Please note

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# 1993 Calendar

## January
1. New Year’s Day
4. Swinburne re-opens

## February
1. Australia Day
3. **H.Ed.** enrolment period begins for Round 1 offers through VTAC
8. **TAFE** semester 1 begins
15. **H.Ed.** teaching begins: Engineering (alternate entry) and Arts (Honours)
16. **H.Ed.** enrolment period begins for Round 2 offers through VTAC
22. **H.Ed.** teaching begins: Engineering (final year only)

## March
1. **H.Ed.** teaching begins: Applied Science, Arts, Business, Engineering (years 1-4)
8. Labour Day (**H.Ed.** teaching day)
18. **TAFE** award presentation ceremony
31. **H.Ed.** last day for withdrawal from a first semester subject, unit or course without penalty of failure*
   - **H.Ed.** Census date for HECS (semester 1)
   - **H.Ed.** and **TAFE** last day for applications for refund of General Service Fee

## April
7. **H.Ed.** classes end for Easter break
8. **TAFE** classes end for Easter break
15. **H.Ed.** classes resume after the Easter break
25. Anzac Day
26. **TAFE** classes resume after the Easter break
28. **H.Ed.** Graduation ceremony

## May
26. **H.Ed.** Graduation ceremony
31. **H.Ed.** last day for application for awards for students completing courses in semester 1, 1993

## June
10. **TAFE** award presentation ceremony
11. **H.Ed.** Business semester 1 examination period begins
14. Queen’s Birthday
15. **H.Ed.** and **TAFE** semester 1 examination period begins
25. **H.Ed.** and **TAFE** examination period ends
28. **TAFE** non-teaching period begins
30. **TAFE** last day for applications for awards for students completing courses in semester 1, 1993

## July
5. **H.Ed.** and **TAFE** inter-semester break begins
12. **TAFE** classes resume for semester 2
19. **H.Ed.** classes resume for semester 2 (except Design)
26. **H.Ed.** Design classes resume for semester 2

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

## September
17. **H.Ed.** and **TAFE** classes end for mid-semester break
23. Show Day
24. **H.Ed.** last day for application for awards for students completing courses in December 1993
27. **H.Ed.** Design classes resume after mid-semester break

## October
4. **TAFE** and **H.Ed.** (except Design) classes resume after mid-semester break
13. **H.Ed.** Graduation ceremony

## November
2. Melbourne Cup Day
5. **H.Ed.** Business semester 2 examination period begins
8. Semester 2 examination period begins for: **H.Ed.** Applied Science, Arts and Engineering
   - **TAFE** VCE and Foundation Year
19. **H.Ed.** semester 2 examination period ends
22. **TAFE** Associate Diplomas and all certificates semester 2 examination period begins
30. **TAFE** last day for application for awards for students completing courses in December 1993

## December
3. **TAFE** semester 2 examination period ends
16. **TAFE** closes for Christmas break
24. Swinburne closes for Christmas break

---

**H.Ed.:** Swinburne Higher Education Division

**TAFE:** Swinburne TAFE Division

* Students should be aware that some faculties have an earlier deadline for addition of new subjects. Students should consult their faculty, office.
The information given in this Handbook is intended as a guide for persons seeking admission to Swinburne University of Technology and shall not be deemed to constitute a contract on the terms thereof between Swinburne University of Technology and a student or any third party. The Higher Education Division and the TAFE Division of the University both reserve the right to cancel, suspend or modify in any way the matters contained in this document.

In 1982, the Freedom of Information Act was passed by the Parliament of Victoria. The Act, which applies to Swinburne and other tertiary institutions, came into effect on 5 July 1983. The Act gives (with certain exemptions), legally enforceable rights of access to information. It is the policy of Swinburne to conform with the spirit and intention of the Act in the disclosure to the public of any information they may seek. Enquiries should be made to the Registrar.

Equality of educational opportunity is Swinburne policy.

There is a total ban on smoking in all Swinburne buildings and vehicles from January 1 1991.

Swinburne University of Technology
Incorporating the
Higher Education Division and the
Technical and Further Education Division
John Street, Hawthorn 3122
Australia
P.O. Box 218, Hawthorn 3122
Telephone: (03) 819 8911
Telex: Swinbn AA37769
Facsimile: (03) 819 5454

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<table>
<thead>
<tr>
<th>sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>general information</td>
</tr>
<tr>
<td>swinburne</td>
</tr>
<tr>
<td>higher education division</td>
</tr>
<tr>
<td>applied science</td>
</tr>
<tr>
<td>arts</td>
</tr>
<tr>
<td>business</td>
</tr>
<tr>
<td>engineering</td>
</tr>
<tr>
<td>design</td>
</tr>
<tr>
<td>animation</td>
</tr>
</tbody>
</table>
## Introduction

Coat of Arms........................................................... 2  
Swinburne Council.................................................. 3  
Chancellery............................................................ 3  
Staff........................................................................... 4  
  - Higher Education Division..................................... 4  
  - TAFE Division..................................................... 4  
  - Swinburne Services.............................................. 5  
  - Corporate Division.............................................. 5

Eastern Campus....................................................... 5  
Prahran Campus......................................................... 6

### Swinburne Services

- Learning Services.................................................. 6  
- Library....................................................................... 6

### Student Services

- Campus Location and Opening Hours.......................... 9  
  - Counselling.......................................................... 9  
  - Careers.................................................................... 9  
  - Health....................................................................... 9  
  - Housing/employment/financial advice........................ 10  
  - Disabilities.............................................................. 10  
  - Financial assistance schemes.................................... 10  
- Scholarships and Awards............................................ 11  
- Hire of Swinburne Facilities....................................... 11  
- Access Education Department...................................... 11  
- Advising Centre for Women......................................... 11  
- Chaplaincy.............................................................. 11  
- Child-care Centre.................................................... 11  
- Computer Centre..................................................... 12  
- Equity Unit............................................................ 12

### International

- Student Unit................................................................ 13
- Publicity and Information Unit..................................... 13
- Student Parking.......................................................... 13
- Student Bookshops...................................................... 13

### Student activities

- Student Union.......................................................... 14  
  - Membership.......................................................... 14  
  - Clubs and societies.................................................. 15  
  - Personal accident insurance scheme.......................... 15  
- Contact/Information Desk............................................ 15  
- Reading room/photocopying service............................. 15  
- Radio Station.......................................................... 15  
- Tool Library............................................................ 15  
- Cafes........................................................................ 15
  - Legal Adviser.......................................................... 15
  - Student publications............................................... 16
  - Campus typing......................................................... 16
  - Computer centre..................................................... 16
- Eastern Campus......................................................... 16
  - Prahran Campus....................................................... 17
  - Education, Welfare and Research Department................ 16  
  - Sports Association.................................................... 17
Swinburne

The proud past

On 1 July 1992 Swinburne was proclaimed a university by the Parliament of Victoria, a significant accomplishment in Swinburne's metamorphosis from a small technical college in Hawthorn to a University of Technology.

Swinburne was established in 1908 as the Eastern Suburbs Technical College. The first students were enrolled in 1909, when classes began in carpentry, plumbing and blacksmithing. The institution grew and prospered. 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 largely 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, agriculture, 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 re-organisation 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 today

Swinburne has a strong reputation in Australia and overseas as a provider of career orientated education and as an institution with a commitment to research. The University maintains a strong technology base and important links with industry which are 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 their applied vocational emphasis and direct industry application through Industry Based Learning (IBL) programs. Swinburne was a pioneer of IBL programs which place students directly in industry for vocationlal employment as an integral part of the course structure.

Swinburne is a unique tertiary institution providing both higher education and technical and further education (TAFE) within a well integrated multi-sectoral nature of education.

Swinburne offers a progression of courses starting from diplomas and certificates, apprenticeships to postgraduate qualifications of Master and PhD.

Swinburne has two teaching divisions under the control of one Council. They are:

Higher Education Division

This division offers professional qualifications (diploma and degree of Bachelor) and graduate qualifications (diploma and degrees of Master and PhD). Enrolments in 1992 were 4580 full-time and 3668 part-time students.

Technical and Further Education Division (TAFE)

This division offers courses at professional and para-professional level, covering associate diploma, advanced certificate, apprenticeship, VCE and access programs. A number of specialist courses are also provided for industry and the community. Enrolments in 1991 were 2126 full-time and 13434 part-time students.

Hawthorn Campus

Hawthorn is Swinburne's original campus. The foundation stone of the first building was laid in 1908. The city of Melbourne is seven kilometres away and the campus covers an area of approximately four hectares. It is close to Glenferrie railway station, is well served by other means of public transport and is close to parklands.

