introduce students to the range of learning and teaching paradigms available through computer-based multimedia systems, covering structured systems such as Computer Managed Learning programs through to informal interaction and learning programs such as computer simulations, and games. Students will be introduced to an authoring system through which such learning environments can be generated.

Content
Computer interaction and feedback
Computer Based Instruction (CBI)
Hypertext and HTML
Hypermedia
Authoring software such as Authorware and Author
Computer Managed Learning (CML) and assessment
Writing test items: formative and summative assessment
Item response analysis: reliability and validity
Limitations of CBI and CML
Computer simulations of real physical phenomena
Computer games
Tailoring the learning environments to the audience, eg. the young
Evaluation of learning
Stand-alone and networked systems
Interaction via the World Wide Web

Recommended reading
Laurel, B. The Art of human-computer interface design, Addison-Wesley, Reading, Mass 1990
Shneiderman, B. Designing the User Interface, Addison Wesley, Reading, Mass, 1992
SE230  Cardiovascular Biophysics

10 credit points • 4 hours per week • Hawthorn •
Prerequisites: Nil • Corequisites: Nil
A second year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

Objective
This subject deals in the detail the biophysics and physiology of excitable cells which leads into a detailed coverage of the structure and function of synapses, skeletal and smooth muscle tissue and the automatic nervous system. During practical sessions, students will be exposed to various underlying scientific principals as well as a range of clinical monitoring techniques.

Content
The heart: cardiac cycle, mechanical and electrical events, Starling’s law, mechanical properties of cardiac muscle.
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.
Intensive care instrumentation. Cardiopulmonary bypass

SE240  Cellular Biophysics

10 credit points • 4 hours per week • Hawthorn •
Prerequisites: SE112, SE122 • Assessment: practical work, assignments and examination
A second year subject in the degree of Bachelor of Applied Science (Medical Biophysics and Instrumentation)

Content
Membrane Phenomena: Structure and function of membranes and membrane channels; modes of transport of ions and non-electrolytes; Diffusive processes; Nernst and Donnan equilibria.
Measurement of intracellular potentials: electrode processes; overpotentials; diffusion potentials; Experimental techniques: noise rejection; high impedance and differential amplifiers; Na⁺ and K⁺ channels
Experimental techniques: voltage clamping and patch clamping (1hr); Hodgkin-Huxley model: elements. Synapses.
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.
Muscles: Ultrastructure: Excitation-contraction coupling: cross-bridges and sliding filament theory;
Correlation between cellular and macroscopic properties: Length-tension relationship in skeletal, smooth and cardiac muscles; Force velocity relationships: cellular correlates of Hill equation; Energy supply and metabolic measurements; Electrical activity: MUAPs and the EMG: Cellular basis of muscle fatigue and muscle disease.

Recommended Reading
Guyton A.C. and Hall, Textbook of Medical Physiology; 9th Edn, Saunders
Plonsey R.L. and Barr R., Bioelectric Phenomena, Plenum, 1988

SE250 Biomedical Instrumentation

10 credit points • 3 hours per week • Hawthorn •
Prerequisites: Nil • Corequisites: Nil
A second year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

Objectives
- examine specific aspects of particular types of biomedical instrumentation
- primary emphasis on transducers and electronics
- secondary emphasis on physiology and applications

Content
This subject deals with techniques and instrumentation relevant to clinical, hospital and biomedical areas.
Biophysical and technical aspects are covered in detail as well as their practical application in hospitals and clinical circumstances. Material is treated in both lectures, and where possible, in practical exercises. Fundamental considerations are developed so that complete systems are thoroughly covered. Most topics range from the detection, recording, processing and therapeutic uses of a range of biological signals.

SE260 Respiratory and Renal Biophysics

10 credit points • 4 hours per week • Hawthorn •
Prerequisites: Nil • Corequisites: Nil
A second year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

Objectives
To provide a thorough coverage of the structure, function and clinical considerations of the respiratory system, along with the basic biochemical, biophysical and physiological principles, details of the symptoms and measurement of clinically relevant respiratory disorders are covered in lecture material as well as in various practical exercises.

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,
- Exercise Biophysics: respiratory changes associated with
exercise, anaesthesia: agents and their administration, monitoring, physiological effects of anesthesia.

- Sleep monitoring; monitoring the respiratory processes associated with sleep, and disorders of sleep.
- Renal biophysics: vasculature, the juxtaglomerular apparatus, kidney function tests, countercurrent multiplication, control of kidney function, renal pathophysiology, the artificial kidney.

SE310 Analog Electronics Design
10 credit points • 4.5 hours per week • Hawthorn • Prerequisites: SE210 • Assessment prac, assignments and examination

A third year subject in the degree of Bachelor of Engineering (Electrical)

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
CAE design of circuits and integrated devices

Recommended reading
Sedra & Smith, Microelectronic Circuits 3rd Edition, HRW

SE312 Control and Automation
10 credit points • 4.5 hours per week • Hawthorn • Prerequisites SE212, SM233 • Assessment prac, assignments and examination

A third year subject in the degree of Bachelor of Engineering (Electrical)

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 emphasise its advantages using specialised analytical techniques.

Content
System Concepts: Introduction to the concept of a system as a connection of elements; Electrical mechanical and thermal elements and their basic physical relationship; Formulation of system equations to form a system model; The linear system and open loop and closed loop systems.

Analysis of Linear Systems: The following analysis techniques are developed so that the dynamic response of a single input single output system may be predicted for a variety of input signals; Classical solution of differential equations; Solution of differential equations using Laplace transform techniques; Formulation of a system transfer function; The analogue computer and its application to modelling dynamic systems; Frequency response techniques - analysis from the s-plane and Bode diagrams; An introduction to state variable analysis.

Feedback Control Systems: Basic concepts of negative feedback 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 proportional plus integral control to improve dynamic and steady state performance; Criteria for stability; Determining stability from the s-plane and from Bode plots, gain margin and phase margin.

Recommended Reading
Dorf, R.C. Modern Control Systems, Addison-Wesley, 1989 5th Ed.
methods for analogue and digital transmission, and evaluate the effect of transmission channel noise on the reception of assembled signal processing modules to implement model communications systems.

Content
Analogue signals, spectral analysis, bandwidth, ideal filters, ideal transmission.
Link transfer functions, amplitude and phase response, energy and power spectra. Analogue modulation and demodulation: amplitude, phase, frequency, hybrid.
Frequency division multiplexing, commercial broadcasting: radio and TV.
Noise, and its effects in analogue communication systems.
Sampling theorem, A/D conversion, digital codes, serial data streams.
Digital methods: modulation and reception of ASK, PSK, FSK, DPSK.
Effects of noise on detection in digital communication systems, BER.
Time Division Multiplexing.

Recommended reading

SE316 Digital Electronics Design
10 credit points  4.5 hourspw week  Hawthorn
Prerequisites: SE210  Assessment pracs, assignments and examination
A third year subject in the degree of Bachelor of Engineering (Electrical).

Objectives
This subject builds on the digital logic basics introduced in Electronics. Students will become familiar with the design of complex synchronous and asynchronous digital systems. Considerations of timing and hazards will be covered allowing the student to have confidence in their ability to design reliable digital circuits. The increasing complexity of digital systems mandates the use of appropriate CAE tools. Competence with these tools will be gained by the student. Practical applications will be emphasised in a design project allowing the student an opportunity for experiential learning.

Content
State machine analysis and synthesis, ASM models: Mealy and Moore models; Register transfer notation.
Asynchronous circuits.
Minimisation of functions, hazards.
Field programmable gate arrays.
CAE tools for simulation and design: Hierarchical design approach; CAE design overview; Device databases; Information available. (electrical, thermal, physical); Schematic capture; Description of features of a suitable tool; Modelling & simulation; Component modelling (unit delay, timing extraction; Synthesis tools for FPGAs; Introduction to tools and specific concepts.

Recommended reading
Mentor Graphics Reference and Training Manuals.
SE750 Communication Systems
12.5 credit points four hours per week • Hawthorn • 
Prerequisites: Nil • Assessment: laboratory, assignment and exam
A subject in the Master of Engineering/Graduate Diploma in (Telecommunications and Computer Systems Engineering)
Objectives
To develop an understanding of basic communications principles and techniques.
Content
Electrical/electromagnetic elements of communication
Spectral analysis, time and frequency domains.
Digital modulation basics.
Transmission lines.
Antennas.
Fiber optics.
Recommended Reading
Haykin, S., An Introduction to Analogue & Digital Communications, Wiley, N.Y. 1989
SK180 Computing (Engineers)
10 credit points • 5 hours per week • Hawthorn •
Prerequisites: nil • Assessment: laboratory assignments, CML tests, examination
A one semester subject for students in the first year of the Bachelor of Engineering course. It introduces the topic of computing relevant to engineers and provides a foundation for further computer studies taken during the course.
Objectives
Introduces students to computing concepts; provides an appreciation of computer systems, their hardware, software and terminology;
provides training and insights into a selection of relevant software application packages;
fosters familiarity with personal computer operating systems, their commands and use;
fosters skills in using a high level of language to program personal computers.
Content
Computer hardware overview of typical personal computers, peripheral devices and networks. Software tools: Operating systems overview, commands and use; relevant applications such as a word processor, spreadsheet, and a drawing package. Program development: problem analysis, algorithm design; implementation in high-level language covering: data types, input/output, branching, loops, procedures, functions, parameters, textfiles, arrays, sets, records, etc.
Recommended reading
Pacific Computer Weekly or similar publication.
The manuals supplied with your computer.
Manuals for or references to AutoDesk’s AutoSketch and Microsoft’s Windows, Word and Excel.
SK190 Computer Science (Chemists)
10 credit points • 5 hours per week • Hawthorn
This is a first year subject of the Bachelor of Applied Science (Chemistry) and (Biochemistry).
Content
This is an introductory course in computing for students majoring in chemistry. Computing dominates the modern day practice of chemistry from computer aided automation in the laboratory to scientific research involving supercomputers. The aim of this course is to provide a good foundation in computing principles. No previous computing knowledge is assumed. An introduction to both computers and the DOS operation system is presented. A programming language, currently QBASIC, is introduced and applied to solve problems typically encountered in chemistry.
SK210 Introduction to Computing
10 credit points • 3 hours per week • 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.
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.
SK280  Software Development
10 credit points  ●  4 hours per week  ●  Prerequisites: SK180
●  Assessment: Laboratory exercises, assignments and examination

This is a second year subject of the Bachelor of Engineering (Electrical)

Objectives
●  To introduce the principles of the software development process;
●  To introduce the syntax and semantics of the C language;
●  To introduce the fundamental data structures and algorithms.

Content
Dynamics of software development process, software tools, algorithm development, programming techniques, fundamental concepts of C language, data types, operators, control of flow, arrays, functions, string handling with standard libraries, structures and bitfields, dynamic memory management, basic data structures: lists, linked lists, queues, stacks, trees and operations, sorting and searching techniques.

Recommended Reading

SK290  Introduction to Programming
10 credit points  ●  5 hours per week  ●  Hawthorn  ●  Assessment: examination and assignments

An introduction to computing for students majoring in the physical sciences. No previous knowledge of computing is required.

Objective
To provide a good foundation in the principles of computing necessary for contemporary practice of physics or chemistry.

Content
An introduction to computers, the DOS operating system, and applications of use to the scientist is presented. The C programming language is introduced and applied to solve problems typically encountered by physical scientists.

SM106  Mathematics
7.5 credit points  ●  3 hours per week  ●  Hawthorn  ●  Assessment: examination and assignment

This is a first year subject of the Bachelor of Applied Science (Psychology and Psychophysiology)

Content
Basic functions: linear, polynomial and rational.
Trigonometric, exponential and hyperbolic functions.
Differentiation: product rule, chain rule; applications to maxima and minima and graph sketching.
Integration: applications and methods.

Linear Algebra: Matrices, determinants, solutions of simultaneous linear equations
Vectors
Data Analysis and probability

Recommended reading

Prescribed calculators
Texas Instruments Advanced Scientific (TI-82) graphics calculator.

SM110  Mathematical Methods
10 credit points  ●  3 hours per week  ●  Hawthorn  ●  Assessment: tests/examination and assignments  ●  Prerequisites: nil

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

Objectives
This subject is designed to introduce students to mathematical principles as they relate to environmental studies.

Content
Calculations
Reviews of basic mathematical operations; illustrations from environmental and health applications. Use of electronic calculator.
Numerical methods
Introduction to numerical methods errors and their propagation, including rounding errors and loss of significance. Solution of equations in one variable; numerical solution of non-linear equations by iterative methods (bisection, false position, secants, simple iteration, Newton-Raphson).
Linear algebra
Matrices and matrix algebra; determinants and their evaluation. Systems of linear equations: Gaussian elimination; matrix inversion; procedures for numerical solution by direct or iterative methods.
Functions of one variable
Standard functions and their graphs. Transcendental functions exponential; logarithmic and natural logarithm functions; trigonometric and inverse trigonometric functions. Curves defined by relations or parametrically.
Calculus
Differentiation geometric interpretation; derivatives of standard functions; product, quotient and chain rules; implicit differentiation.
Applications of differentiation graph sketching, using first and higher order derivatives; related rates; optimisation in finite closed intervals.
Integration definite and indefinite integrals and their interpretations; fundamental theorem; integrals of standard functions; integration by substitution. Use of integral tables.
Numerical integration (rectangle, trapezium and Simpson’s
rules). Separable differential equations, with or without initial values. Functions of several variables: partial derivatives; maxima and minima.