Eastern Campus (Lilydale)

In 1992 Swinburne commenced undergraduate programs and some postgraduate studies at its Eastern Campus in Lilydale, offering the same excellence of academic programs as already established on the Hawthorn Campus. This campus provides a small friendly environment, easily accessible and directly serving the tertiary education needs of the outer eastern metropolitan region, with all the amenities of a modern university in a natural bushland setting.

Prahran Campus

Prahran Campus (formerly Prahran College of TAFE) joined Swinburne in 1992. The roots of this campus are deeply entrenched in the history of the local area and originated from the activities of the Prahran Mechanics Institute (circa 1854). The campus is easily accessible by train, tram and bus and is situated in cosmopolitan Prahran.
Swinburne Council
Membership as at 14 September 1992

Chancellor
To be appointed
Appointed by the Governor-in-Council
C.M. Burnup, BA(SIT), DipEd(LaT)(Deputy Chancellor)
R.J. Coughlin, DipEd(SIT), TSTC(MSTC)
J.J. Eastwood, BA(Hons), DipEd(Melb)
W.G. Elms, FCIA, AFAIM
G.D. Hirsh MLA, BSc(Hons)(Mon), TPTC(GTC), TS(FITC), MACE
P.N. Honeywood MLA, BA(Hons)(ANU)
N.J. Maughan MLA
B. van Ernst BA, BEd(Mon), MEd(LaT), PhD(LaT), TPTC, MACE
K.N. Watson, AM, BA, BEd(Melb)
Appointed by the Minister for Education
To be appointed
Appointed by the University Council
K.D. Brown, CertProfMedLabTech(NZ), GradDipOrgBeh(SIT), TTIC(Haw)
T.W. Brown, BEd(Melb)
S.M.L. Guille, FCIS, FCPA
J.A. Polis, BA, DipEd(Melb)
M. Puglisi, LLB(Melb), Barrister and Solicitor(Vic)
One vacancy
Member ex officio
Professor J.G. Wallace, MA, MEd(Glas), PhD(Brist), FASSA (Vice-Chancellor)
Appointed by the Academic Board
T.H. Randle, BEd(Melb), MSc(LaT), PhD(Salford), ARACI, MIEE, MACA, MAIEE
Appointed by the Board of Technical Studies
G.A. Harrison, DipMechEng(SIT), BSc(Melb), TTIC
Elected by higher education academic staff
M. Suffern, BEd(Chem)(Mon), DipChemEng, DipAppChem(SIT), MIEAust
Elected by TAFE academic staff
C. Forbes, BA, BSc(Hons), TPTC
Elected by general staff
M. Hasse, BA
L. Scheuch-Evans, BS in Foreign Service (G'town)
Elected by higher education students
L.J. Ferguson
Elected by TAFE students
S.D. Hayward
Council Secretariat
Secretary
F.G. Bannon, BCom(Melb), FCPA, ACIS, ACIM, LCA
Executive Officer
A.J. Miles, BSc(Melb), BEd(Mon)
Chancellery
Vice-Chancellor, Swinburne University of Technology
Professor J.G. Wallace, MA, MEd(Glas), PhD(Brist), FASSA
Deputy Vice-Chancellor
F.G. Bannon, BCom(Melb), FCPA, ACIS, ACIM, LCA
Director, TAFE Division
P. Veenker, DipBBus(Acc)(PCEA), BBus(SIT), MEdStud(Mgt)(Mon), TTC(HIE), CPA, MACE
Office of the Vice-Chancellor
Project Officer
S.J. Krul, BA(Hons)(Massey)
Swinburne University of Technology
Vice-Chancellor
Professor J.G. Wallace, MA, MEd(Glas), PhD(Brist), FASSA

Higher Education Division
Faculty of Applied Science
Dean of Faculty
Professor J.O. McLean, BVSc(Syd), HDA(Hons), PhD(Melb)
Head, Department of Applied Chemistry
I.K. Jones, BAgSc, DipEd, PhD(Melb), FRACI
Head, Department of Computer Science
Associate Professor D.D. Grant, MSc(Melb), PhD(Reading)
Head, Department of Mathematics
J.R. Iacono, BA, MEd(Mon), TPTC
Head, Department of Physics
Professor R.B. Silberstein, BSc(Hons)(Mon), PhD(Melb)

Faculty of Arts
Dean
Professor L.A. Kilmartin, BA(Qld), MA(ANU), PhD(Lat)
Associate Dean
FX. Walsh, BA(Melb), BEd(Mon)
Chair, Asian Languages and Culture
A. Skoutarides, BA(Hons), PhD(Mon)
Chair, Italian and Culture
L.A. Hougas, MA(Melb), DipEd(Melb)
Chair, Media, Literature and Film
Associate Professor T. Barr, BA(Adel), BEd(LaT), MA(SIT)
Chair, Philosophy and Cultural Inquiry
M. Harvey, MA, DipEd(Melb), PhD(ANU), GradDipArt(App&TV)(SIT)
Chair, Political Studies
D.Y. Mayer, BA, LLB(Melb), MA(Mon), GradDipEd(Haw)
Head, Department of Psychology
Associate Professor K.J. Heskin, BA(Hons)(Queens), MA(Dub), PhD(Dunedin), CPsychol, AFBSps, MAPsS
Chair, Sociology
K. Betts, BA(Hons), PhD(Mon)

Faculty of Business
Dean of Faculty
M.C. Frazer, BSc(Hons)(Mon), GradDipEdTert(DDIAE), MAdmin(Mon), PhD(Camb), AIMM, MAIP, MACE
Head, Department of Accounting
WC. Nash, BCom, DipEd(Melb), MBA(Cranhill)
Head, Department of Economics
J.B. Wielgosz, BCom(Hons), MA, DipEd(Melb)
Head, Department of Information Systems
D.G. Adams, BCom(Melb), MAdmin(Mon), TSTC
Head, Department of Law
P. Holland, DipEd, BCom, LLB(Hons)(Melb), MEnvSc(Mon), Barrister & Solicitor(Vic) Supreme Court
Head, Department of Marketing and Organisation Behaviour
Associate Professor C. Christodoulou, BAgSc(Melb), MSc, MAdmin, PhD(Mon)

Faculty of Engineering
Dean of Faculty
Professor L.M. Gillin, BMetE, MEngSc, ME(Melb), PhD(Canb), ASMB(Ball’t), FIEAust, FAIM, FACE, FWACE
Deputy Dean (Administration)
N. Zorbas, BE(Hons)(WauSt), MEngSc, ME(Melb), FIEAust
School of Civil Engineering and Building
Associate Dean
R.B. Sandie, BEng, MEngSc(Melb), FIEAust, CEng
School of Electrical Engineering
Associate Dean
B.A. Neyland, BEE(Melb), ME(Melb), TTTC(TTC)

School of Innovation and Enterprise
Director
Professor L.M. Gillin, BMetE, MEngSc, ME(Melb), PhD(Canb), ASMB(Ball’t), FIEAust, FAIM, FACE, FWACE

School of Mechanical and Manufacturing Engineering
Associate Dean
W.G. Teague, DipMechEng(CIT), BComm, BE(Mech), MEngSc(Melb), MIEAust

School of Design
Head of School
D.G. Murray, BA(Graphics Design)(SIT), TTTC
Deputy Director (Operations)
G. Harrison, MEngSc(CIT), BSc(Melb), TTTC
Deputy Director (Policy and Planning)
Dr. C. Woodrow, CBS(WillAng), BSc, MEd(UWA), PhD(Tor)

TAFE Division
Director
P. Veenker, DipBBus(Acc)(CPAE), BBus(SIT), MEd(Adm)(Mon), TTTC(HIE), CPA, MACE
Deputy Director (Operations)
G. Harrison, DipMechEng(CIT), BSc(Melb), TTTC
Deputy Director (Policy and Planning)
Dr. C. Woodrow, CBS(WillAng), BSc, MEd(UWA), PhD(Tor)