**Recommended reading**
To be advised.

**SM111 Engineering Mathematics 1**
- **10 credit points** • 4 hours per week • Hawthorn • Prerequisites: Nil • Assessment: Examination and tests

A common first year semester subject in the Bachelor of Engineering and Bachelor of Applied Science (Multimedia Technology).

**Objectives**
To provide students with a thorough grounding in mathematics and to help develop their ability to use mathematics with understanding to solve engineering problems.

**Content**
- Numbers and functions
- Complex numbers
- Vector algebra
- Matrix algebra
- Discrete mathematics

Recommended reading

**SM112 Engineering Mathematics 2**
- **10 credit points** • 4 hours per week • Hawthorn • Prerequisites: SM111 • Assessment: Examination and tests

A common first year semester subject in the Bachelor of Engineering.

**Objectives**
To provide students with a thorough grounding in mathematics and to help develop their ability to use mathematics with understanding to solve engineering problems.

**Content**
- Sequences, series and limits
- Differentiation and integration
- Further calculus of one variable
- Functions of more than one variable

Recommended reading

**SM119 Mathematics for Technology**
- **10 credit points** • 4 hours per week • Hawthorn • Prerequisites: SM111 • Assessment: Examination and tests

A first year semester subject in the Bachelor of Applied Science (Multimedia Technology)

**Objectives**
To provide students with a sufficient mathematical basis for later subjects such as electronics, telecommunications and computer graphics.

**Content**
- Sequences, series and limits
- Differentiation and integration
- Fourier series and transforms
- Data handling and probability theory

Recommended reading

**SM131 Communication Skills**
- **10 credit points** • 4 hours per week • Hawthorn • Prerequisites: nil • Assessment: individual assignments and participation

This is a first year subject of the Bachelor of Applied Science (Mathematics and Computer Science)

**Objectives**
Develop and improve students written and verbal communication skills
Provide students with concepts and strategies for successfully managing their own learning

**Content**
Communication Skills
In this component written communications skills will be developed with particular reference to situationally appropriate letters, memos, reports and essay writing. Study and research skills will be enhanced by increasing competence in note taking from oral and printed input and in using library technology. Meeting skills and class presentations will extend oral skills.

Managing your own learning
This component introduces students to the skills and strategies necessary for developing self-managed learning. Topics will include goal setting and planning, team learning behaviour, time management, learning and memory strategies, motivation, evaluation and stress management skills.

**Recommended reading**

**SM180 Mathematics 1**
- **10 credit points per semester** • 4 hours per week (sem 1 & 2) • Hawthorn • Prerequisites: nil • Assessment: tests, examinations and assignments

This is a first year subject in the Bachelor of Applied Science (Mathematics and Computer Science) and (Computer Science)

**Objectives**
- To provide students with mathematical knowledge and skills essential for concurrent first year studies.
- To enable students with ability and interest to further develop their mathematical knowledge and skills.
To reinforce and develop mathematical communication skills and problem solving skills.
To provide students with additional mathematical understanding and background material which may be required.
To demonstrate where mathematics can be applied to practical situations.

Content

Vectors in 2- and 3-dimensional space.
Introduction to numerical methods; errors; solution of equations by graphical and iterative methods.
Coordinate geometry in Cartesian coordinates.
Standard functions and their graphs; finite and infinite limits; indeterminate forms.
Differentiation and its applications; optimization; approximations; Taylor polynomials
Integration and its applications; numerical integration; improper integrals.
Matrices and determinants; systems of linear equations.
Polar coordinates.
Ordinary differential equations of first and second order.
Complex numbers.
Functions of many variables; graphs; partial differentiation; approximations; directional derivatives and gradients; optimisation.

Recommended reading

Text to be advised.
Prescribed Calculator Texas Instruments Advanced Scientific TI-82 Graphics calculator or equivalent.

SM185 Applied Statistics 1

10 credit points • 5 hours per week • Hawthorn • Prerequisites: nil
• Assessment: tests/examinations and assignments

A first year subject in the Bachelor of Applied Science (Mathematics and Computer Science)

Objectives

• Provide methods for graphical and numerical summaries of data.
• Introduce the basic ideas of probability and random variables.
• Introduce both traditional and computer intensive methods for estimation and inference.

SM193 Mathematics

12 credit points (7-sem. 1) (5-sem. 2) • 3 hours per week (7-sem. 1) 2 hours per week (5-sem. 2) • Hawthorn • Instruction: lectures, tutorials • Assessment: examination and assessed work

A first year subject in the Bachelor of Technology (Building Surveying)

Objectives

• To provide students with the mathematical basis for many construction subjects.

SM233 Engineering Mathematics 3

10 credit points • 5 hours per week • Hawthorn • Prerequisites: SM111 and SM112 • Assessment: examination and tests

A common mathematics semester subject in the Bachelor of Engineering.

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

• Ordinary differential equations
• Fourier series
• Laplace transforms
• Data handling and probability theory

Recommended reading


SM244 Engineering Mathematics 4

10 credit points • 4.1 hours per week • Hawthorn • Prerequisites: SM233 • Assessment: examination, assignment and tests

A common mathematics semester subject in the Bachelor of Engineering.

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

• Numerical solution of ordinary differential equations
• Functions of a complex variable
• Matrix analysis

Recommended reading

SM255A Engineering Mathematics

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; finite elements; general considerations.
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

SM255B Engineering Mathematics 5B

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
• Fourier and Z transforms
• Applied probability and statistics

Recommended reading

SM278 Design and Measurement 2A

Objectives
A first-year subject in the Bachelor of Applied Science (Psychology and Psychophysiology) and the Bachelor of Arts (for students majoring in psychology)

Content
Introduction: lectures, tutorials, laboratory work. Assessment: examination 70%, tests 30%
A third year subject in the Bachelor of Civil Engineering

Recommended reading

SM288 Operations Research: An Introduction to Problem Solving

Objectives
A first-year subject in the Bachelor of Applied Science (Mathematics and Computer Science)

Content
Introduce students to the field of operations research.
Introduce students to the types of mathematical models used in operations research.
Help students to develop an approach to problem solving.
Introduce students to the SAS system.

Recommended reading
SM366  Engineering Mathematics

10 credit points  • 4.5 hours per week  •  Hawthorn  • Prerequisite: SM180  • Assessment: subject to selection of topics

Objectives
To provide students with more advanced topics in mathematics according to their specialisation and to develop their ability to use mathematics with understanding to solve engineering problems.

Content
A selection of topics from:
- Advanced computational methods
- Advanced continuous and discrete transforms
- Advanced mathematical programming
- Analysis of algorithm
- Calculus of random variables
- Computational fluid dynamics
- Decision and risk analysis
- Fuzzy logic
- Greens function methods
- Multiple linear regression and experimental design
- Operations research
- Optimisation
- Perturbation methods
- Special functions and generalised Fourier series
- Stochastic processes
- Tensor analysis
- Theory of partial differential equations
- Variational calculus and finite element methods

Recommended reading
Subject to selection of topics

SM378  Design and Measurement 3

10 credit points  • 4 hours per week  •  Hawthorn  • Prerequisite: SM278  • Assessment: subject to selection of topics

Objectives
To extend topics in SM278 to cover a wider variety of statistical techniques. The emphasis is on understanding how statistical analysis can provide answers to research questions.

Contents
- Simple linear regression;
- multiple regression;
- analysis of covariance;
- factor Analysis.

Recommended reading
Francis, G. J. and Taffe J. SM378 Studying Relationships
Francis, G. J. SM378 Analysis of Covariance and Factor Analysis

SM378L  Design and Measurement 3

4 hours per week  •  Lilydale  • Prerequisite SM278  • Assessment: class work, examination

A stage three subject in the Bachelor of Business and Bachelor of Social Science

Objectives
To extend topics in SM278 to cover a wider variety of statistical techniques. The emphasis is on understanding how statistical analysis can provide answers to research questions.

Contents

Recommended reading

SM383  Mathematics 2

10 credit points  • 3 hours per week  •  Hawthorn  • Prerequisite: SM180  • Assessment: tests, examinations and assignments

A second year subject in the Bachelor of Applied Science (Mathematics and Computer Science).

Objectives
- To provide students with mathematical knowledge and skills essential for concurrent and later studies;
- To enable students with ability and interest further to develop their mathematical knowledge and skills;
- To reinforce and develop mathematical communication skills and problem solving skills;
- To provide students with additional mathematical understanding and background material which may be required;
- To demonstrate where mathematics can be applied to practical situations.

Content
Ordinary differential equations of standard types; numerical methods of solution; difference equations; simple partial
differential equations. Spaces of vectors and linear equations; rank, nullspace and range of a matrix. Eigenvalues and eigenvectors; diagonalisation of simple matrices, applications. Infinite sequences; infinite series, tests for convergence. Power series; Taylor and Maclaurin series. Functions of several variables: linear and quadratic approximations; stationary points; Taylor polynomials.

**SM387 Introduction to Optimisation**

10 credits points • 3 hours per week • Hawthorn • Prerequisites: nil • Assessment: assignments and examination

A second year subject in the Bachelor of Applied Science (Mathematics and Computer Science).

**Objectives**

This subject aims to enable students to:
- formulate and solve large linear programming problems;
- perform sensitivity analysis on the solution to linear programming problems;
- formulate and solve integer programming problems;
- formulate and solve linear programming transportation and assignment problems;
- formulate and solve problems using dynamic programming.

**Content**

Linear and integer programming, simplex method, sensitivity analysis, transportation and assignment algorithms, branch and bound methods, deterministic dynamic programming.

Computer packages such as SAS/OR, Lotus 123/PROPS may be used.

**Recommended reading**

Journal of the Operational Research Society

**SM388 Forecasting and Regression**

10 credits points • 3 hours per week • Hawthorn • Prerequisites: SM185, SM288 • Assessment: tests/examination and assignments

A second year subject in the Bachelor of Applied Science (Mathematics and Computer Science).

**Objectives**

- Introduce students to time series forecasting and provide students with an introduction to different methodologies and computer packages;
- Introduce students to the method and applications of regression;
- Help students tackle real problems;
- Give students the opportunity to gain experience in team working.

**Content**

Introduction to time series forecasting, data patterns, moving average methods, exponential smoothing methods, calculation of seasonal indices using decomposition methods, ad hoc forecasting methods, measures of accuracy. Mean Absolute Deviation, confidence intervals, analysis of error terms, computer packages such as Excel may be used. Linear (single predictor) regression models, residual plots, checking of assumptions, tests and confidence intervals for parameters. Computer packages such as Minitab will be used.

The students working in groups tackle an unstructured case study related to a practical situation. Reporting is by way of both oral and written reports.

**Recommended reading**


**SM404 Project Management A**

10 credits points • 3 hours per week • Hawthorn • Prerequisite: nil • Assessment: tests, assignments, verbal presentations and participation in tutorial classes and project teams

A second year subject in the Bachelor of Applied Science (Mathematics and Computer Science).

**Content**

Applied research/project management

Project characteristics: project stages; project management, teamwork; leadership and the project leader; responsibilities of the project leader; project planning; determination of tasks; scheduling tasks; development of project plan; monitoring and control of project; benefits of project management; when to use project management; senior management’s responsibilities, the project leader and the project team. Guest speakers and management games may be used. Tutorial classes will be based on experiential exercises in organisational behaviour.

**Internal project**

Students, working in groups of four or five, will be required to undertake a project for a member of staff acting as a client. Each group will be totally responsible for managing the project and for bringing it to a successful conclusion. They will be expected to maintain team meeting notes, bar charts, etc., and to provide each staff member with suitable progress reports. In addition, they will be expected to obtain formal approval for the work that they are undertaking from the appropriate staff member. Verbal and written reports will be required at the end of the semester reporting on the management process and the results of the project.

**Preparation for employment**

Review preparation of resumes and interview techniques; participate in seminars presented by fourth year students returning from Industry Based Learning.

**Recommended reading**

SM484  Experimental Design and Multiple Regression

10 credit points  3 hours per week  Hawthorn  Prerequisite: SM388  Assessment: tests/examination and assignments

A second year subject in the Bachelor of Applied Science (Mathematics and Computer Science).

Objectives
- To introduce the concepts and methods of experimental design;
- Analyse designed experiments using the Analysis of Variance;
- Extend the method of regression to multiple linear regression.

Content
Inference for two independent groups. The F Test.

Recommended reading
- Computervision Training. New York, Dekker, 1988

SM493  Engineering Mathematics

4 credit points  2 hours per week  Hawthorn  Prerequisites: SM393  Assessment: examination, tests and assignments

A fourth year subject in the Bachelor of Engineering (Mechanical).

Objectives
To introduce the mathematical concepts of approximation and the finite element method.

Content
- Concepts of finite element methods; approximation, basis functions, quadrature, weighted residual methods, ordinary and partial differential equations.

Recommended reading
- Computervision Training. New York, Dekker, 1988
- Computervision Training. New York, Dekker, 1988

SM487  Queueing Theory and Simulation

10 credit points  3 hours per week  Hawthorn  Prerequisites: SM185  Assessment: assignments and examination

A third year subject in the Bachelor of Applied Science (Mathematics and Computer Science).