Hawthorn Campus
School of Business Studies
Head
RW. Conn, BBus(SIT), DipEd(Mon), CPA
Head, Finance and Information Technology Department
M.J. Joyce, BBus(SIT), DipEd(Haw), CPA
Head, Marketing and Administration Department
I.M. Walker, BCom(Melb), MktngPrac(RMIT), DipEd(MSC), Hon(PhPsych)(ILL), AFAMI
Manager, Centre for Business Development and Training
J. Torbinner, BEd(Melb), GradDipBus(HRD)(Deakin), AIMM
School of Engineering and Industrial Science
Acting Head
R. Fallu, BSc, DipEd(Mon)
Head, Electrical and Electronics Technology Department
A.G. Hamilton, TechCert(Electronics), BEd(Deakin)
Acting Head, Industrial Sciences Department
J. Cashion, BSc, DipEd, DipCompSc, GradAIP
Head, Mechanical and Manufacturing Technology Department
J. Brennan, CEng(IME, Ireland), DipEng(NavalArch)(RMIT), BEng(Mech)(RMIT), DipEd(Haw)
Manager, Centre for Engineering Technology
L.J. McLaughlin, TTrIC, DipTPT(Haw)
Manager, National Scientific Instrumentation Training Centre
J. Hall, BSc(Hons), PhD(LaT), ARACI
School of Further Education and Community Services
Acting Head
R.M. Carmichael, BA(Mon), BEd(LaT)
Head, General and Community Studies Department
G. Arnott, BEc, BEd(Mon), GradDipBusAdmin(SIT)
Head, Access Education Department
R. Thomas, BA, MEd(St(Mon))
Director, English Language Centre
A. Redpath, BA, DipEd, GradDipTESL
Manager, Workplace Skills Unit
S. Naylor, TPTC, TSPTC
Senior Curriculum Development Officer
R.M. Carmichael, BA(Mon), BE(LaT)
Manager, Computer Services Unit
M. Waterhouse, BEc, DipEd(Tas)

Swinburne services
Computer-based Developments and Information Systems
Manager, Computer Centre
M. Plunkett, BEc(Adel)
Learning services
Director (Acting)
K. Anderson, DipEE, TTTC, BSc(Melb), MA(Adel)
Library
Swinburne Librarian
F. Hegarty, BA(UNewEng), DipLib(QIT), BE(Adel), AALIA

Corporate Division
Deputy
A.D. McNaughton
Acting Registrar
Registrar’s Department
Registrar
G.L. Williamson, BSc(Adel), GradDipAppSc(SIT)
Assistant Registrar (Applied Science)
J. Berry

Assistant Registrar (Arts)
T.M. Kilsby, BA(Lat)
Assistant Registrar (Business)
M. Conway, BA(Griffith)
Assistant Registrar (Engineering)
A.L. Dews, BBus(SIT), ARMIT
Assistant Registrar (services)
L. Scheuch-Evans, BS in Foreign Service (G’town)
Assistant Registrar (Student Administration)
H.J.Neill, GradDipEdAdmin(Haw)
Security Department
Chief Security Officer
N. Burge

Swinburne Student Services
Manager
Z. Burgess, BA(Mon), MEd(Couns)(LaT), GradDipEdPsych, MA(Mon), MAPSS, VAFTE, AIM

Eastern Campus at Lilydale
Edinburgh Rd, Lilydale
Head
Associate Professor B.C. McDonald, 728 7100
General enquiries, 728 7102

Situated on the site of the former MDA Grammar School in Edinburgh Rd, Lilydale, the new Swinburne Eastern Campus provides courses in the Business, Applied Science, Arts and Engineering Faculties. The courses offered in the Bachelor of Business are in Accounting, Marketing and Economics and the Bachelor of Applied Science course in Mathematics/Computer Science is also offered, with students undertaking the same programs as students at the Hawthorn Campus. Arts majors in the Bachelor of Arts are Psychology, Media Studies, Sociology, Philosophy and Cultural Studies, Economics (taught by Business Faculty), Literature, and Political Studies. A distinctive aspect of the Eastern Campus degrees in Business and Arts is that there is the opportunity to cross faculty boundaries which allows the construction of tailored programs which combine aspects of Business and Arts. Students wishing to study a language (Japanese, Italian, Korean, Vietnamese) currently must secure a place on the Hawthorn Campus.

The Engineering Faculty offers the common first year of its degree courses in Electrical (Power, Communications and Computer Systems), Civil, Manufacturing and Mechanical Engineering. Later years in the Electrical Engineering program will be offered at the Eastern Campus as well as post-graduate programs in Computer Engineering and Information Technology. The Doctor of Philosophy are also offered. This establishes a complete and fully accredited tertiary environment by having in place programs ranging from first year undergraduate to Masters and PhD studies.

The first student intake at the campus was in 1992 and totalled approximately 260 students across four faculties. Student numbers will grow to a maximum of 620 by 1994 and will remain at this level for the foreseeable future.
Prahran Campus
144 High St, Prahran
General enquiries — Publicity Department, 522 6700.
The Prahran Campus joined Swinburne University in 1992.
Through its schools of Business Studies and Information
Technology, Planning the Arts 3 Furniture Studies and
Community 1ce 1 campus offers diploma, advanced certificate and certificate courses via full-time or
part-time enrolment. External study options are also available
through the Off-Campus Department.
Courses include: Accounting, Credit Management, Credit
Information Technology, Real Estate, Insurance, Records
Management, Office and Secretarial Studies, Management,
Library and Information Studies, Child Care Studies,
Residential and Community Services, Aboriginal Child Care,
Performing Arts, Applied Art/Finished Art, Art and Design,
E.S.L., Literacy, Furniture Studies for indentured apprentices,
Year 11 and Year 12 VCE.
Over 600 fee-for-service short courses are offered embracing
the entertainment industry, short hobby, skill enhancement,
language, business and computing.
A four-year, full-time Bachelor of Arts course is offered in
Graphic Design and Industrial Design.
All course details are available in a separate handbook. Please
call the above number for enquiries regarding this handbook.

Swinburne Services
Learning Services
Director, Learning Services (Acting)
K. Anderson, DipEE, TTC, BSc(Melb), MA(Act)
Administration
M. Pledger, BA(Lib'ship)(SALT)
Instructional Communications Unit
A. Young
Learning Resources Production Unit and Classroom
and Technical Support Unit
R. Philp, ABC TechCert
G. Dudley, CertTech(AV)(RMIT)
K. Salehi, BA(CIT), DipPSP(RMIT)
M. Clarke
G. Hay
T. Young, BAppSci(Phot)(RMIT)
G. Thomson
N. Alwis, City & Guilds FullTechCert(Lond)
N. Vargis
Staff Development Unit
B. Hawkins, BA(NewEng), MEd(Melb)
Swinburne is committed to providing courses which provide
flexible access, accelerated progression and flexibility of
learning methods including home and workplace based
learning and studying in local study centres or at a traditional
campus. Such an approach requires a range of supporting
services, for which Learning Services has been established.
Learning Services provides the following learning or
instructional technology services to Swinburne:
• learning resources production;
• instructional technology and curriculum advice;
• interactive multimedia learning facilities;
• learning resources management;
• instructional communications;
• staff development;
• classroom and technical support; and
• teaching and learning research.
As resources are made available, Learning Services is
expanding and organising into functional units, one for each
of the above items. Four units currently operate.

Classroom and Technical Support Unit
The Classroom and Technical Support Unit is responsible for
equipping teaching spaces with facilities which permit the
presentation of computer, video and audio output, overhead
transparencies, 35mm slides and 16mm motion films. It also
provides audiovisual equipment for loan to teaching staff. To
maintain and repair these facilities and equipment, the
Classroom and Technical Support Unit operates an extensive,
well-equipped workshop. Staff are available to assist with
setting-up, operating, repairing and booking equipment as
necessary.
Instructional Communications Unit
The Instructional Communications Unit is responsible for
installing, operating and maintaining Swinburne-wide
communications network which is an integral part of
Swinburne’s multi-modal approach to delivering higher
education.
Learning Resources Production Unit
The Learning Resources Production Unit is the largest
component of Learning Services. It is responsible for producing:
tutorial, documentary, animation and graphics type
material for distribution on videotape, videodisc, in
digitised form on multimedia computers broadcast or delivered
via ISDN-type facilities;
tutorial, documentary, drama and music type material for
distribution on cassette tape, compact discs, in digitised form
on multimedia computers or delivered via ISDN-type
facilities;
computer-based learning materials (eg. tutorials and
simulations to run on workstations in the network),
computer-managed learning software (eg. item banks for test
generation, course management databases), software for interactive
multimedia coursework, and other educational software;
still images for delivery as 35mm slides, as overhead
transparencies, in printed form, or as part of a computer
based learning program, videotape, videodisc or
multimedia presentation;
animated graphic sequences for use in video programs
and computer based learning materials.
The Learning Resources Production Unit also provides
photographic, film processing, off-air recording, dubbing and
post-production services. When funds permit, it will operate a
classroom/studio from which lectures will be transmitted live
to one or more remote centres, with audio talkback available.
Staff Development Unit
Staff training is central to an integrated approach to
instructional technology. The purpose of the Staff
Development Unit is to organise and present staff
development programs for all staff of the University. Staff of
other units will serve as trainers as necessary and the Staff
Development Unit will utilise Learning Services facilities to
conduct training, eg. computer skills will be learned largely
in the Interactive Multimedia Learning Centre.

Library
Swinburne Librarian
F. Hegarty, BA(UNewEng), DipLib(QIT), BEd(Lat), AALIA
Deputy Librarian
P.C. Simmennauer, BA(Melb), DipLib(NSW), AALIA
Collection Management
C.L. Elison, BSocScLib’ship(RMIT), GradDipAppSc(Town Planning)(RMIT), AALIA
Staff Development
B.J. Donkin, DipArts(SIT), GradDipEd(Hawthorn), AALIA
Administration
E. Turner, CertAppScLibTech, CompBusAppCert
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 each library on payment of a membership fee to the Swinburne Library Information Service.

The Swinburne Librarian, Campus Librarian, 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 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 a reciprocal borrowing agreement.
Registered members of the Swinburne Library Information Service.
Such other persons or organisations as the Swinburne 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 due date is stamped on the item or on a transaction slip when it is borrowed. 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.

Books with a 14 day period or greater can be returned to any of the campus libraries. All other items must be returned to the campus library from which they are borrowed. Audiovisual materials, periodicals and computer software should be returned to the loans desk from which they were borrowed.

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 replaced immediately.

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

Staff: the normal loan period for staff members and higher degree students for most library material is four weeks. This period may be extended for a further four weeks provided that the item has not been renewed 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 loan outside the library
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.

Reservations
Items on loan may be reserved at any of the campus libraries. Reservations for items on loan will not be accepted from a person who already has the item or another copy of the item on loan.

Lost or damaged material
If an item is lost or damaged this must be reported immediately to the library from which it was borrowed. If the item cannot be found after a reasonable search the borrower is responsible for the replacement cost plus a processing charge or the cost of repair.

Penalties
Each campus library issues loans subject to the imposition of penalties for late return and non-return of items. Suspended borrowers are debarred from borrowing from any campus library. 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 result certificates and eligibility for re-enrolment is dependent upon all outstanding library penalties being resolved by the end of the academic year. For staff, all material on loan to them must be returned and all penalties resolved before they leave employment with Swinburne.

Rules for general conduct
Eating, drinking and smoking are not permitted in areas of the library open to the public.
Playing games is not permitted in the library.
Bags and cases may be brought into the library and 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 include exclusion from the library and suspension of borrowing privileges.

If a student 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 recommendations of the Swinburne Librarian.

At the discretion of the Swinburne 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.

Student Services
Manager
Z. Burgess, BA(Mon), MEd(Couns)(LaT), GradDipEdPsych, MA(Mon), MAPsS, VAFT, MAIM
Administrative Officer
E. Jolley
Advising Centre for Women
(For further information see page 11)
Student Counselling staff
Head
J. Jolley, BSc(Melb), GradDipEdCouns(RMIT), GradDipHumanServicesResearch(Phillip), EdD(UMass), MAPsS, VAFT
Student Counsellors
B. Jenkins, BEd(MCAE), GradDipApPsych(Couns)(StT)
R. Kelly, BA(Melb), DipEd(Mon), MA(Linguistics)(Lanc), MA(Couns)(Auck)
R. McDonald, BA(Melb), DipEdPsych(Mon), MAPsS
C. McLeod, BBEd(Sc(Hons))(LaT), DipEd(LaT), MAPsS
Receptionist
J. Ralph

Housing, Part-time Employment and Financial Advice
B. Graham, BAppSc(Pharm)(TCAE)

Careers Services Staff
Head
R. Ware, BA(LaT), DipEd(MSC), GradDipCareers (VicColl)
Careers Counsellor
R.C. Waite, BA, DipEd(Flinders), DipEdCouns(Sai)

Schools Liaison Officer
LE. Baron, BA(RMIT), DipEd(LaT)

Careers Information Officer
K. Weedon, BA(Ballarat), GradDipApSc in Prof.
Psych(Ballarat)

Employment Program Officer
S. Davis
Student Health Service staff
Head
J. Fischer, RN, RM(Vic)(UK), RN(USA)
Medical Director
S. Clarke, MB, BS(Lond)
SISTER
A. Hart, RN(Vic)
Administrative Assistant
J. Wright
Eastern Campus staff
Co-ordinator
M. Manel, BSc(Stirl), BEd(Couns)(Lat)
Prahran Campus staff
Co-ordinator
D. Balgovind, BA(Hons)(Queensland),
GradDipEd(Melb), MAPsS
Student Counsellors
R. Black, BA(HonsPsych), BEd, DipEd(Melb)
M. Galante, BA(Mon), BSocWork(Mon), AASW
Administrative Officer
S. Morgan

The following services are available to all students:

Careers — course information
graduate employment
schools liaison program
counselling
careers library and resources

Counselling — psychological
educational
cross-cultural
library resources for learning and life

Health
Housing
Part-time employment
Financial advice — Austudy
loans
budgeting

The majority of services listed below at the Hawthorn Campus are available at the Eastern Campus and the Prahran Campus also. Swinburne students can use services at any campus. For more detailed information phone the numbers listed below.

Hours of opening and location at each campus are as follows:

Hawthorn Counselling, Housing, Employment, Finance
Business and Arts Building, Ground Floor, BA206
Mon., Tues., Thurs., Fri. — 9.00am-5.00pm.
Wed. — 9.00am-8.00pm.
Housing, Employment and Finance: 819 8882
Counselling: 819 8025

Hawthorn Careers Services
EW108, Enter through Conference Centre, Swinburne Walk
Mon.-Fri. — 9.00am-5.00pm.
Phone: 819 8521

Hawthorn Student Health
Mon-Fri. — 8.45am-5.00pm.
Doctor by appointment — 4 hours daily.
Nursing staff available at other times.
Phone: 819 8483

Eastern Campus Student Services
Administration Building MA7
Mon.-Fri. — 9.00am-5.00pm.
Phone: 728 7103

Prahran Campus Student Services
Building U, Level 2
Mon.-Fri. — 9.00am-5.00pm.
Tues., Wed., Thurs. — 9.00am-6.00pm.
Counsellors, Housing and Employment Officer, International Student Adviser, Legal Officer (by appointment).
Phone: 522 6734

Hawthorn Campus
Student Counselling
The Student Counselling Service is available to students, staff, former students, parents and partners of students. The service is free and strictly confidential. Services include individual counselling and small group workshops for students and staff. Counsellors help in areas such as loneliness, adjustment to life at Swinburne, subject choice, deferment, choosing a course, examination anxiety, learning skills, vocational choice, studying part-time, leave of absence, academic and learning difficulties, concern about others, study problems, marital and pre-marital counselling, relationships, disabilities, sexuality, family, and student allowances. A specialist cross-cultural counsellor is also on staff to assist international students at Swinburne. Our service offers thousands of consultations each year. No problem is considered too small.

The Student Counselling Service endeavours to develop and support procedures which will increase the general welfare of students and enhance their education at Swinburne. To this end, the service seeks representation at relevant levels throughout Swinburne. When appropriate, counsellors act as advocates for students within Swinburne, and with relevant external organisations such as the Department of Social Security and the Commonwealth Department of Education and Training. The service operates on both a fixed appointment and ‘drop-in’ basis.

Careers Services
The Careers Service is available to Swinburne students, prospective students, graduates and staff. The service is free and offers comprehensive career, course and employment information and counselling. Computer resources including job and course explorer and GISOL are also available for use by students.

The Careers Library is maintained with up-to-date information about courses from TAFE to postgraduate levels, careers news, and graduate employment. Students can receive assistance in processing and understanding the information available. A computer package to assist students in their course/careers choices, is available when students seek counselling.

Careers Counselling is available for all those requiring professional assistance in exploring the many issues involved in career and course planning. Demand for this service is high so it is necessary for an appointment to be made.

Graduate placement and student employment advice is also available for students and graduates seeking full-time employment. Services include vacation employment, employer visits, campus interview programs, assistance with job applications, interview techniques and resumes. These are offered individually or in group workshops. An employment register is also maintained for the use of students and graduates.

The Schools Liaison Program is an integral part of the service and facilitates communication between secondary schools and Swinburne. Through this program prospective students are asked to explore the educational opportunities available at Swinburne.

Student Health
The service is available to all students. It is free and strictly confidential. The service is available to staff for emergency treatment only. Although this is a free service, it is recommended that students have their own medicare cards or booklets (overseas students) for use should X-rays or pathology be necessary.

The service offers to all students the opportunity to seek help and answers to their problems in a confidential and non-judgemental atmosphere; and to promote a positive and confident attitude towards their health maintenance. We offer emergency treatment, general first-aid, medical consultation by appointment, nursing and medical counselling on such issues as contraception, sexually transmitted diseases, sports injuries, nutrition, immunizations, health insurance advice.
Classes in cardio pulmonary resuscitation and first-aid are also offered as well as eye tests and hearing tests (audiograms) and referral information (e.g., physiotherapy, dental care and local doctors).