Objectives
- Develop analytical models of queues forming under different conditions.
- Apply queueing models to real situations.
- Model problems in queues and inventory using simulation methods.

Content
- Queueing theory, simulation, applications to computers, inventory models and scheduling.
- Computer packages such as Lotus 123/PROPS and SAS, SAS/OR and ARENA may be used.

Recommended reading
- Journal of the Operational Research Society
- Computervision Training. New York, Dekker, 1988

SM494  Engineering Mathematics

4 credit points  2 hours per week  Hawthorn  Prerequisite: SM394  Assessment: examination, lectures/tutorials

A fourth year subject in the Bachelor of Engineering (Electrical).

Objectives
To further develop the specialised mathematical analytical techniques used in the more advanced and specialised engineering subjects.

Content
- Complex variables: elementary functions, geometry of the complex plane, mappings, complex differentiation,
conformal mapping, potential problems, contour integration, residue theory, application to the evaluation of real integrals and inversion of Laplace transforms.

Curvilinear coordinates: revision of potential theory; general coordinate systems, coordinate surfaces, curves and vectors, orthogonal systems; grad, div, curl and Laplacian in orthogonal systems.

Linear algebra: background, transmission matrices, vector spaces, solution of linear equations; the eigenvalue problem, the Cayley-Hamilton theorem, numerical evaluation using power method, characteristic impedance, propagation function; systems of linear differential equations, solution of first order systems by reducing to an eigenvalue problem, the phase plane, equilibrium, quadratic forms and matrices, Liapunov’s direct method, linearisation of non-linear systems.

Recommended reading

SM494 — Mathematics for Electrical Engineering Department of Mathematics, Swinburne University of Technology, 1993


SM499 Engineering Mathematics

4 credit points • 2 hours per week • Hawthorn • Prerequisites: SM399 • Assessment: examination tests and assignments

A fourth year subject in the Bachelor of Engineering (Mechanical)

Objectives

To introduce the mathematical concepts of approximation and the finite element method.

Content

Concepts of finite element methods; approximation, basis functions, quadrature, weighted residual methods, ordinary and partial differential equations.

Recommended reading


SM584 Multivariate Statistical Methods

10 credit points • 3 hours per week • Hawthorn • Prerequisite: SM484 • Assessment: tests/examination and assignments

A third year subject in the Bachelor of Applied Science (Mathematics and Computer Science)

Objectives

• Introduce basic methods for sample design and analysis.
• Develop skills in writing questionnaire items.

Content

The basic designs for sample surveys: simple random sampling, stratified sampling, systematic sampling and cluster sampling.

Estimators for the mean, total and proportion for simple random samples and stratified samples; variance estimation.

The design effect; sample size determination; EPSEM samples.

Ratio estimation;

Cluster sampling, multi-stage sampling, PPS sampling; variance estimation.

Practical issues and methods; questionnaire design; pilot surveys, mail, interviewer-based and telephone surveys; non-sampling errors; weighting.

Recommended reading


Jolliffe, P.R., Sunny Design and Analysis. Chichester, Ellis Horwood, 1986


SM588  Industrial Applications of Operations Research

10 credit points • 3 hours per week • Hawthorn
Prerequisite: nil • Assessment: assignments and examination

A third year subject in the Bachelor of Applied Science (Mathematics and Computer Science)

Objectives
- Introduce students to various application areas where operations research is applied;
- Involve students in independent research;
- Give students experience in preparing and giving a seminar;
- Give students experience in writing a professional paper.

Content
Production, scheduling, distribution, inventory control, and transportation.

Computer packages such as SAS/OR may be used.

Recommended reading
Journal of the Operational Research Society

SM608  Industry Based Learning

50 credit points • Hawthorn • Prerequisite: satisfactory completion of all subjects in the first four semesters of the Bachelor of Applied Science (Mathematics and Computer Science) or approved equivalent.

A third year subject in the Bachelor of Applied Science (Mathematics and Computer Science)

Content
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. Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor.

SM609  Mathematics Project

10 credit points • Hawthorn • Assessment: written reports and verbal presentation • Prerequisite: satisfactory completion of all second year subjects in the Bachelor of Applied Science (Mathematics and Computer Science)

A fourth year subject in the Bachelor of Applied Science (Mathematics and Computer Science)

Objectives
- To provide students with the experience of interacting within their own project team as well as with the industry in which the project is undertaken.
- Allow students to use some of the knowledge gained through their coursework to solve a real problem.

Content
In this subject students work in groups under the supervision of a staff member and apply the acquired knowledge from the course to a practical or research problem. The subject is assessed by presentation and a written report which is given to the client/organisation.

Recommended reading
Staff members in charge of project groups will guide students and recommend appropriate materials and texts according to the requirements of the projects.

SM688  Mathematical Programming

10 credit points • 3 hours per week • Hawthorn • Prerequisite: SM487 • Assessment: assignments and examination

A fourth year subject in the Bachelor of Applied Science (Mathematics and Computer Science)

Objectives
- Provide students with skills in solving some types of problems in operations research.
- Extend students ability to model problems.

Content
Linear and integer programming, duality, parametric programming, non linear programming, geometric programming.

Computer packages such as SAS/OR may be used.

Recommended reading
Journal of the Operational Research Society

SM708  Industry Based Learning

50 credit points • Hawthorn • Prerequisite: SM608.

A fourth year subject in the Bachelor of Applied Science (Mathematics and Computer Science) and (Management Science of Computing)

Content
A six-month period of industry based learning occurring as part of the fourth year of the course leading to the degree of Bachelor of Applied Science and following on directly from SM608. Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor.

SM732  Survey Research Methods

12.5 credit points • 4 hours per week • Hawthorn • Prerequisites: SM750, SM751 • Assessment: assignment and test

A first year subject in the Graduate Certificate and Graduate Diploma of Applied Science (Social Statistics)

Content
This subject aims to enable students to identify and understand some of the methodologies used in survey
research. It includes an overview of the procedures used in survey research, a descriptive approach to methods of sampling and data collection methods including questionnaire design and interview techniques (personal and telephone) mail surveys and census methods survey report writing and presentation. Other topics may include data processing including entering, coding, quality control and analysis of multiple response questions.

**Recommended reading**
To be advised.

**SM733 Demographic Techniques**
12.5 credit points • 4 hours per week • Hawthorn • Prerequisite: SM742 • Assessment: assignments

A second year subject in the Graduate Diploma of Applied Science (Health Statistics and Social Statistics)

**Objectives**
This subject aims to give an understanding of the basic methods of demographic analysis and to develop an awareness of the social implications of demographic data.

**Content**
It will include topics chosen from the following: sources of demographic data. Census data and use of CD ROM technology such as CDATA91. Population processes, births and deaths, size and distribution, mobility, spatial patterns and models for regional demographic analysis may be included. Indicators and benchmarks, projections and forecasts.

**Recommended reading**
To be advised.

**SM735 Survey Sampling**
12.5 credit points • 4 hours per week • Hawthorn • Assessment: assignments and test • Prerequisite: SM732, SM742

A second year subject in the Graduate Diploma of Applied Science (Social Statistics)

**Objectives**
- Introduce basic methods for sample survey design and analysis.
- Provide practical examples of designing simple sample surveys.

**Content**
The basic designs for sample surveys: simple random sampling, stratified sampling, systematic sampling and cluster sampling.

Estimators for the mean total and proportion for simple random samples and stratified samples; variance estimation.

The design effect; sample size determination; EPSEM samples

Ratio estimation;
Cluster sampling, multi-stage sampling, PPS sampling; variance estimation.

**Recommended reading**
Jollife, F.R. *Survey Design and Analysis*. Chichester, Ellis, Horwood, 1986
Kalton, G. *Introduction to Survey Sampling*. Beverley Hills, Sage, 1983

**SM742 Elementary Statistical Modelling**
12.5 credit points • 4 hours per week • Hawthorn • Prerequisite: SM730, SM731 • Assessment: practical and theoretical tests

A second year subject in the Graduate Diploma of Applied Science (Social Statistics)

**Objectives**
Provide a computer based introduction to elementary statistical modelling.

**Content**
Analysis of variance and regression. Introduction to multiple regression. Introduction to analysis of categorical data.

**Recommended reading**
To be advised.

**SM743 Multivariate Statistics 1**
12.5 credit points • 4 hours per week • Hawthorn • Prerequisite: SM742 • Assessment: assignments and examination

A second year subject in the Graduate Diploma of Applied Science (Social Sciences)

**Objectives**
This subject aims to identify and apply the multivariate techniques most commonly used in social research and to understand the assumptions underlying their use.

**Content**
The course will include a selection of topics chosen from multiple regression, statistical inference for multivariate data, principal component analysis, factor analysis, discriminant analysis and cluster analysis, multivariate analysis of variance.

**Recommended reading**
To be advised.

**SM744 Statistical Modelling**
12.5 credit points • 4 hours per week • Hawthorn • Assessment: assignments • Prerequisite: SM743

A subject in the Master of Applied Science (Social Statistics)

**Objectives**
- This subject aims to make an in-depth study of several statistical modelling techniques for both categorical and higher level data.

**Content**
Topics will be chosen from: regression models for categorical data: log-linear models for multiway contingency tables, logistic regression for analysing binary response data. Causal modelling, structural equation models, using...
appropriate packages such as LISREL and PRELIS.

SM745  Project Planning
12.5 credit points • 4 hours per week • Hawthorn • Assessment: oral and written reports • Prerequisite: Requirements of the Graduate Diploma in Social Statistics with at least two distinctions in the second year

A subject in the Master of Applied Science (Social Statistics)

Content
In this subject students examine the role of the review of literature in published papers or theses. With their own topic in mind they prepare and present a literature review which will help to provide a foundation for the argument of their later thesis.

Recommended reading
Depends on topic.

SM746  Multivariate Statistics 2
12.5 credit points • 4 hours per week • Hawthorn • Prerequisite: SM743 • Assessment: assignments

A subject in the Master of Applied Science (Social Statistics)

Objectives
This subject aims to make an in-depth study of a range of multivariate techniques used in social research which are involved with scales.

Content
A selection of topics will be made from reliability and validity analysis, principle component analysis, conjoint analysis, correspondence analysis and scaling techniques such as multi-dimensional scaling.

Recommended reading
To be advised.

SM748  Research Methodology
12.5 credit points • 4 hours per week • Hawthorn • Prerequisite: SM745 • Assessment: assignments

A subject in the Master of Applied Science (Social Statistics)

Objectives
This subject aims to continue the work in project planning in SM745 by selecting the appropriate research methodology necessary to proceed and, if necessary, develop additional skills needed to complete the research.

Content
Students will develop a research plan for their thesis.

Recommended reading
To be advised.

SM749  Minor Thesis
25.0 credit points • 8 hours per week • Hawthorn. Assessment: thesis • Prerequisite: SM748

A subject in the Master of Applied Science (Social Statistics)

Content
This subject follows on from Research Methodology SM748 and aims to carry out an original piece of research and report the findings.

Recommended reading
To be advised.

SM750  Basic Statistical Computing
12.5 credit points • 4 hours per week • Hawthorn • Assessment: computer based tests and assignments • Prerequisite: nil

A first year subject in the Graduate Certificate and Graduate Diploma of Applied Science (Social Statistics) and (Health Statistics)

Objectives
This subject aims to develop competence in the use of personal computers and associated statistical packages and to acquire a level of statistical computing literacy necessary for data analysis in the social and health sciences.

Content
The subject includes an introduction to microcomputers, with special emphasis on windows based applications, a mainstream statistical package such as SPSS and a mainstream spreadsheet such as Excel.

Recommended reading
To be advised.

Statistical packages
Excel Version 5
SPSS for Windows

SM751  An Introduction to Data Analysis
12.5 credit points • 4 hours per week • Hawthorn • Assessment: practical and theoretical tests • Prerequisite: nil

A first year subject in the Graduate Certificate and Graduate Diploma of Applied Science (Social Statistics) and (Health Statistics)

Objectives
Provide a computer based introduction to the concepts and practice of data analysis, statistical estimation and hypothesis testing.

Content
Exploring data, describing and summarising data, variability, levels of measurement, time series, drawing inferences from sample data, confidence intervals and testing hypotheses on means and proportions for two groups. Chi square and t-tests. Determination of sample size. Use of demographic and health data. Use of statistical packages such as Minitab and SPSS as appropriate.

Recommended reading
To be advised.
SM752 Advanced Statistical Computing
12.5 credit points • 4 hours per week • Hawthorn • Prerequisites: SM750, SM751 • Assessment: practical assignments and tests
A second year subject in the Graduate Diploma of Applied Science (Social Statistics)

Objectives
• Expand the work done in Basic Statistical Computing by including further aspects of the packages already met and by introducing the students to other relevant statistical packages.

Recommended Reading
To be advised.

SM753 Survey Methods
12.5 credit points • 4 hours per week • Hawthorn • Prerequisites: SM751 and SM750 • Assessment: assignments and a test
A first year subject in the Graduate Certificate and Graduate Diploma of Applied Science (Health Statistics).

Objectives
• To describe and understand some of the methodologies used in survey research carried out in the health sciences.

Content
The subject will include an introduction to:
• Different purposes of surveys in health;
• How surveys fit into different research designs;
• Practical questionnaire design in a health context.
• Analysis of survey data and reporting;
• Basic concepts of sample design.

Recommended reading
Daly, J., McDonald, I. and Willis, E., Researching Health Care, London, Routledge, 1992

SM754 Introduction to Health Statistics
12.5 credit points • 4 hours per week • Hawthorn • Prerequisites: SM751 and SM750 • Assessment: class presentations, practical and theoretical tests
A first year subject in the Graduate Certificate and Graduate Diploma of Applied Science (Health Statistics)

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
Topics will be chosen from:
• demographic disease measures including birth and death rates, fertility rates, infant mortality rates;
• rates and risks including prevalence versus incidence, point and period prevalence, cumulative incidence, person-time rates, age-standardised rates and standardised mortality rates;
• measures of association including risk differences, risk ratios, rate differences and rate ratios, odds ratios, attributable risks, population attributable risks;
• an introduction to epidemiological methods.

SM756 Elementary Statistical Modelling
12.5 credit points • 4 hours per week • Prerequisites: SM751 and SM750 • Assessment: assignment plus practical and theoretical tests
A second year subject in the Graduate Diploma of Applied Science (Health Statistics).

Objectives
• This subject aims to extend the work done in Introduction to Data Analysis by further developing the concepts of statistical estimation and testing.

Content
Topics will be chosen from:

Recommended reading
To be advised.

SM757 Epidemiological Methods
12.5 credit points • 4 hours per week • Hawthorn • Prerequisites: SM755 and SM756 • Assessment: assignments and a test
A second year subject in the Graduate Diploma of Applied Science (Health Statistics).

Objectives
• To develop critical skills in the evaluation of the health and medical literature involving epidemiology with an emphasis on statistical and methodological analysis.

Content
Topics 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**
To be advised.

**Computer packages**
To be advised.

**SM758 Analysis of Risks and Rates**

12.5 credit points • 4 hours per week • Hawthorn • Prerequisites: SM754 and SM756 • Assessment: assignments and a test

A second year subject in the Graduate Diploma of Applied Science (Health Statistics)

**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**
Topics will be chosen from:
- *Analysis of risks*: the binomial distribution, risk estimates, confidence intervals for proportions, risk differences, z-test and chi-square test, confidence interval for a difference, risk ratios, odds ratios, confidence interval for an odds ratio. Logistic regression. Determination of sample size.
- *Analysis of rates*: the Poisson distribution, rate estimates, confidence interval for a rate, rate ratios and confidence intervals for a rate ratio. Poisson regression. Determination of sample size.

**Recommended reading**
To be advised.

**SM1208 Mathematics**

10 credit points per sem. • 4 hours per week (2 sems) • Hawthorn • Prerequisites: nil • Assessment: tests, examination and assignments

A first year subject in the Bachelor of Applied Science (Chemistry and Biochemistry)

**Content**
Vectors in two- and three-dimensional space. Introduction to numerical methods; errors; solution of equations. Coordinate geometry in Cartesian coordinates. Standard functions and their graphs; finite and infinite limits. Differentiation and its applications; optimisation; approximations; Taylor polynomials. Integration and its applications; numerical integration. Linear algebra, first order differential equations and functions of several variables. Descriptive statistics, the MINITAB computer package, probability, distributions binomial, Poisson and normal. Hypothesis tests and confidence intervals, regression and correlation applications to chemistry.

**Recommended reading**

**SM1210 Mathematics**

10 credit points per semester • 4 hours per week (2 sems) • Hawthorn • Prerequisites: nil • Assessment: tests, examinations and assignments

A first year subject in the Bachelor of Applied Science (Computer Science and Software Engineering)

**Objectives**
To provide students with mathematical and statistical knowledge and skills essential for concurrent first year studies. To enable students with ability and interest further to develop their mathematical knowledge and skills. To reinforce and develop mathematical communication skills and problem solving skills. To provide students with additional mathematical and statistical understanding and background material which may be required. To demonstrate where mathematics and statistics can be applied to practical situations.

**Content**
Vectors in two- and three-dimensional space. Introduction to numerical methods; errors; solution of equations.
Coordinate geometry in Cartesian coordinates.
Standard functions and their graphs; finite and infinite limits.
Differentiation and its applications; optimisation;
approximations; Taylor polynomials.
Integration and its applications; numerical integration.
Matrices and determinants; systems of linear equations.
Exploratory data analysis; descriptive statistics.
Probability: basic theory; probability distributions, mean
and variance.
Statistical inference: sampling distributions, estimation and
testing of hypotheses.
The MINITAB computer package.

Recommended reading
Prescribed text: to be advised.

Prescribed Calculator
Texas Instruments Advanced Scientific TI-82 Graphics
Calculator or equivalent.

SM1215 Mathematical Methods
10 credit points per semester • 4 hours per week • Prerequisite: nil •
Hawthorn • Assessment: tests/examination and assignments
This is a first year subject of the Bachelor of Applied Science
(Medical Biophysics and Instrumentation)

Content
Vectors in the two-and three-dimensional space.
Introduction to numerical methods; errors; solution of
equations. Coordinate geometry in Cartesian coordinates.
Standard functions and their graphs; finite and infinite
limits.
Differentiation and its applications; optimisation;
approximations; Taylor polynomials. Integration and its
applications, numerical integration.
Polar coordinates, complex numbers. Ordinary differential
equations. Vector functions and functions of many
variables. Data analysis and probability.

Recommended reading
To be advised.

Prescribed calculator
Texas Instruments Advanced Scientific TI-82 Graphics Calculator

SM2100 Applied Statistics
8 credit points • 3 hours per week. Hawthorn • Assessment:
tests/examination and assignments
This is a first year subject of the Bachelor of Applied Science
(Environmental Health)

Content
Introduction to health statistics: morbidity and mortality,
vital statistics, standardisation, life tables.
Probability: concepts and basic formulas. Probability
distributions: discrete, including binomial and Poisson;
continuous, including normal. Sampling distributions of
mean, variance and proportion.
Estimation of means, variances and proportions from single
samples. Tests of hypotheses in means, variances and
proportions; comparisons of two groups and of several
groups (analysis of variance). Introduction to experimental
design. Chi-squared tests on goodness of fit.
Correlation and regression. Selected non-parametric
methods.
Introduction to epidemiology: types of study; measures of
risk and of association.

SM3400 Mathematical Methods
10 credit points per semester • 3 hours per week • Hawthorn •
Prerequisite: SM1200 or SM1215 • Assessment: tests,
examinations and assignments
A second year subject in the Bachelor of Applied Science
(Computing and Instrumentation)

Objectives
Broaden students mathematical techniques and apply to
physics.

Content
A selection of topics from the following:
Real analysis, Fourier series of general periodic functions.
Vector analysis
Basic vector manipulation including calculus of vector
functions. Space curves, Serret-Frenet formulas. Special
emphasis on gradient of a scalar field, directional derivative,
divergence and curl of a vector field.
Complex analysis
Algebra and geometry of complex numbers. Functions of a
complex variable. Harmonic functions. Contour integration,
Cauchy integral and residue theorems. Evaluation of definite
integrals. Conformal mapping and applications.
Modern algebra with applications
Groups, rings fields (including Galois fields). Vector spaces,
polynomials with binary coefficients. Linear block codes,
parity check matrices and standard arrays. Cyclic codes,
generator polynomials. Hamming codes.

Recommended reading
Semesters 1 and 2
Boas, M. L., Mathematical Methods in the Physical Sciences. 2nd edn,
New York, Wiley, 1983
Semester 2 only
Anton, H., Calculus with Analytic Geometry, 5th ed. New York,
Wiley, 1995
Wong, Chien Wa, Introduction to Mathematical Physics, Oxford University Press, 1991
SM3415 Mathematical Methods

10 credit points (sem 1 & 2) • 3 hours per week • Hawthorn •
Prerequisite: SM1200 or SM1215 • Assessment: tests, examinations and assignment
A second year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

Objective
Broader students mathematical techniques and apply to physics.

Content
A selection of topics from the following:
Real analysis, Fourier series of general periodic functions.
Vector analysis
Basic vector manipulation including calculus of vector functions. Space curves, Serret-Frenet formulas. Special emphasis on gradient of a scalar field, directional derivative, divergence and curl of a vector field.
Complex analysis
Modern algebra with applications

Recommended reading
Wong, Chien Wa, Introduction to Mathematical Physics, Oxford University Press, 1991

SP124 Engineering Physics

10 credit points • 5 hours per week • Hawthorn •
Prerequisite: VCE Mathematical Methods Units 3 and 4 • Assessment practical work, assignments and examination
A first year subject in all disciplines of the Bachelor of Engineering

Objectives
- To provide a basis for specialist engineering disciplines through rigorous development of essential Physics principles.
- To provide a coherent and balanced account of the fundamentals of physics.

Content
Linear mechanics: laws of motion; work and energy; conservation of energy and momentum.
Rotational mechanics.
Electricity and magnetism: electric fields; direct current; magnetic fields; electromagnetism.
Geometric optics.

Recommended reading
Serway, R.A., Physics for Scientists and Engineers with Modern Physics, 4th edn, Saunders, 1996

SP125 Engineering Physics

10 credit points • 5 hours per week • Hawthorn •
Prerequisite: VCE Mathematical Methods Units 3 and 4, SP124 or equivalent • Assessment practical work, assignments and examination
A first year subject in all disciplines of the Bachelor of Engineering

Objectives
- To provide a basis for specialist engineering disciplines through rigorous development of essential Physics principles.
- To develop a coherent and balanced account of the fundamentals of physics.

Content
Vibrations, Waves and Sound: vibrations; waves; superposition and standing waves.
Physical optics: interference; diffraction;
Thermal physics: kinetic theory of gases;
Modern physics: relativity; quantum physics; nuclear physics.

Recommended reading
Serway, R.A., Physics for Scientists and Engineers with Modern Physics, 4th edn, Saunders, 1996
**SP132 Introductory Psychophysiology**

Subject to reaccreditation

12.5 credit points 4 hours per week  Hawthorn  Prerequisites: nil  Assessment: examination, assignments and tutorials

A first year subject in the Bachelor of Applied Science/ Bachelor of Arts co-major (Psychology and Psychophysiology)

**Objectives**

- Provide a basis for measurement systems used in physiological recordings.
- Provide an introduction to elementary biological and physiological systems.

**Content**

Physical concepts and monitoring techniques, including subjects, principles, conversions, accuracy, quantitative measures.

Cell membranes and tissues, receptors, cell communication.

Introduction to organ systems, methods of monitoring, physiological importance, aspects of control.

Nutrition, digestion, and absorption, genetics, and immunology.

**Recommended reading**


**SP135 Monitoring Instrumentation**

10 credit points 3 hours per week  Hawthorn  Prerequisites: nil  Assessment: examination and assignments

A first year subject in the Bachelor of Applied Science/ Bachelor of Arts co-major (Psychology and Psychophysiology)

**Objectives**

- To provide a basis for specialist scientific disciplines through rigorous development of essential physics principles.
- To provide a coherent and balanced account of the fundamentals of physics.

**Content**

Forces and energy kinematics, linear and circular dynamics, gravitation, kinetic theory, heat.

Modern physics atomic structure, radioactivity, quantum theory, special relativity.

Electricity and magnetism magnetic and electric fields, Coulomb’s Law, electromagnetic induction - Lenz and Faraday’s laws, DC circuits.

**Recommended reading**


**SP133 Monitoring Technology**

Subject to accreditation.

50 credit points 3 hours per week  Hawthorn  Prerequisites: nil  Assessment: examination and practicals

A third year industrial based learning subject of the degree of Bachelor of Applied Science (Medical Biophysics and Instrumentation)

A six-month period of work experience occurring as part of the third year of the course leading to the degree of Bachelor of Applied Science (Medical Biophysics and Instrumentation).

Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor.

**SP231 Psychophysiological Concepts**

Subject to reaccreditation.

19 credit points 8 hours per week  Hawthorn  Prerequisites: SP132  Assessment: examination, assignments, and laboratory reports

A first year subject in the Bachelor of Applied Science/ Bachelor of Arts co-major (Psychology and Psychophysiology)

**Objectives**

- To extend the monitoring concepts to include measurement from real physiological systems.
- To provide the necessary physiology underlying measurements.

**Content**

Basic monitoring instrumentation and technology, including, recorders, plotters, displays, amplifiers, and filters.

Physiology of nerve and muscle systems, heart, cardiovascular, and respiratory systems.

Biofeedback systems and their uses in psychophysiology.

**Recommended reading**


SP235  **Instrumental Science**

10 credit points • 4 hours per week • Hawthorn • Prerequisites: nil • Assessment: examination and practical work

A first year subject in the Bachelor of Applied Science (Applied Chemistry/Biochemistry)

**Objectives**

To provide a basis in science and technology required by the specialist discipline.

**Content**

Principles of scientific instrumentation.

Electrical technology: DC/AC circuits.

Tranducers: mechanical and electrical devices with applications.

Radiation sources: materials and detection.

Acoustics.

SP236  **Physics**

10 credit points • 4 hours per week • Hawthorn • Prerequisites: nil • Assessment: examination and assignments

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

**Objectives**

To provide a basis in science and technology required by the specialist discipline.

**Content**

Principles of scientific instrumentation.

Electrical technology: DC/AC circuits.