Student housing, part-time employment and financial advice

The housing service provides addresses of a wide range of accommodation, including full board, single rooms, houses, flats and hostels. Many students also use the service to find other students to share accommodation. Advice on living away from home, and the legal and financial problems associated with renting is also available to all Swinburne students.

Assistance is also provided for students seeking part-time, and casual employment. This service includes advice on techniques of obtaining part-time work, and information on specific vacancies. Students are notified of available work via the part-time employment notice-board.

Students with a disability

Students with a disability are encouraged to first advise their department. They may also wish to make contact with the Student Counselling Service. The counsellors can advise or act as advocates on specific study needs, career planning, examination arrangements, access to buildings, use of lifts, telephones and parking facilities, etc. Responding to the various needs of students is a continually developing process. It is important, therefore, that you make your particular needs known. Swinburne is a participant in the State and Federal Governments' equal opportunity program.

Other campuses also have assistance at Students Services for disabled students.

Student assistance schemes

AUSTUDY

Generally, AUSTUDY provides financial help, on an income and assets-tested basis, to students who are 16 years of age or over and who are studying approved full-time secondary and tertiary studies.

Some part-time students receiving a sole parent pension may also receive the education supplement.

Helpful hints about AUSTUDY:
- Pick up your application form and information booklet from AUSTUDY, a CES office or from your campus. Read the information booklet carefully.
- If having read the booklet you still have questions, then seek help from the Financial Adviser on 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.
- Don't assume that you are not eligible, 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 March 31, 1993, if you want to receive backpay to the First of January.
- Don't accept a decision from AUSTUDY if you think it is inaccurate or unfair. Ask your Financial Adviser on campus for assistance.

Student loans

With approval of the Loans Fund Committee, financial assistance may be obtained for full-time students from the following loan funds:
- Commonwealth Help for Needy Students Loan Fund
- Special Assistance for Students Program
- Student Aid Fund
- Rotary Swinburne Bursary Fund
- Overseas Student Loan Fund

Emergency, short term loans are available to full and part-time students from the student union aid fund.

Dependent Spouse Allowance

If you qualify for living allowance at the independent rate and you have a spouse and child who are dependent on you, you may receive an additional allowance.

The allowance is also payable for a dependent de facto spouse if there is a natural or adopted child of the relationship who is dependent on you.

Some students are eligible for a fares allowance.

Health Care Card

Students who qualify for AUSTUDY may also be eligible for a Health Care Card from the Department of Social Security. The major benefit of this card is access to low cost pharmaceutical prescriptions. You can obtain more information about the Health Care Card by contacting your local DSS office.

Child Care Assistance for Sole Parents

Contact the Department of Health, Housing and Community Services for information.

Aboriginal Secondary Assistance Scheme (ABSTUDY)

ABSTUDY provides financial help for Aboriginal and Torres Strait Islander students who want to stay at secondary school or go on to further education. It can help school children and also adults returning to study.

This scheme is administered by Department of Employment, Education and Training.

Young Homeless Allowance

This scheme was introduced by the Commonwealth Government on 1 July 1986 for full-time secondary or tertiary students or people receiving a Social Security benefit. Ask at Student Services for more information.

Family Allowance Supplement

Students who are eligible for a living allowance and who have a dependent child may receive Family Allowance Supplement (FAS) from the Department of Social Security. FAS will be paid to eligible clients at the maximum rate, free of any income test and in addition to family allowance. It is not taxable.

You can find out more details and how to apply from your local DSS office.

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.

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.
Scholarships and Awards
Scholarships are available in the areas of Mining, Metallurgy, Geology, Accounting, Mechanical, Chemical, Electrical Engineering and Environmental Sciences. These scholarships have a value of $5,000 per annum (1992). Further enquiries should be made to Brian Roberts, Manager — Personnel Services, Renison Goldfields Consolidated Ltd, Goldfield House, 1 Alfred Street, Sydney, NSW 2000.

There are a number of scholarships and awards for which Swinburne students may be eligible. Enquiries about these awards should be directed to the Registrar or relevant faculty, division or department.

Other scholarships and awards are listed under the relevant faculty or school.

Postgraduate awards
Commonwealth postgraduate awards assist people studying full-time for higher degrees by research. Contact the Office of Research and Graduate Studies, room AD204, telephone 819 8238.

Hire of Swinburne facilities
Outside groups wishing to use Swinburne facilities should contact Planning and Information on 819 8686 to discuss their requirements. Swinburne lecture theatres and classrooms may be booked for use by outside organisations.

Swinburne Conference Centre
The Swinburne Conference Centre is located at the north-west end of the campus. It is a pleasantly situated centre, ideal for small conferences, seminars and training courses. It comprises a large seminar room, one smaller discussion room and a dining room, all available for outside hire. Enquiries about the facilities available or booking of the centre should be directed to the office staff on 819 8686.

Access Education Department
Acting Head
R. Thomas, BA, MEd(Mon), 819 8816
Secretary
C. Boykett, 819 8634

Compensatory Education
Individual assistance in English and mathematics is available to students of all 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.

Tuition may be short-term to overcome a specific difficulty or arranged on a weekly basis over a longer period of time.

Community Access Programs
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. 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.

The department operates from the houses located at 42 and 44 William Street. Understanding staff are available to discuss people’s problems in English and/or mathematics and follow-up with appropriate tuition.

The Advising Centre for Women
Co-ordinator
J. Leamont, 819 8633
Convenor, Applied Science    Jennifer Lindley
Convenor, Business          Alison Spencer

The Swinburne Advising Centre for Women aims to provide support to women already studying Applied Science, Business and Engineering. As a student, a range of services are available, such as career and course advice, skills improvement in communications, maths and computer technology as well as a place where you can drop in to chat to someone about your studies at Swinburne.

We are located in a shop front at 463 Burwood Road, between John and William Street. The centre is open Monday to Friday 10.00-5.00pm, and Wednesday night 6.30-9.30pm. Telephone: (03) 819 8633.

Chaplaincy
Chaplain
Rev. D. Rathgen, DipPublicSpeaking(NZSB), LTh(JBTS), BA(Cantab)
Location: 473 Burwood Rd, room 201, alongside the Student Health Centre
Telephone: 819 8489

Hours: Tuesday, Wednesday, Thursday 9.00am-5.00pm

David Rathgen is the Chaplain at Swinburne, and although an ordained Anglican priest, he is available to all students (and staff) regardless of their religious affiliation (or lack of it). David can arrange weddings, especially for those who find the traditional church setting difficult, or who have had a previous marriage. David will also arrange to celebrate a baby’s birth (a ‘christening’), an engagement, or assist with bereavement, grief and funerals (if necessary).

As a pastor, he is able to support those in any need, or who wish to work through the basic issues of life, and who wish to find a purpose or sense of direction. David will help clarify whatever is happening in life and where God might be at work in it.

David is interested in clarifying the religious and spiritual aspects of daily living and their impact upon social issues. New students are particularly invited to call in and introduce themselves. David is in contact with all denominations in the Hawthorn area, and is able to supply information about them upon request.

Visiting Chaplains
For specific religious denominations, visiting chaplains are available, e.g.: Catholic, Jewish, Lutheran.

Overseas students may also contact visiting chaplains of their own language groups: Korean, Japanese, Chinese, Indonesian, etc.

Child-care Centre
Co-ordinator
S. Somerville, 819 8519

A co-operative 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 aims of the Centre revolve around encouraging a beneficial contact that will produce an understanding of the needs of the individual child 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
The Centre caters for children up to five years of age, not only creating 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. A sliding scale of fees has been adopted.

Early application for use of this service is advised as there is a waiting list in existence.

Computer Centre
Manager
M. Plunkett, BEc(Adel)
Enquiries
S. Allan: 819 8509

The Swinburne Computer Centre provides computing and data processing facilities for teaching, research and administrative applications.

In 1990 the Computer Centre will have two processors available to students who require access to Swinburne's central computing facilities. These machines will be located in the Computer Centre's main computer room.

(a) IBM 3090/120E

The largest of these systems is the IBM 3090 Model 120E. The 3090 represents a closer association with the mainstream requirements of the computing industry. This association is reflected in the curriculum of the new Bachelor of Information Technology degree and Swinburne's association with IBM which sees Swinburne staff members involved with IBM in the presentation of training programs to industry.

The 3090 is configured with 32 Mb main memory, 16 channels, 15 giga bytes of disc storage and a communication subsystem to support asynchronous and synchronous terminals, local area and wide area networks and several remote user sites. Local terminal facilities are distributed through the Applied Science, Art, Arts, Business and Engineering faculties and the TAFE Division.