Tranducers: mechanical and electrical devices with applications.

Radiation sources: materials and detection.

Acoustics.

SP333  **Industry Based Learning**

50 credit points • Hawthorn • Prerequisites: SP222 Industry Based Learning

A third year industrial based learning subject of the degree of Bachelor of Applied Science (Medical Biophysics and Instrumentation)

A six-month period of work experience occurring as part of the third year of the course leading to the degree of Bachelor of Applied Science (Medical Biophysics and Instrumentation). Students are supervised by a member of the academic staff, and are required to submit a report to their employer and to their supervisor.

SP431  **Psychophysiology of Perception**

Subject to reaccreditation.

17 credit points • 8 hours per week • Hawthorn • Prerequisites: SP233, SP331 • Assessment: examination and laboratory reports

A second year subject in the Bachelor of Applied Science/Bachelor of Arts co-major (Psychology and Psychophysiology)

**Objectives**

- To provide a knowledge of the physiology of peripheral and central mechanisms of perception.
- To provide a knowledge of the motor system.
- To provide a working knowledge of psychophysics and measurement.

**Content**

Anatomy, physiology and pathophysiology of the visual, auditory, vestibular and tactile sensory systems. Central and peripheral aspects of sensation and perception.

Anatomy, physiology and pathophysiology of motor systems. Central and peripheral aspects of control of movement, and integration of motor and sensory systems.

Psychophysics, measurement theories, measurement of reaction time and sensitivity of measurement.

**Recommended reading**


SP501  **Signals & Systems**

8 credit points • 4 hours per week • Hawthorn • Assessment: examination

A final year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation or Computing and Instrumentation)

**Objectives**

To introduce the principles and applications of signal...
processing and system analysis, with emphasis on discrete systems and digital signal processing.

**Content**

Signals: Types of continuous signals Fourier series and Fourier transforms. Fourier transforms of impulse and periodic signals: Band-limited signals; Idealized sampling of band-limited signals and the sampling theorem; Practical aspects of sampling and reconstruction.

Discrete time signals: Basic signals and operations on signals; Discrete Time Fourier Transform.

Systems: Continuous systems, Linearity and Time-invariance; Response of LTI systems in time and frequency domains; Stability and Causality; The Laplace transform and transfer functions; Rational systems; Discrete LTI systems, discrete convolution; FIR and IIR systems; Difference equations and discrete LTI Systems; Solution of difference equations; Structures for realizing Discrete LTI systems.

The z Transform: The z transform and its properties; Relation to DTFT; Application to Discrete Time System Analysis; Rational z transforms and response of pole-zero systems.

Spectral Analysis: Spectral Analysis of Continuous Signals and Systems. Power and energy spectral densities; Measurement of spectra; Frequency response of LTI systems; Spectra of Discrete signals; Calculation of Spectra; Frequency response of discrete LTI systems and relation to z transform; Periodic sequences and the DFT; FFT calculation of the DFT; Applications of the DFT.

Design of Digital Filters: Ideal filters; Causality and stability constraints; Rational transfer functions and approximations to ideal filters. Filter design parameters and common filter types. Design of FIR filters; Non-recursive FIR realisations. Linear phase filters. Use of DFT. Recursive FIR realisations. Design of recursive IIR filters.

**Recommended Reading**


**SP523 Industry Based Learning**

50 credit points • Hawthorn • Prerequisites: nil

A third year industrial based learning subject of the degree of Bachelor of Applied Science (Computing and Instrumentation)

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 (Computing and Instrumentation). 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 followed end-on by SP623.

**SP524 Biophysics (Neurosciences A)**

8 credit points • 4 hours per week • Hawthorn • Prerequisites: SP324 and either SP424 or SP425 • Assessment: examination, assignments and practical work

A final year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

**Content**

Neuro anatomy spinal cord organisation, histological features, brain-stem, pathways, structures, hemispheres, subcortical structures, gross and histological dissection.

Receptor functions information theory, channel capacity, information transmission, frequency coding, thresholds, receptive fields, generator potential.

Biophysics of peripheral sensory systems peripheral receptors, histology, function, CNS connections, spinal cord mechanisms, spinal afferent pathways — lemniscal and anterolateral, thalamic organisation and projections, S1 and S11 somatosensory cortex, dysfunction, testing — SEP.

Pain, spinal and brainstem pathways, endogenous opiates, gating theory, analgesia — TENS, electrical stimulation, pharmacological interactions.

Psychophysics scaling, assessment techniques, absolute and difference thresholds, Weber function, just noticeable difference. Fechner compression, signal detection, ROC curves.

Motor control peripheral mechanisms, gamma loop, coactivation, stiffness regulation, servo mechanisms, motor cortex, motor potential, control circuits to basal ganglia and cerebellum, spinal pathways, pathology, skilled movement, learning, open and closed loop operation.

**SP510 Scientific Instrumentation A**

10 credit points • 4 hours per week • Hawthorn • Prerequisites: SP3410, SP3430 • Assessment: examination, assignments and laboratory reports

A final year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

**Content**

SP525  Applied Biophysics A

8 credit points • 4 hours per week • Hawthorn • Prerequisites: SM3415, SE240 • Assessment: examination and laboratory reports

A final year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

Objective
This subject examines a number of modelling techniques and tools which can be applied to physiological systems.

Content
Physiological control systems control theory, signal flow diagrams, fundamental block representations, open-loop gain.


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 of analysis, models of membrane systems, channel statistics.

Modelling of endocrine systems.

Volume conductor theory; application to EEG.

Neurovolume conductors, models of brain electrical and magnetic activity.

Recommended reading
Ingram, D. & Bloch, R.F., Mathematical Methods in Medicine, Wiley, 1984


SP527  Neurophysiology of the Normal Brain

7.5 credit points • 4 hours per week • Hawthorn • Prerequisite: SP431 • Assessment: examination and assignments

A final year subject in the Bachelor of Applied Science/ Bachelor of Arts co-major (Psychology and Psychophysiology)

Objectives
Provide knowledge of the physiological and behavioural processes underlying normal sleep, dreaming, attention and disorders of these states.

Content
Attention: mechanisms, neurophysiology, models.

Assessment and disorders of attention. Interaction with other cognitive behaviour.

Sleep: consciousness, coma, stages of sleep, desynchronisation of EEG activity, functional models of sleep, sleep monitoring, sleep disorders.

Recommended Reading

SP528  Higher Cortical Functions

10 credit points • 5 hours per week • Prerequisite: SP431 • Assessment: examination, assignments and seminar presentation

A final year subject in the Bachelor of Applied Science/ Bachelor of Arts co-major (Psychology and Psychophysiology)

Objective
- Provide a knowledge of the neurophysiological and behavioural processes of attention memory, speech and language, and purposive behaviour, and disorders of these states.

Content
Introduction to Behavioural Neuroscience:-

Basic Techniques in Neuroscience; Problems in Relating Brain and Behaviour; Anatomical and Histological; Brain Lesion and Stimulation; Biochemical; Radiographic brain imaging; Electrophysiological; Optical Imaging; Behavioural Analysis.

Mechanisms of Motivation:-

Basic Perspectives; Peripheral versus Central Factors in Motivated Behaviour; Mechanisms of Eating Behaviour; Mechanisms of Drinking Behaviour; Intracranial Self-Stimulation Studies - and their implications; Non-homeostatic Drives.

Speech and Language:-

Neurophysiological Basis; Origins of Speech and Language; Neurological Models of Language; Psychophysiological and Behavioural Measures; Brain Laterality in Language; Gender differences; Recognition of Faces; Prefrontal Contributions;

Memory and Language:-

Memory and Memory Pathophysiology:

Historical Perspective; Quantifying Memory; The Taxonomy of Memory;

The consolidation Hypothesis of Memory; Interference with Memory; Determinants of Memory Performance; Hebb & Neurobiological Model of Memory: The Anatomy and Neurochemistry of Memory; Neuropsychological Tests of memory; Neuropsychological Anatomy of Memory; Other Topics in Memory Pathophysiology;

Connectionist Models of Memory Processes.

Recommended Reading

SP530  Scientific Instrumentation B

10 credit points • 4 hours per week • Hawthorn • Prerequisite: SP3430 • Assessment: examination, assignments and laboratory reports

A final year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

Content
Lectures and practical work in:

- Nuclear Instrumentation, semiconductor detectors,
computer based spectrometry, activation analysis and coincidence counting.

- Optical Instrumentation. Principles and applications of optical instruments. Optical instrumentation and imagery.

**SP531 Biophysical Systems and Techniques (Biosensors)**

12.5 credit points • 4 hours per week • Hawthorn • Prerequisites: nil • Assessment: continuous, by tests and assignments

A subject in the Graduate Diploma/Master of Applied Science (Biomedical Instrumentation) and the Master of Engineering by coursework (Biomedical Engineering)

**Objective**
To study a wide range of physical methods which have been used to characterise structure and function of biological systems at the cellular or molecular level.

**Content**


**Recommended reading**

**SP532 Clinical Monitoring Techniques**

12.5 credit points • 4 hours per week • Hawthorn • Prerequisites: nil • Assessment: continuous, by tests and assignments

An advanced subject in the Graduate Diploma/Master of Applied Science (Biomedical Instrumentation) and the Master of Engineering by coursework (Biomedical Engineering)

**Objectives**
- Examine specific techniques for clinical monitoring
- Primary emphasis on monitoring equipment, transducers and applications
- Secondary emphasis on physiology and electronics

**Content**
Physical and physiological principles in the use and development of clinical monitoring systems including biological sensors and the processing, display and storage of data. Main emphasis is placed on cardiovascular and respiratory monitoring, but novel techniques in other areas of biomedical monitoring will be covered.

**SP534 Neurophysiological Techniques**

12.5 credit points • 4 hours per week • Hawthorn • Prerequisites: SP533 or equivalent • Assessment: assignments and tests

An advanced subject in the Graduate Diploma/Master of Applied Science (Biomedical Instrumentation) and the Master of Engineering by coursework (Biomedical Engineering)

**Objective**
To provide an overview of techniques for recording and analysis of electric and magnetic neurophysiological signals.

**Content**

**Recommended reading**

**SP535 Biomedical Project**

12.5 credit points • 4 hours per week • Hawthorn • Prerequisites: nil • Assessment: report

An advanced subject in the Graduate Diploma/Master of Applied Science (Biomedical Instrumentation)

**Objective**
To develop the student's ability to design, implement and evaluate a particular assigned implementation task to meet the specifications. Students should develop personal, time and resource management skills.

**Content**
The development, construction and commissioning of a biomedical instrumentation system.

**SP537 Medical Imaging**

12.5 credit points • 4 hours per week • Hawthorn • Prerequisites: nil • Assessment: assignments and tests

An advanced subject in the Graduate Diploma of Applied Science (Biomedical Instrumentation) and in the Master of Engineering by coursework (Biomedical Engineering)

**Objectives**
To gain a solid theoretical understanding of the physics and mathematics behind the major imaging modalities currently used in clinical and biomedical research settings.

**Content**
Interrogation methods beamed radiation (visible, IR, Microwave, X-ray, Ultrasound), internally deposited radiation (gamma rays, SPECT, PET), selective excitation (NMR). Physical qualities of tissue measured by the interrogation.
Image construction methods real-time ultrasound, interactive and filtered back-projection methods in tomography, algorithms and software implementation. Image enhancement methods colour coding, edge detection, noise reduction, digital subtraction, entropy methods. Interpretation of images image quality and contrast, system MTFs, ROC curves, information theory.

**Recommended reading**

Webbs (ed.), *The Physics of Medical Imaging*, Bristol, 10P, 1992

**SP538 Clinical Engineering Management**

12.5 credit points • 4 hours per week • Hawthorn

Prerequisites: Must satisfy course entry requirements

Assessment: Examination and laboratory reports

A subject in the Masters of Engineering by coursework (Biomedical Engineering)

**Objectives**

To gain familiarity with current practices regarding management of clinical engineering services within the hospital system

**Content**


**Recommended reading**


**SP541 Signal Processing**

12.5 credit points • 4 hours per week • Hawthorn

Prerequisites: University level mathematics subjects

Assessment: assignments

An advanced subject in the Graduate Diploma of Applied Science (Biomedical Instrumentation) and the Master of Engineering by coursework (Telecommunications, Computer Systems Engineering and Biomedical Instrumentation)

**Objective**

To provide a grounding in the fundamentals of signal and image processing, and to examine a number of representative applications, together with a brief discussion of tomographic techniques.

**Content**

Signal Processing:


Image Processing:


**Recommended reading**


**SP545 Instrument Programming and Interfacing**

12.5 credit points • 4 hours per week • Hawthorn

Prerequisites: nil • Assessment: practical work, reports, assignments, examination

A subject in the Graduate Diploma/Masters of Applied Science (Biomedical Instrumentation)

**Objective**

The study interfacing of time critical signals to a computer.

To study the IEEE 488 Instrumentation Bus and the I2c Bus.

To show how instruments can be treated as computer peripherals.

**Content**


**Recommended reading**


**SP547 Instrument Electronics**

12.5 credit points • 4 hours per week • Hawthorn

Prerequisites: SP533 or equivalent • Corequisites: • Assessment: examination, assignment and laboratory reports

An advanced subject in the Graduate Diploma/Masters of Applied Science (Biomedical Instrumentation)

**Objective**

To develop expertise in the use of electronic circuits.

**Content**

- Instrumentation transducers;
- negative feedback techniques and applications;
- non-ideal and high performance operational amplifiers;
- reduction of noise and interference. isolation, grounding, shielding and filtering;
- phase locked loops;
- analogue to digital and digital to analogue conversion.

**Recommended reading**

SP553  Introduction to Instrumentation Electronics

12.5 credit points • 4 hours per week • Hawthorn •
Assessment: practical work, continuing assessment
A subject in the Master of Applied Science/Graduate Diploma of Applied Science (Biomedical Instrumentation)

Objectives
To be familiar with the basic digital building blocks (such as gates, flip-flops, counters etc.)
To analyse and synthesise digital circuits of moderate complexity.
To synthesise control digital building blocks (such as amplifiers, filters, non-linear circuits, etc.)
To analyse and synthesise control analog circuits using operational amplifiers.
To have a basic understanding of discrete electronic components (such as diodes and transistors).

Content
Digital Electronics: Combinational logic: Review of Boolean algebra analysis and synthesis, Kmaps; SSI and MSI Building Blocks: Adders, Subtractors, ALU s, Multiplexers,
Demultiplexers, Encoders, Decoders; Sequential Logic: Latches and Flip-flops; MSI building blocks (counters, registers, shift registers); State Machines; Logic Devices and Family Characteristics: Fan out, loading, propagation delays, power dissipation; Logic levels and compatibility; Three-state and open collector outputs; Programmable Devices: ROMs, PLAs, PALs.
Non Linear Op-Amp Applications: Clipping and Clamping Circuits, Precision Diode, Peak Detector; Comparators.

Recommended Reading
SE210 Electronics Laboratory Notes, Swinburne

SP555  Introduction to Biophysical Systems

12.5 credit points • 4 hours per week • Hawthorn •
Prerequisites: Must satisfy course entry requirements •
Assessment: Examination and Laboratory work
A subject in the Graduate Diploma of Applied Science (Biomedical Instrumentation) and the Master of Engineering by coursework (Biomedical Engineering)

Objectives
To introduce students with an existing background in the physical sciences to physical aspects of biological systems.

Content
Cell physiology Structure and function of the cell and sub-cellular organelles. Physical state of cell water. The membrane concept.
Membranes and Excitability Electrochemical potential, Nernst and Donnan equilibrium. Hodgkin-Huxley equations; impulse propagation; electronic spread.
Nerves and Muscles Synaptic transmission; energy transduction by receptors; the contraction mechanism; excitation-contraction coupling.
Bioenergetic Nature of energy flow in living systems.
Energetics of biochemical processes: e.g. oxidative phosphorylation, Krebs cycle, glycolysis, cytochrome chain, photosynthesis, protein synthesis. Quantitative measurement.
Control Systems Control engineering concepts. The nature and features of biological control mechanisms

Recommended reading
Guyton A.C., Textbook of Medical Physiology, Philadelphia, W.B. Saunders, 1991
Plonsey R. and Barr R.C., Bioelectric Phenomena, New York, Plenum, 1988

SP601  Stand Alone Instrumentation

4 credit points • 2 hours per week • Hawthorn • Prerequisites:
Assessment: reports and examinations
A final year subject in the Bachelor of Applied Science (Computing and Instrumentation)

Objectives
To introduce students to embedded system programming.

Content
The Forth language and the design of time critical turn key instrument systems. Implementing a program in Forth incremental compilation, stack maintenance, multiple vocabularies, interrupts, multi-tasking, special features of the language. Optimised target compilation.

Recommended reading
Hendtlass, T., Real Time Forth, Mountain View Press, 1994
SP602  Special Project
4 credit points • 2 hours per week • Hawthorn • Corequisites: nil • Assessment: reports
A final year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

Content
This project gives students training in carrying out a technical investigation.

Students work individually, or in small groups, under staff supervision, on a major investigation project chosen from some area of biomedical instrumentation.

Projects are chosen by students, after consultation with staff, from a list developed by staff. Projects are usually associated with departmental research interests, or are proposed by cooperative employers, but can be suggested by students. They are chosen to develop students' technical knowledge, self-educative skills and initiative, and may be limited by available departmental resources.

Each project requires a literature survey, and a theoretical investigation. Results, conclusions and recommendations are presented in a written report, and an oral report may also be required.

Special lectures are given on the subjects of entrepreneurial skills and technology transfer.

SP610  Instrumentation Systems A
8 credit points • 4 hours per week • Hawthorn • Prerequisite: SP510 • Assessment: project report and presentation
A final year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation) and (Computing and Instrumentation)

Objectives
- To develop team cooperation, organisational skills and project development strategies for use in an open-ended team project.
- To develop communication skills (both verbal and written)

Content
This subject builds on the project work and communications skills developed during the industry based learning program.

Students work (in teams) on a project with definite goals, using limited resources. Projects can either be hardware, software or a combination of both.

SP623  Industry Based Learning
50 credit points • Hawthorn • Prerequisites: SP523 Industry Based Learning
A third year industrial based learning subject of the degree of Bachelor of Applied Science (Computing and Instrumentation).

Content
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 (Computing and Instrumentation). 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 end-on from SP523.

SP624  Biophysics (Neurosciences B)
8 credit points • 4 hours per week • Hawthorn • Prerequisite: SP524 • Corequisite: nil • Assessment: examination, assignments and laboratory reports
A final year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

Objectives
- To provide knowledge of basic and advanced EEG recording techniques.
- To provide knowledge of sensory physiology of the visual and auditory systems.

Content
The auditory system and the vestibular apparatus acoustics of the outer ear, sound transmission within the ear, peripheral organisation of receptors and CNS pathways, peripheral mechanisms and neural organisation of vestibular mechanisms, pathophysiology of auditory vestibular function, auditory and vestibular testing techniques, evoked potentials, cortex, brain stem, ENG, auditory prostheses.

Vision anatomy of the eye, optics of visual system, receptor function central pathways, central processing, electrical recording of ERG, EOG, visual evoked response, intraocular pressure, recording, examination, pathology, assessment, adaptation, acuity, perimetry, spatial frequency.

EEG origin, recording, interpretation, analysis.

Neurophysiological signal processing basic concepts and methodology.

Recommended reading
Gevins, A.S. and Remond, A. (eds), Methods of Analysis of Brain Electrical and Magnetic Signals, Amsterdam, Elsevier, 1987
Others as advised by lecturers

SP625  Applied Biophysics B
8 credit points • 4 hours per week • Hawthorn • Prerequisite: SP501 • Assessment: examination, assignment and laboratory reports
A final year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

Objective
To investigate and examine the biophysical principles underlying medical imaging, the physical therapies, biomaterials and the health effects of the physical environment.

Content
Medical imaging: ultrasound, nuclear methods, X-ray, CT scan, NMR (MRI), PET. Biological effects of radiation.
Physical principles, image reconstruction, image quality. Physical therapy TENS, ultrasound therapy, PEMFs, laser therapy, UV, IR, microwave therapies.

**Bio**materials biocompatibility, implants in orthopaedics and dentistry, limb prostheses, cell-substrate interactions. Functional electrical stimulation.

Environmental biophysics: overuse injury, effects of noise, electromagnetic radiation, etc. Effects of heat and cold.

**Recommended reading**

**SP626  Applied Neurosciences**
5 credit points • 2 hours per week • Hawthorn • Prerequisite: SP524 • Assessment: assignments and examination
A final year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation)

**Objective**
To provide an overview of higher cortical function with associated physiological and behavioural measures.

**Content**
Cognitive processes.
Speech laterality, learning, mechanics, interpretation, injury, memory.
Behavioural aspects of sleep and consciousness.
Affective status, emotion.
Disorders of higher cortical functions depression, anxiety, schizophrenia.

**Recommended reading**

**SP630  Instrumentation Systems B**
10 credit points • 4 hours per week • Hawthorn • Prerequisite: SP530 • Assessment: examination and CML tests
A final year subject in the Bachelor of Applied Science (Medical Biophysics and Instrumentation and Computing and Instrumentation)

**Content**
Lectures on selected subjects of importance for instrumentation including: control theory, radiation and matter, neural networks, transducers and sensors, mossbauder spectroscopy and fibre optic sensing.

**SP631  Neurophysiology of Mental Disorders**
Subject to reaccreditation.
20 credit points • 6 hours per week • Hawthorn • Prerequisite: SP527 • Assessment: examination and assignment
A final year subject in the Bachelor of Applied Science/Bachelor of Arts co-major (Psychology and Psychophysiology)

**Objective**
Provides a knowledge of the processes underlying mental disorders, brain injury, and degenerative diseases.

**Content**
Disorders of affect: theories of depression. monoamines and depression, mechanism of action of antidepressants, anxiety and benzodiapzine—GABA interactions.

Schizophrenia: causation, abnormal metabolism—monoamine systems, symptomatology, diagnosis, hemispherical lateralisation, frontal lobe dysfunction, investigative techniques.

Brain injury: causes, specific deficits, diagnosis. Ageing effects on brain function: normal degeneration, cerebrovascular disease, decreased sensory stimulation, metabolic indicators.

Pathological degeneration—Parkinson’s disease, neurological disorder Alzheimer type dementia.

**Recommended reading**

**SP632  Psychophysiology Project**
12.5 credit points • 5 hours per week • Hawthorn • Prerequisite: SP528 • Assessment: report and seminar
A final year subject in the Bachelor of Applied Science/Bachelor of Arts co-major (Psychology and Psychophysiology)

**Objectives**
- To provide skills for research project within the area of psychophysiology.
- Completion of a research report based upon work completed by the student during the semester.

**Content**
This subject gives students the opportunity to apply techniques and skills introduced in the psychophysiology and psychology courses in an investigation of a topic of interest. Students may select the topic at an early stage of the third year of the course, which can be adequately supervised, investigated and reported on within the time constraint. The project work may involve physiological or psychological data collection, literature research, or a combination of these. Projects will usually be individual but may sometimes involve shared aspects. Students will make a short verbal presentation on their project topic and submit a final written report.

**SP704  Psychophysiology**
12.5 credit points • 4 hours per week • Prerequisites: Students must have achieved a high standard in the Bachelor of Applied Science (Psychology and Psychophysiology) Program • Assessment: assignment and examination
A subject in the Bachelor of Applied Science (Honours)

**Objectives**
To critically investigate the case for mental states being comprehensible in terms of neurobiological states.

**Content**
Introduction to the philosophy of science with particular emphasis on epistemology and the development of theory;
Philosophy’s of mind: Topics include substance and property dualism, reductivism, revisionist materialism, consciousness free will and the indubitist fallacy. Metatheory.

Introduction and revision of relevant functional neuroanatomy and neurophysiology;

Localisation, specialisation and lateralisation as pre-theoretical empirical clues to brain function and brain theory;

Functional Neuro imaging;

PET/SPECT;

MRI (spatially localised spectroscopy);

Cognitive Electrophysiology; The cellular generators of scalp recordable brain electrical activity. Taxonomy of electrically recordable brain events; Outline of theories of cortical eletrothymogenesis. Clinical applications and basic research;

Smooth pursuit and saccadic eye movement measurements and the relationship to cortical dysfunction; Assessment of eye movements using EOG and infrared oculography.

Recommended Reading

Chalmers A.F. *What is this thing called science: as assessment of the nature and status of science and its methods*. University of Queensland Press, St. Lucia 1982


SP718 Cognitive Neuroscience Methodologies

12.5 credit points • 4 hours per week • Hawthorn

Prerequisites: SP527 or SP624 or equivalent • Assessment: assignments • Instruction: lectures, laboratory exercises and tutorials

A subject in the Bachelor of Applied Science Honours (Medical Biophysics and Instrumentation or Psychophysiology)

Objective

To provide an overview of techniques for recording and analysis of electric and magnetic neurophysiological signals.

Content


Recommended reading


SP722 Minor Project

12.5 credit points • 4 hours per week • Hawthorn

Prerequisites: • Assessment: report, seminar

A subject in the Bachelor of Applied Science Honours (Medical Biophysics, Scientific Instrumentation, Medical Biophysics and Instrumentation and Psychophysiology)

Content

An individual research project. Projects require a literature survey. Results, conclusions and recommendations are presented in a written report, and a seminar presentation.

SP731 Technology Transfer

12.5 credit points • 4 hours per week • Hawthorn

Prerequisites: nil • Assessment: assignments

An advanced subject in the Graduate Diploma in Applied Science (Biomedical Instrumentation)

Content

Aspects of developing innovative biomedical instrumentation systems from prototype to production market analysis, financial sponsorship, case studies. In seminars, ideas for potential medical devices are discussed in relation to production details and marketing strategies. Students are required to produce a report of the feasibility of a particular device, with production costs and sales projections.

SP732 Research Project

12.5 credit points • 4 hours per week • Hawthorn

Prerequisites: nil • Assessment: progress report

An advanced subject in the Graduate Diploma/Masters of Applied Science (Biomedical Instrumentation)

Objectives

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, and to design, implement and evaluate that solution to meet the task requirement. Students should develop personal, time and resource management skills.

**Content**

This subject gives the student the opportunity to apply subject matter studies in other course subjects to instrumentation-related problems in a specific field of interest. Where possible the projects are industry-sponsored and have relevance to the student's area of employment.