Users have access to a range of programming languages (including COBOL, FORTRAN, PASCAL, RPG, APL, C, Modula 2, BASIC and Assembler) and software packages (including SPSS, SIR, SAS, IMSL, NASTRAN, CADAM and CATIA). Data base products available on the 3090/120 are CICS/DB2; support for artificial intelligence applications is provided by IBM's Expert System Environment (ESE) and the operating systems available include MVSEX.

Swinburne has entered an arrangement with McCormack and Dodge which has resulted in that company's financial software being used by Swinburne's central computing facilities. Along with our arrangements with IBM other software products are used to the provision of industry standard computing facilities for our students.

(b) UNIX

The UNIX operating system is supported at the Swinburne Computer Centre on an Encore Multimax 310. The parallel architecture of the Encore will facilitate low cost upgrades which in turn will ensure our ability to expand the configuration, at a reasonable cost, in line with the growth in demand for UNIX resources.

(c) Network

The Computer Centre also administers an extensive LAN among other communication facilities. The LAN currently joins all Computer Centre facilities as well as most of those from other departments using a fibre optic backbone.

PC facilities are also on this LAN and the Computer Centre administers a large Banyan Vines PC network to which all Computer Centre PC facilities are joined. There is a wide range of DOS software available as well as access to other computing facilities via the network, using TCP/IP protocols.

The Computer Centre is also responsible for the development, maintenance and production of a number of systems used by non-teaching members of the Institute. The major applications are Student Administration, General Ledger and the Library circulation and cataloguing systems. Basic maintenance of the Institute's terminal network is also administered by staff of the Computer Centre.

Most of a student's computing requirements can be satisfied by using a PC connected to either the UNIX or IBM systems and the different teaching departments maintain their own internal booking procedures to allow access to those terminals.

Assistance to students is provided through a duty programmer service for those problems that cannot be solved by the teaching staff. In addition, seminars are conducted specifically to ensure that teaching staff and students use the computing facilities in an efficient and co-ordinated manner. The Computer Centre produces a publication 'User News' several times throughout the academic year. Designed to assist and acquaint users in the application of Swinburne's hardware and software facilities 'User News' is commended to all students.

Students may, on application to the centre, be allocated an account and budget for computer facility usage. The allocation controls disc space, input, output and central processor facilities and is determined according to the requirements of the student's course.

The accounts are allocated only for the direct requirements of a student's course of study. Any student who uses the facilities for game playing or matters not associated with a course, or who interferes with other users through manipulation of passwords or files, can expect, at minimum, immediate suspension of their usage rights to Swinburne computing facilities as well as any other penalties which may be determined from time to time.

Equity Unit
Manager
M. Jones, CertEd(Wales), BEc(VicC), MEd(Mon)
Enquiries
J. Spuch
Administrative Assistant
J. Ng
Location
463 Burwood Road

It is the policy of Swinburne to provide an educational environment of equal opportunity for all.

Discrimination on the grounds of sex, race, marital status, impairments, religious or political beliefs, sexual preference, and being a parent, childless and de facto spouse is forbidden.

Admissions to courses and assessment of student performances will be conducted according to merit only.

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 Mary Jones, Manager on 819 8855.
International Student Unit

I.A. McCormick, BCom(Melb), MAdmin(Mon), FASA, CPA
Overseas Student Advisors
C. Chu, BA(Mon)
I. Lee, BA(Mon)
M. Liu
S.H. Lee
D. Pun, DipComm(HKBC)

Secretory
473 Burwood Road, Hawthorn 819 8151

The International student Unit was established to provide a focal point for Swinburne’s international activities. This includes being responsible for all matters relating to the implementation of Swinburne’s international program and coordinating academic links with overseas tertiary institutions.

All enquiries for study at Swinburne by non residents of Australia should be directed to the unit to ensure that Australian government admission policies are followed.

The co-ordinator of the ongoing welfare of overseas students is also a responsibility of the unit.

The unit also operates a student hostel for international and Australian students.

Publicity and Information Unit

Head
N. Manning, 819 8847

Handbook and course brochures
S. Niner, BA(VicColl), GradDipBIT(SIT), 819 8548

General enquiries
R. Boschen
E. O’Brien, 819 8444

The role of the Publicity and Information Unit is to publicise both internally and externally, the activities of Swinburne University. The specific functions of the unit include the provision, production and distribution of information relating to Swinburne courses, staff and campus activities. This is achieved through media liaison and advertising, specific course brochures and external publications such as Swinburne News, the annual Swinburne handbooks, and Paterson Street may be used by students after 5.00pm only.

Additional parking areas which can be used are located immediately behind the Hawthorn Football Ground, accessible from Linda Crescent (off Glenferrie Road). Only 7 minutes walk from Swinburne, that area offers ample parking.

Student Bookshop Co-operative Limited

Manager
R. Wilkens, 819 8225

General enquiries: 819 4266

Hawthorn Campus

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. By members buying shares and patronising the bookshop they are in turn ensuring the Bookshop has an inflow of share capital for growth and the patronage 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.
Gifts, cards, wrapping paper and novelties.
Full range of stationery supplies.
Film and film processing.
Audio and video cassettes.

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, and general interest books.
- Secondhand books.
- Full range of stationery supplies.
- Gifts, cards, wrapping paper and novelties.
- Audio and video cassettes.
- Film and film processing.
- Graphic and artist supplies.
- Calculators and accessories.
- 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, that you do so at the beginning of each semester. If you cannot afford to purchase it immediately, have it put aside. This will help to alert us to any possible shortages early in the semester. Top up orders can then be placed where necessary to ensure the book arrives in a time to be of use for that semester.

If you find the book is unavailable ask the staff when it will be presented when making a purchase at the co-operative to receive your discount.

You are also able to sell your used and unwanted books through the bookshop.

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.

Co-operative hours
Hours of opening
Normal hours of opening for the bookshop during terms and semesters are:
Monday to Thursday inclusive 8.30am to 7.30pm
Friday 8.30am to 5.00pm
Public holidays Closed
During vacations
Mid-semester, term and semester breaks:
Monday to Friday — 9.00am to 5.00pm with a lunch break between 12.00pm and 1.00pm
Christmas vacation: Closed mid-December to early February

Services
The bookshop offers a variety of services to students and staff and is receptive to any new ideas.
Further information, rules and regulations can be sought from the Registered Office of the Cooperative, situated in the Union Building, John Street, Hawthorn.

Student Bookshop Co-operative Limited Prahran Campus
The bookshop is located on the first floor of the Student Union Building or U Building above the cafeteria.
The hours of opening for the bookshop during teaching periods are:
Normal hours:
Monday to Thursday — 8.30 am to 5.00 pm.
Friday — 8.30 am to 3.00 pm.
Public Holidays: Closed.
During vacations:
Mid semester and term breaks:
Monday to Friday — 9.00 am to 3.00 pm.
Unless otherwise advised.
Christmas vacation: Closed mid-December to late January.

Student activities
Student Union — what is it?
The Student Union is a legal expression of the Student body identified with Swinburne. The primary function and focus of the organisation is to represent the members in the common context of their relationship with Swinburne and the Union as students, and in their education. The second focus of the Union is to provide services for the members within the framework of effectiveness, convenience and need.

The Union in representing the members operates within the realms of the consumer advocate and lobbyist. Successful outcomes on behalf of the membership has been dependent on good student representation and a core of professional staff working together, developing policy and precedent through careful implementation. Policy developed and decisions implemented are mindful of past and future membership. Incorporation has breathed life in perpetuity, into this organisation which has become increasingly effective by the year in servicing the membership.

Membership and its aims
Membership to the Union — based on enrolment and payment of the General Service Fee. The purposes for which the Union is established are:
(1) to advance the social, educational and general welfare of the student body of Swinburne and to provide services for the student body;
(2) 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;
(3) to promote, encourage and co-ordinate the activities of student committees and societies;
(4) to promote and foster a corporate spirit amongst the student body;
(5) to strive for wider recognition and greater appreciation of the standard of all academic awards of Swinburne.

The 1993 Executive of the Union consists of:
President Simon Rayward
Vice-president Marilyn Giunta
Activities Director Susan Yip
Education Director Fiona Scott
Media Director Narelle Phelan
Finance Director Ian Dais

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

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 member as Chairperson, two to three members for the Union Executive, two to four persons elected from the student body. The Executive at the monthly meeting receives and considers the policy submitted by the management committees.

In March or April of each year the Executive calls an Annual General Meeting to present the preceding years 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.

All student members are eligible to stand and vote in elections and all have the same rights in respect to the Union and thus are entitled to use the services provided by it.
Orientation Week
Orientation occurs during the first week of academic classes. During orientation a diversity of entertainment is provided to encourage students to become involved and participate in the campus activities. Orientation week provides the opportunity for students to familiarise themselves with services and to establish friendships. A program is available prior to the commencement of Orientation.