Cooperation between professionals in industry and/or health care and supervising staff at Swinburne help develop the student's competence. Each project requires a literature survey and theoretical and/or experimental investigation. Results are presented in a written dissertation as a preliminary to SP733.

**SP733 Research Project**

*25 credit points ● 8 hours per week ● Hawthorn ● Prerequisite: SP732 ● Assessment: dissertation*

An advanced subject in the Graduate Diploma/Masters of Applied Science (Biomedical Instrumentation)

**Objectives**

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, and to design, implement and evaluate that solution to meet the task requirement. Students should develop personal, time and resource management skills.

**Content**

This subject follows on from SP732. It gives the student further opportunity to apply subject matter to instrumentation-related problems in Biomedical Instrumentation. Where possible the projects are industry-sponsored and have relevance to the student's area of employment.

Cooperation between professionals in industry and/or health care and supervising staff at Swinburne help develop the student's competence. Each project requires a literature survey and theoretical and/or experimental investigation. Results and conclusions presented in a written dissertation and verbal presentation.

**SP751 Neural Network Applications**

*12.5 credit points ● 4 hours per week ● Hawthorn ● Prerequisites: ● Assessment: assignments*

A subject in the Bachelor of Applied Science Honours (Medical Biophysics, Scientific Instrumentation, Medical Biophysics and Instrumentation and Psychophysiology)

**Objective**

To introduce students to the theory and applications of artificial neural networks.

**Content**

Theoretical and practical experience of a range of network architectures back propagation, Boltzmann, counter-propagation, Hamming, Hopfield, linear vector quantisation, probabilistic, neural networks, self-organising maps.

Neural networks in instrumentation.

Continuously adaptive networks.

**SP802 Minor Project**

*25 credit points ● 8 hours per week ● Hawthorn ● Prerequisite: nil ● Assessment: report/semiary*

A subject in the Bachelor of Applied Science (Honours) in Medical Biophysics & Instrumentation and Psychophysiology.

**Content**

An individual research project. Projects require a literature survey. Results, conclusions and recommendations are presented in a written report and seminar presentation.

**SP812 Minor Project**

*25 credit points ● 8 hours per week ● Hawthorn ● Prerequisite: nil ● Assessment: report or thesis*

A subject in the Bachelor of Applied Science (Honours) in the Medical Biophysics & Instrumentation and Psychophysiology.

**Content**

An individual research project assessed by report or thesis. Projects are usually associated with school research interest, but can be suggested by students.

Projects require a literature survey. Results, conclusions and recommendations are presented in a written report and a verbal report may also be required.

**SP822 Major Project**

*37.5 credit points ● 16 hours per week ● Hawthorn ● Assessment: report or thesis*

An advanced subject in the Graduate Diploma/Masters of Medical Biophysics, Scientific Instrumentation, Medical Biophysics and Instrumentation and Psychophysiology) and the Bachelor of Applied Science (Honours) (Psychophysiology).

**Content**

A major individual research project assessed by report or thesis. Projects are usually associated with school research interests, but can be suggested by students.

Projects require a literature survey. Results, conclusions and recommendations are presented in a written report, and a verbal report may also be required.

**SP4190 Occupational Hygiene and Safety**

*9 credit points ● 4 hours per week ● Hawthorn ● Assessment: examination and assignments*

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

**Objectives**

This subject's aims to engender:
an awareness of the types and nature of environmental hazards prevailing in particular work situations;
- an understanding of the specific effects these effects have on the human body;
- an acquaintance with the legal requirements on employers to ensure safe working conditions;
- an acquaintance with relevant government authority regulations;
- an understanding of the principles of safe working practice and the rationale of safety codes.

Content
Environmental hazards accident prevention. Work-related injuries;
Noise and vibration;
Heat and ventilation. Measurement of dusts and fumes;
Radiation ionising and non-ionising;
Electrical power and electrical appliances;
Toxic substances: mechanisms of action and pathogenic effects;
Routes of ingestion of toxic substances;
Evaluation and control measures;
Safety technology:
Machine safety. Hazard identification;
Fire and explosion;
Chemical safety. Handling, hazard identification.

Recommended reading

**SP5609 Physics 5-6**
13 credit points • 2 hours per week • Hawthorn •
Prerequisites: **SP3409** • Corequisites: • Assessment:
examinations, practical report and assignment
A final year subject in the Bachelor of Applied science (Medical Biophysics and Instrumentation)

Objective
To introduce a number of special topics, both theoretical and experimental, of relevance to the student’s major studies.

Content
Solid State Devices: Extrinsic semiconductors, PN junctions, tunnel diodes. Semiconductor detectors for protons, alpha particles and gamma rays.
Superconductivity: Basic phenomena, London equations, non-local electrodynamics. BCS theory. Flux quantisation, Josephson effects, and SQUIDS.
Nuclear Magnetic Resonance: Nuclear spin and nuclear magnetic resonance. Classical description, rotating frame and exciting field. NMR experiments. Chemical shifts and level splitting. NMR imagine.

**Recommended reading:**
Moon, F.C., *Chaotic and Fractal Dynamics*, John Wiley and Sons, 1992

**SQ300 Data Structures and Algorithms**
10 credit points • 3 hours per week • Hawthorn •
Prerequisite SQ100 Programming in Ada • Instruction: lecture and tutorials • Assessment: assignments and examination
A second year subject in the Bachelor of Applied Science (Computer Science and Software Engineering).

Objectives
To achieve good programming (correctness, flexibility, adaptability, portability, utility and clarity) through understanding and use of the concepts of modularity and abstract data types.

Content
Common data structures, associated algorithms and applications; stacks, queues, trees, binary search trees, balancing; heaps, sets; graphs; hash tables; Ada generics.

**Recommended Reading**
Stubbs, D.F. and Webster, N.W. *Data Structures with Abstract Data Types and ADA*, Boston, PWS-Kent, 1993

**SQ305 Database**
10 credit points • 3 hours per week • Hawthorn •
Prerequisites: SQ120 or SQ210 or SQ100 • Instruction:
lectures and laboratory sessions • Assessment: assignments and final examination
A second year subject in the Bachelor of Applied Science

Objectives
To supply the practical skills and knowledge to design most databases used in industry; to provide the foundation to evaluate existing database management systems; to teach proficiency in SQL.

Content
The theory and process of database design, including database architecture; database architecture; data modelling; relational theory; logical and physical design; relational, network, hierarchical and object oriented databases; SQL.
**SQ306 Human-Computer Interaction**

10 credit points • 3 hours per week • Hawthorn • Prerequisites: SQ103 or SQ314 • Instruction: lectures and seminars • Assessment: two assignments and one exam

A subject in the Bachelor of Applied Science

**Objectives**
The aim is to introduce students to the process of user interface design.

**Content**
Technology: usability of input/output devices and interaction styles; interfaces; multimedia.
Methodologies: Formal, cognitive and usability approaches to developing appropriate human-computer interaction.
Theories: theoretical foundations of HCI.

**Recommended Reading**
Preece, J. Human Computer Interaction. Addison Wesley, 1993

**SQ310 Data Structures and Algorithms (in C)**

10 credit points • 3 hours per week • Hawthorn • Prerequisites: SQ120 or SQ210 • Instruction: combination of lectures and laboratory sessions • Assessment: assignments and a final examination

A subject in the Bachelor of Applied Science

**Objectives**
To introduce common data structures and algorithms in C; to extend the skill of programming in C.

**Content**
Abstract data types; recursion; dynamic memory allocation; standard abstract data types (stacks, queue, tables, linked lists, trees etc.); searching and sorting; algorithm efficiency. An introduction to C ++ may be included.

**SQ313 Software Engineering**

10 credit points • 4 hours per week • Hawthorn • Prerequisites: SQ103 and SQ100 • Instruction: combination of lectures, seminars, and laboratory workshops. • Assessment: assignments, laboratory exercises, and a final exam

A subject in the Bachelor of Applied Science (Computer Science and Software Engineering)

**Objectives**
To study project management theory and related software engineering principles, including tools, techniques, and software development strategies in managing medium to large scale software development projects.

**Content**
Current topics include project planning and estimation; software documentation standards; failure of conventional projects; project monitoring and control, productivity improvement techniques, structured and prototyping project life cycles, project feasibility study, software requirements analysis, components of design activity, steps of implementation, software acceptance test generation, quality control, project risk management, Computer Aided Software Engineering (CASE), Integrated Project Support Environments (IPSE), software maintenance, safety critical systems.

**SQ314 Software Engineering - Systems Analysis**

10 credit points • 3 hours per week • Hawthorn • Prerequisites: SQ120 or SQ210 or SQ100 • Instruction: combination of lectures and tutorial sessions • Assessment: assignment and/or projects and a final examination

A subject in the Bachelor of Applied Science

**Objectives**
To study the problems confronting the software engineer in the development of modern computer software

**Content**
Software development lifecycles; requirement analysis; software design; implementation and installation; quality assurance; documentation

**SQ316 Human Computer Interaction**

A first year subject in the Bachelor of Applied Science (Multimedia Technology)

**Objectives**
To introduce the fundamental concepts in human computer interface design. To introduce the methodologies and practices in managing the development of the user interface.

**Content**
Introduction: definition, the role and nature of HCI
HCI Technology - I/O devices and styles
HCI Engineering: the user interface development process
HCI Theories: Cognitive Modelling
Computer Supported Co-Operative Work (CSCW)
Future directions in HCI

**SQ402 Operating Systems**

10 credit points • 3 hours per week • Hawthorn • Prerequisites: SQ117 and SQ100 or SQ120 or SQ210 • Instruction: lectures and laboratory and tutorial sessions • Assessment: mid-semester test, an exam and lab-based exercises

Within the Bachelor of Applied Science this is a fourth year elective in the computer science and software engineering and computing and instrumentation courses

**Objectives and Content**
To introduce the student to the fundamental concepts of an operating system and how a modern operating system is structured using these concepts. Students will look at the data structures and algorithms of real operating systems and the effect these have on the programs and environments of the operating system. Issues such as processes and multi-tasking, memory management, file systems, input/output, deadlocks, distributed systems and distributed file systems will be covered. UNIX will be used to provide an in-depth case study of a real operating system.
**SQ403  Computer Science Team Project**

10 credit points • 3 hours per week • Hawthorn

Prerequisites: SQ313 and SQ303 • Instruction: software development project in a team environment • Assessment: project deliverables

**Objectives**

To enable students to develop technical and managerial skills by practising aspects of the software engineering discipline covered in the previous semester.

**Content**

The exercise of software engineering and project management tools, techniques, and methodologies by working on one or more medium scale projects.

**SQ404  Systems Analysis**

10 credit points • 3 hours per week • Hawthorn

Prerequisite: SQ103 • Instruction: combination of lectures and tutorial sessions • Assessment: assignments and examination

A second year subject in the Bachelor of Applied Science (Computer Science and Software Engineering).

**Objectives**

To develop an understanding of the principles and practice of systems analysis translating of user needs into specifications.

**Content**

The System Life Cycle; Strategic Information Systems Planning; Systems Investigation and Feasibility; Object Oriented Analysis; The Object Modelling Technique (OMT), CASE tools.

**Recommended Reading**


**SQ407  Data Communications**

10 credit points • 3 hours per week • Hawthorn

Prerequisites: SQ210 or SQ120 or SQ100 • Instruction: combination of lectures and practical sessions • Assessment: assignments and exam

A second year subject in the Bachelor of Applied Science

**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.

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.


OSI: the seven layer model, layer interaction, comparison of architectures

Emerging Technologies.

**Recommended Reading**


**SQ411  COBOL Programming**

10 credit points • 3 hours per week • Hawthorn

Prerequisites: SQ210 or SQ100 • Instruction: lecture and practical classes • Assessment: assignments and exam

A second and third year subject in the Bachelor of Applied Science

**Objectives**

To introduce the COBOL language and its problem solution domain.

**Content**

Introduction to structured programming COBOL overview; file, record and data definition; file processing; modularity perform; arithmetic; move, editing, If; validation, testing, debugging; control groups; tables; strings; subprograms; indexed files.

**SQ412  Systems Programming**

10 credit points • 4 hours per week • Hawthorn

Prerequisites: SQ210 or (SQ300 and C competence) • Instruction: lectures and laboratory sessions • Assessment: assignment and exam

A second or third year subject in the Bachelor of Applied Science

**Objectives**

To introduce students to the UNIX operating system

To teach the use of shell scripts as a method of prototyping system software.

Via system calls, to examine systems programming in a UNIX environment.

**Content**

Introduction to UNIX operating systems; UNIX file management; commands and filters; electronic mail; structure of the operating system; tools make, SCCS, 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.
**SQ419  Artificial Intelligence**

10 credit points • 3 hours per week • Hawthorn •
Prerequisites: SQ120 or SQ210 or SQ100 • Instruction: combination of lectures, laboratories and tutorials •
Assessment: assignments and examination

A second and third year subject in the Bachelor of Applied Science

**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 research and applications.

**Content**
Problem solving and research, specific topics include: knowledge representation; expert systems as applied AI; artificial neural networks; genetic algorithms; machine learning; natural language processing; and machine vision.

The central theme of the subject is the difficulty involved in encoding knowledge, even in restricted domains, in such a fashion that ‘intelligent behaviour’ can be elicited.

**SQ500  Concurrent Programming**

10 credit points • 3 hours per week • Hawthorn •
Prerequisite SQ300 • Instruction: lectures and laboratory sessions • Assessment: assignment and examination

A subject in the Bachelor of Applied Science.

**Objectives**
For students to understand and appreciate the main logical problems and techniques of concurrent and real-time programming.

To master programming using the concurrent paradigm of the Ada language.

**Content**
The logical problems of concurrency; mutual exclusion; safety and liveness; mechanisms to control concurrency; semaphores; monitors; shared memory and message passing; the rendezvous model; concurrent programming in Ada; concurrency in real-time and distributed systems.

**Recommended Reading**

**SQ502  Unix System Programming**

10 credit points • 3 hours per week • Hawthorn •
Prerequisites: SQ402 and SQ300 or SQ310 • Instruction: combination of lectures and laboratory work • Assessment: examination and assignments

A second or third year subject in the Bachelor of Applied Science.

**Objectives and Content**
The subject examines the UNIX operating system by consideration of the use of some of the more common system calls. It deals with the area of low level I/O, the file system, process creation and control, signals, communications and device control. The subject has an applications focus, stressing the use of the operating system to accomplish application objectives.

**SQ503  Software Practice 3**

10 credit points in semester one and 20 credit points in semester two • 4 hours per week in semester one, and one hour per week in semester two • Hawthorn • Instruction: lectures and practical work (in first semester) and group project assessment

A final year subject in the Bachelor of Applied Science (Computer Science and Software Engineering)

**Objectives and Content**
This subject requires that students, working in large teams, undertake a large scale software development project, preferably industrially based. Software development, documentation and system evaluation must be completed. The project will require students to exercise advanced management and technical development skills.

**SQ511  Declarative Programming**

10 credit points • 3 hours per week • Hawthorn •
Prerequisites SQ310 or SQ300 • Instruction: lectures, tutorials and laboratory sessions • Assessment: programming assignments and exam

A third year subject in the Bachelor of Applied Science

**Objectives**
Students should understand the salient features of functional and/or logic programming. (The balance between the two may vary from year to year). They should be able to develop programs from specifications and appreciate the mathematical properties of such programs.

**Content**
A selection from: one of the modern functional programming languages (eg. Haskell, Miranda); derivation of functional programs; logic programming foundations; programming in Prolog; and applications of logic programming.

**SQ519  Soft Computing**

10 credit points • 3 hours per week • Hawthorn •
Prerequisites: SQ310 or SQ300 • Instruction: a combination of lectures and laboratories • Assessment: assignments, laboratory reports and examination

A third year subject in the Bachelor of Applied Science

**Objective and Content**
Soft computing is an emerging new discipline that combines computational methods which share similar inexact, approximate reasoning approaches in attempting to resolve complex problems. The basic components of soft computing are artificial neural networks, fuzzy techniques, evolutionary computation.
SQ523  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.

SQ527  Computer Architecture

10 credit points ● 3 hours per week ● Hawthorn ● Prerequisite SQ207 and SQ117 ● Instruction: lectures and tutorials ● Assessment: assignment and final exam

A third year subject in the Bachelor of Applied Science.

Objective
To introduce computer architecture principles.

Content
Concept of multi-level machines; computer structure; CPU organisation; microprogrammed CPU's; microprocessors; memory devices; input/output devices; bus structures.

SQ533  Team Project

10 credit points in semester one and 10 credit points in semester two ● 3 hours per week in semester one and three hours per week in semester two ● Hawthorn ● Prerequisites: SQ305 and SQ314 ● Instruction: Lectures and practical work ● Assessment: assignments and examination

A core subject in the Bachelor of Applied Science (Computer Science).

Objective and Content
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 they will then have to analyse the project's 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.

SQ604  Object Oriented Programming

10 credit points ● 3 hours per week ● Hawthorn ● Prerequisite SQ310 or SQ300 and SQ314 or SQ404 ● Instruction: lectures and laboratory sessions ● Assessment: assignments and examination

A subject in the Bachelor of Applied Science

Objective
To introduce students to the C++ programming language.

Content
Object oriented software construction object oriented methodologies for programming, systems analysis and systems design are investigated. In-depth examination is made to illustrate the benefits of object oriented methods as applied to modern complex software engineering tasks.

SQ605  Multimedia Systems

10 credit points ● 3 hours per week ● Hawthorn ● Prerequisite SQ300 or 310 and SQ314 or SQ404 ● Instruction: lectures and laboratory sessions ● Assessment: assignments and examination

A final year elective in the Bachelor of Applied Science (Computer Science & Software Engineering).

Objective
By the end of the unit students should be able to define multimedia and its areas of application; appreciate the media types and their storage formats; describe a range of multimedia development tools; describe a range of multimedia development tools; describe the hardware components of multimedia systems; use appropriate design and development methodologies.

Content
Multi-media systems: introduction to multimedia, multimedia application areas of business, education and entertainment.

Media types: text, graphics, sound, animation, video; media formats and standards.

Development tools: categories of application development programs; presentation packages, hypermedia programs, multimedia databases, authoring languages, authoring tools.

Windows and Apple platforms.

Multimedia Hardware: components of a multimedia system and specialised peripheral devices; CD-ROMs, scanners, video and sound cards.


Multimedia Design and Development: design paradigms, navigation metaphors, storyboarding, project management, copyright issues.
**SQ606  Computing in the Human Context**

10 credit points  
3 hours per week  
Hawthorn  
Instruction: combination of lecture and tutorial sessions  
Assessment: essay and examination

Within the Bachelor of Applied Science, this is a fourth year subject in the Computer Science and Software Engineering course and a third year subject in the Computer Science (conversion) course and a final year elective for the Computing and Instrumentation course.

**Objective**

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.

**Textbooks**

To be advised

**SQ613  Computer Science Team Project**

10 credit points  
3 hours per week  
Hawthorn  
Prerequisite: SQ310 or SQ314 and SQ305  
Instruction: lectures and practical work  
Assessment: assignments

A subject in the Bachelor of Applied Science (Computing and Instrumentation) and (Mathematics and Computer Science).

**Objective and Content**

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 they will then have to analyse the project’s 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.

**SQ618  Computer Graphics**

10 credit points  
3 hours per week  
Hawthorn  
Prerequisite: SQ310 or SQ300  
Instruction: combination of lectures and tutorial sessions  
Assessment: assignment and examination

A subject in the Bachelor of Applied Science.

**Content**

Computer graphics hardware for computer graphics; basic 2-D and 3-D graphics drawing; transformations; data structures for graphics; windowing and clipping, ray-tracing.

**SQ619  Expert Systems**

10 credit points  
3 hours per week  
Hawthorn  
Prerequisite: SQ419  
Instruction: a combination of lecture and tutorial sessions  
Assessment: project and examination

A subject in the Bachelor of Applied Science

**Objective and Content**

The subject covers the techniques and issues of knowledge acquisition and building expert systems.

**SQ623  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.

**SQ628  Windows Programming**

10 credit points  
3 hours per week  
Hawthorn  
Prerequisite: SQ310 or SQ300  
Assessment: assignments and examination

An elective subject in Bachelor of Applied Science.

**Objectives**

To provide students with a good understanding of Microsoft Windows visual development environments, event driven and component based programming and the benefits of using an object oriented language to build Windows programs.

**Content**

Specific topics include: GUIs, Windows executables, visual development environments, object oriented application frameworks, Delphi, databases, graphics and printing, debugging, DDE and OLE, Dynamic Link Libraries.

**SQ702  Systems Programming**

12.5 credit points  
4 hours per week  
Hawthorn  
Prerequisites: SQ700 or equivalent approved C competence  
Instruction: combination of lectures and laboratory sessions  
Assessment: assignments and examination

A subject of the Graduate Diploma of Applied Science (Computer Science).

**Objectives**

To introduce students to the UNIX operating system;
To teach the use of shell scripts as a method of prototyping system software;
Via system calls, to examine systems programming in a UNIX environment.

**Content**

Introduction to UNIX operating systems; UNIX file management; commands and filters; electronic mail: structure of the operating system; tools make, SCCS, lint.
and 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.

SQ703 Software Development Project
12.5 credit points per semester (25 credit points in total) • Two hours (lectures) per week in semester one and two hours (project supervision) per week for two semesters • Hawthorn
• Instruction: combination of lectures, project supervision and software project development practice • Assessment: by deliverables, e.g. project plan, requirements definition and design document, as well as the actual software. An individual assignment may also be required
A subject of the Graduate Diploma of Applied Science (Computer Science).

Objectives
By the end of the subject, the student should have detailed knowledge of project management theory, and be able to apply that theory to the management of software development projects; have knowledge and experience in three to five person group projects, which, although technically of only moderate complexity, requires students to exercise significant project management skills.

Content
Software development life cycle; project planning, estimation and control; project communication; project progress measurement and evaluation; politics of projects; project and product risk analysis; cost/benefit analysis; development of system test plans and implementation plans; software quality assurance; software standards; project team practice requiring analysis, design and implementation with full documentation, of a software product.

SQ705 Database
• 12.5 credit points • 4 hours per week • Hawthorn
• Instruction: combination of lectures, tutorials and laboratory sessions • Assessment: one assignment, tutorial and laboratory exercises, and a final examination
A subject of the Graduate Diploma of Applied Science (Computer Science).

Objectives
To supply the practical skills and knowledge to design most databases used in industry; to provide the foundation to evaluate existing database management systems; to teach proficiency in SQL.

Content
The theory and process of database design, including database architecture; data modelling; relational theory; logical and physical design; relational, network, hierarchical and object-oriented databases; SQL.

SQ710 Data Structures and Algorithms
• 12.5 credit points • 4 hours per week • Hawthorn
• Prerequisites: SQ700
• Instruction: combination of lectures and laboratory sessions • Assessment: two assignments and a final examination
A subject in the Graduate Diploma of Applied Science (Computer Science).

Content
To introduce dynamic memory allocation in C; to introduce Abstract Data Types and to examine some of the common ADTs, e.g. lists, stacks, queues and binary trees; to introduce critical examination of algorithm efficiency and examine some common searching and sorting algorithms; to introduce the C + + language and the ideas of object-oriented software design.

SQ727 Data Communications
• 12.5 credit points • 4 hours per week • Hawthorn
• Instruction: combination of lectures, tutorials and laboratory sessions • Assessment: assignments and a final examination
A subject of the Graduate Diploma of Applied Science (Computer Science).

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 and standards organisations; basic communications theories and terminologies; the physical layer transmission media, signal types, interface standards; the link layer error control, flow control, link management; terminal based networks statistical multiplexers, Concentrators, front-end processors, terminal network protocols (Bisynch and HDLC); introduction to the ISO Basic Reference Model to the ISO the Seven Layer Model, comparison of proprietary network architectures; public data networks characteristics; packet-switched data networks, circuit-switched data networks, ISDN, standards, overview of Telecom Australia services (Austpac, Datel, DDS, Megalink Services); local area networks characteristics, topology and access method, the CSMA/CD and Token passing ring protocols, LAN management, network planning management internetworking, performance evaluation, management and security issues; electronic mail and EDI systems.
SQ730  Engineering Software
12.5 credit points • 4 hours per week • Hawthorn •
Instruction: combination of lectures and laboratory sessions •
Assessment: assignment and a final examination
A subject of the Master of Engineering by coursework.

Objectives
To formulate and design algorithmic solutions to a range of problems;
To edit, compile, debug, test and run C language programs;
To design a program, using a top down method, given a functional specification;
To implement the design as a well-structured program, using the major control structures and functions (with parameter passing) provided by the C language; to be able to implement data structures and data types in C, as a method of type abstraction; to write code that is well commented and to understand the importance of such documentation;
To obtain input from both keyboard and file, and be able to send output to both file and screen.

Content
A study of the programming language C and the related software engineering practice topics include program specification; algorithmic approach to problem solving; program design methodology; C basis; simple data types (int, float, etc.); control of flow; functions; arrays; string handling with standard libraries; structures; data structures and user-defined data types; file I/O with the standard libraries; common algorithms sorting, searching, file processing.

SQ754  The Personal Software Process
12.5 credit points over one semester • 3 hours per week •
Hawthorn • Prerequisite: nil • Instruction: lecture and laboratory sessions • Assessment: assignments and reports.
A first year subject in the Master of Engineering (Open Systems).

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, size estimating, 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

SQ752  Systems Programming
12.5 credit points over one semester • 4 hours per week •
Hawthorn • Prerequisite: nil • Instruction: lectures and laboratory sessions • Assessment: assignments and final examination
A first year subject in the Master of Engineering (Open Systems).

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

SQ757  Local Area Networks
12.5 credit points over one semester • 3 hours per week •
Hawthorn • Prerequisite: nil • Instruction: lecture and laboratory sessions • Assessment: assignments and final examination
A first year subject in the Master of Engineering (Open Systems).

Objectives
To study the operation of common LAN topologies and protocols; to study the functionality of LAN components such as repeaters, bridges and routers; to study some representative network operating systems.

Content
Data communication networks and open system standards; protocol basics; ethernet, token ring and token bus networks; high speed and bridged LANs; internetworking; transport protocols; application specific protocols; DNS, NIS, NFS; network managing systems: Novell’s Netware, Windows NT; network management: SNMP; security aspects.

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