Activities
This department is a sub-unit of the Contact Centre and the responsibility of the Activities Office. In conjunction with the management committee, the Activities Office develops, organises and presents the social programmes for the year. This unit works closely with Clubs and Societies in order to promote activities jointly between clubs and the Union. The Activities Office is located at The Corner.

Clubs and Societies
Another sub-unit of Contact, the Clubs and Societies office is located in the Contact Centre. This unit’s responsibility is to promote the involvement of students in the Swinburne community through participation in groups with a common interest. The Clubs and Societies office will assist with queries regarding the starting of Clubs, affiliation and support with resources.

Union Bus
The Student Union provides a Toyota Hiace (12 seater) van for use by clubs and societies for their functions if required. Bookings can only be made at the Contact Desk.

Personal Accident Insurance Scheme
All students enrolled in Swinburne who have paid their union fees are automatically covered by accident insurance.

This insurance scheme covers accidents, 24 hours a day on and off campus, in the event it relates to activity associated with Swinburne. For further details, please contact the Accountant in the Union Office.

Union Office
This is situated on the 4th level of the Union Building. Various services are provided here including room bookings, Legal Advisor bookings, insurance claims, facsimile and general information. Union personnel that are located in the Union Office include the President, Secretary, Manager and Accountant. Telephone numbers: 819 2156, 819 2656, 819 2966, 819 8520, 819 8553.

Contact Information Desk
The Contact Information Desk located in the Contact Centre is the ‘nerve centre’ of the Student Union for information on Union services, activities and coming events — in effect a directory of all Union services. Students will find a ‘Friendly Contact Worker’ who will provide assistance on how to survive at Swinburne. The desk also has listings of various off-campus groups which you may wish to become involved with.

The Desk operates as the ticket sales point for Union activities, and sells t-shirts, windcheaters, and other Union memorabilia.

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. So if you are considering buying a camera, television, stereo, etc., see us. Feel free to drop in anytime if you need help, direction, or for any enquiries.

Reading Room/Photocopying Service
The room is designed for quiet reading and discussion, in a non-smoking environment. Newspapers, magazines and information on various groups, issues and organisations are located in this area. Also located adjacent to the lounge are a bank of photocopiers. The copiers produce good quality A3/A4 copies at a very competitive price. It is located in the Contact Centre.

Tool Library
The Tool Library is located in the Contact Centre, telephone 819 8291. As the library is a non-profit operation, its hire rates are very reasonable. All equipment hire requires a deposit and student staff ID. Library catalogues are available from the Contact Information Desk, Tool Library and the Union Office. Equipment available includes: lawn mowers, engine tune-up kit, arc welder, brush-cutters, wallpaper remover, auto tools, orbital sanders, percussion drills, belt sanders, barbeques, PA system, tents and rucksacks.

The Greenhouse Coffee Lounge
Situated on the third level of the Union Building, this is a comfortable and popular lounge which serves tea, cappuccinos, iced coffee, fresh fruit juices, and quality cakes and pastries. Ideal for those who only want a ‘cuppa’ without queuing in the cafeterias with the noisy lunch and dinner crowds. Seats 100.

Union Cafe
The ‘Caf’ provides an extensive range of foodstuffs including hot and cold drinks, sandwiches, salads, cakes and pastries, hot take-away food and confectionery. With prices designed for student pockets, and home of the famous ‘Budget Meal, the Union Caf is conveniently located on the ground floor of the Union Building (next to the Bookshop).

The Corner
Situated on the corner of John St. and Wakefield St., The Corner specialises in a range of upmarket foods and snack foods at a reasonable price. The Corner provides a clean, pleasant environment in a convenient location.

The College Cafe
The cafeteria on the 3rd floor level of the Union Building provides a range of hot and cold meals, catering for a variety of diets and tastes including vegetarian. The College Cafe also has a large amount of table space for large groups of students to chat over coffee or lunch.

Ethel Hall
Clubs and Societies can use the hall for their functions. Bookings must be made at least two weeks in advance. All bookings must be made on prescribed forms available from the Student Union Office.

Radio Station
3SSR — Swinburne Student Radio. Location: fourth level of the Union Building.

The Radio Station is run by a committee which consists of:
- Programme Director
- Publicity and Promotions Director
- Station Manager
- Technical Officer

3SSR provides students with a variety of music and other programs which are broadcast to a number of outlets. Students are involved in various activities at the station including production of ‘on air’ programs (DJ’ing) and the general running, management and organisation of station activities.

Facilities at 3SSR include a comprehensive record library, cartridge production facilities, an ‘on air’ broadcast studio, and various related equipment including an eight channel mixing desk, a four-track reel to reel, a half-track mastering reel to reel and an assortment of microphones and leads.

Anyone interested in becoming involved in any 3SSR activities should contact the station’s supervisory staff in the radio station offices located on the fourth level of the Union Building.

Legal Adviser
The Student Union provides a free legal service for full and part-time students. The solicitor is available every Tuesday during the academic year. Appointments must be made at the Union Office, on 819 8520.
Education, Welfare and Research Department

All matters pertaining to the quality of education and the socio-political welfare of students on campus are handled by this department. The Union employs a Co-ordinator (on a full-time basis) who oversees the activities of this department. The Co-ordinator is available for consultation, on any facet of their education, or welfare, the co-ordinator is available on the 4th floor of the Union Building. There are three sections within this department:

Student Appeals and Advocacy Unit

This is designed to assist students who believe that they have been subject to any discrimination or injustice, including course assessment, teacher relationship, enrolment process, or whatever. The unit can also help prepare students, who are called to appear before the Progress Review Committee or an Exclusion Board, on the best manner in which to present their case.

Students seeking assistance can discuss their concerns, in total confidence, with the Student Advocacy and Liaison Officer, or the Union President. Both are located in the 4th floor of the Union Building.

Education and Welfare Research Unit

This evaluates Student Services and also conducts the Course Evaluation Survey. The latter helps assess the quality of education that students are receiving in various subjects. The subjects covered depend entirely on those Course convenors who allow the Union to enter their classes and distribute the questionnaires. The information collected is processed, and the results are published in booklet form. The results are also forwarded to convenors and Heads of departments for further analysis and comment.

The Union employs an Education Research Officer to undertake this program. This person is situated in the Education Unit.

Campaigns and Pressure Group Co-ordination Centre

The Union undertakes actions against those organisations/institutions (e.g., the Government) which implement policies seen as deleterious to the welfare of students. To meet the organisational requirements of such campaigns, students volunteer their time, and the Education, Welfare and Research Committee assist these students in regard to rallies, marches, lobbying, etc. Examples of such actions are: Anti-Tuition Fees, etc. Students seeking assistance can discuss their concerns, in total confidence, with the Student Advocacy and Liaison Officer, or the Union President. Both are located in the 4th floor of the Union Building.

The Winning Edge Can Be Yours

Student Computer Centre

Desperately Seeking Computers

Now there is a solution, students have access to an ergonomically designed Computer Centre, consisting of 24 computers and access to popular software packages, such as Microsoft Word 5 and WordPerfect 5.1.

For further information contact Campus Typing, 4th floor Student Union Building or telephone 819 2566 or 8533.

Tax Return Lodgement Adviser

Prior to the period when tax returns have to be completed for lodgement, the Union organise a Tax Accountant who has a specialist knowledge regarding students, to give seminars free of cost to full and part-time students. Special one-to-one sessions are held at a small cost for those who need extra advice.

Eastern Campus

The Student Union resides at Contact in the Union Building, at the Eastern Campus. Contact aims to provide Eastern Campus students with access to all of the services which are currently operating at Hawthorn, either by providing them on campus or by networking with the Student Union at Hawthorn. Contact is open from 9:00am to 4:00pm, Monday to Friday.

Campus Typing

Campus Typing is a quick efficient typing service available by the Student Union Contact Centre at minimal cost.

Campus Typing

Campus Typing is a quick efficient typing service available by the Student Union Contact Centre at minimal cost.

Education, Welfare and Research Department

We will word process your assignments, job applications, resume, letters and thesis, all printed out on a high quality laser printer.

Student Computer Centre

Desperately Seeking Computers

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For further information contact Campus Typing, 4th floor Student Union Building or telephone 819 2566 or 8533.

The Winning Edge Can Be Yours

Campus Bind

Campus Bind, perfectly bound documents, are the hard wearing, functional, simple and cost effective way to present your valuable assignments, computer printouts, manuals and reports of all kinds.

For excellent presentation, Campus Bind will give your assignments the professional edge.

Covers are A4, white, clear pastic with cardboard backing. Available at Campus Typing, 4th floor Union Building for a mere $250.

Tax Return Lodgement Adviser

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Eastern Campus

The Student Union resides at Contact in the Union Building, at the Eastern Campus. Contact aims to provide Eastern Campus students with access to all of the services which are currently operating at Hawthorn, either by providing them on campus or by networking with the Student Union at Hawthorn. Contact is open from 9:00am to 4:00pm, Monday to Friday.

Contact operates a bookshop which stocks all the books, stationary and accessories necessary for students. The bookshop also offers a Special Request system so students can borrow items from the Tool Library based at Hawthorn, or have essays typed by Campus Typing, either using the courier which runs daily between the two campuses, or by going into Hawthorn.

The Union Building also has a Student Lounge with a pool table and a wide range of publications and games, to create a relaxing and sociable atmosphere for students. There is a meeting room with a capacity of twelve which students can book at Contact.

Activities are run at the Eastern Campus on a regular basis and these are planned and run by the Eastern Campus students, in conjunction with staff and students based at Hawthorn. Eastern Campus students are encouraged to join already established clubs and societies, or to start new clubs, especially for students at the Eastern Campus. In 1982 two clubs were formed. The Film and Media Club aims to facilitate student input into the media as well as run a small cinema. The Brewers Club provides students with the facilities for brewing beer and getting together to drink it!

Students are represented through the Student Committee, which has students who are elected from each faculty. This Student Committee has a direct link into the Student Union .
Executive, as well as representation on the Eastern Campus Management Committee.

Students with any queries or concerns related to their education can talk to the staff at Contact for assistance. The Contact staff can either help resolve the situation on campus, or refer the student to Student Union advocates at the Hawthorn campus.

Prahran Campus
1993 is the first year of operation for the Swinburne Student Union (SSU) on the Prahran Campus. SSU intends to improve the quality of campus life and monitor the education its members receive. This will be achieved in an environment of change and diversity, due to the recent amalgamation of the Prahran College with Swinburne.

Members can find the SSU offices located on the 1st floor of the Union Building. Here, members can gain access to the full range of services provided by SSU. Members can participate in the SSU by running for one of the positions of the Executive or Management Committees, or joining a club or society. Members are also encouraged to contribute articles to the Swine, Bella Donna or Scam and to participate in regular activities which the SSU provides.

The SSU endeavours to serve the interests of its members in a professional manner, whilst remaining friendly and sensitive to their needs. Besides the office, there is also a student lounge with a range of reading material to ensure students can relax and socialise outside of the classroom. The SSU, Prahran office can be contacted on 522 6729.

Further information on the Student Union activities, services or facilities are available from the Student Union Diary given out free of charge during enrolment.

Sports Association
Executive Officer
A. Clarke, BAppSci(FIT), DipEd(Haw), 819 8018
Physical Education/Recreation Officer
D. Shanahan, BAppSci(FIT)
Administrative Assistant
K. O’Donnell
Receptionist
P. Kennedy

Swinburne Sports Association is located in the Sports Centre in John Street, central to the Institute and TAFE areas of the campus.

The Association is run by students and aims to meet the sporting and recreational pursuits of all students and staff. All currently enrolled students are members of the Association.

Sports Centre facilities include four glass backed squash courts, a well equipped weight training area, locker, shower and change facilities, multi-purpose clubs and aerobics room, fitness appraisal and meetings room. The Sports Store and Reception/Administration Office areas are also located in the Centre.

Currently, over twenty sports clubs exist at the Association, all of which are run by students. Members are encouraged to involve themselves in the clubs of their choice.

The Sports Association employs four full-time staff to oversee the day to day administration of the centre. The qualified Physical Education Officer offers members advice on weight training and health as well as conducting fitness appraisals.

The Recreation Officer ensures a wide variety of recreation activities that are not offered by any of the existing sports clubs.

Clubs and Recreations offered to members include: Aerobics, Athletics, Badminton, Bowling, Car, Circuit training, Cycling, Football, Golf, Hanggliding, Hockey, Horseriding, Indoor cricket, Indoor soccer, Meditation, Motorcycle, Netball, Nordic skiing, Orienteering, Sailboating, SCUBA diving, Skydiving, Snowski, Soccer, Squash, Surfing, Tai Chi, Taekwondo, Taiji, Yoga, Volleyball and Waterskiing.

Swinburne competes in many intercampus sports and recreation events throughout the year. Affiliation with Victorian and Australian university sports associations create a calendar of over twenty events that give ample opportunity for students to compete for Swinburne.

Further information on the Swinburne Sports Association’s facilities, clubs, services and recreations are available from their information Handbook, available free of charge at the Sports Centre.
Entrance requirements
  - Undergraduate .............................................. 21
  - Postgraduate ............................................... 22
Application procedure
  - Undergraduate .............................................. 21
  - Postgraduate ............................................... 22
Student Administration Office .................................. 22
Academic statements ............................................. 22
Awards (degrees and diplomas) ................................... 22
Enrolment regulations ............................................ 22
  - Conditions .................................................. 23
  - Single Subjects ............................................ 23
  - Fees .......................................................... 23
  - HECS .......................................................... 23
  - Refunds ...................................................... 24
  - Confirmation ................................................ 24
  - Amendments ............................................... 24
  - Leave of absence ........................................... 24
  - Identity cards .............................................. 25
Assessment regulations ........................................... 25
  - Examinations ............................................... 25
  - Results ...................................................... 26
  - Special examinations ...................................... 25
General Grievance Procedure for Students ......................... 30
Statute for the degree of Master (by research) ..................... 33
Statute for the degree of Doctor of Philosophy .................... 34

Swinburne Centres
  Animation and Interactive Multimedia Centre ............. 37
  Applied Colloid and BioColloid Science Centre ............ 38
  Applied Neurosciences Centre ................................ 38
  Biomedical Instrumentation ................................... 38
  Computer Integrated Manufacture Centre ..................... 38
  Computing Productivity Institute Centre ..................... 38
  Design Centre ................................................. 39
  Energy Systems Engineering Centre .......................... 39
  Housing and Planning Centre ................................ 39
  Industrial Democracy Centre .................................. 39
  Laboratory for Concurrent Computing Systems ............... 39
  Marketing Strategy Centre ..................................... 39
  Media and Telecommunications Centre ......................... 39
  National Korean Studies Centre ................................. 40
  Psychological Services Centre ................................ 40
  Science Education Centre ..................................... 40
  Science Shop .................................................... 41
  Taxation Research and Advisory Centre ....................... 40
  Urban and Social Research Centre .............................. 41
  Women's Studies Centre ....................................... 41

Applied Science Faculty ......................................... 43
Arts Faculty ...................................................... 105
Business Faculty .................................................. 151
Engineering Faculty .............................................. 209
School of Design .................................................. 303
Animation and Interactive Multimedia Centre .................. 317
Composition of Academic Board
Members ex-officio
Chancellor
Vice-Chancellor
President, Student Union
Deans (4)
Head, School of Design
Head, Eastern Campus
Elected Members
3 members of the academic staff of the Faculty of Applied Science elected by those staff.
3 members of the academic staff of the Faculty of Arts elected by those staff.
3 members of the academic staff of the Faculty of Business elected by those staff.
3 members of the academic staff of the Faculty of Engineering elected by those staff.
1 member of the academic staff of the School of Design elected by those staff.
10 members of the academic staff of the Higher Education Division elected by and from those staff.
6 members drawn from and elected by the general staff of the Higher Education Division, and the general staff of the Corporate Division.
6 members elected by and from the enrolled students of the Higher Education Division.
Total membership 44

Courses offered
Undergraduate
Degrees
Courses leading to degree qualifications are offered in a wide range of fields. The degrees and specialist areas in which Swinburne students may graduate are:

Bachelor of Applied Science (BAppSc)
- Computer-Aided Biochemistry
- Computer-Aided Chemistry
- Computer Science and Software Engineering
- Computing and Instrumentation
- Environmental Health
- Mathematics and Computer Science
- Medical Biophysics and Instrumentation
- Psychology/Psychophysiology

Bachelor of Applied Science (honours) (BAppSc(hons))
- Computer Science
- Environmental Health
- Medical Biophysics
- Medical Biophysics and Instrumentation
- Scientific Instrumentation

Bachelor of Arts (BA)
- Asian Studies
- Australian Studies
- Economics
- 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 (honours) (BAhons)
Four strands are available:
- cultural studies
- languages
- psychology
- social science

Bachelor of Arts (Graphic Design) (BA(Graphic Design))

Bachelor of Arts (Industrial Design) (BA(Industrial Design))

Bachelor of Business (BBus)
- Accounting
- Business Law
- Business Modelling
- Computing
- Economics
- Finance
- Marketing
- Organisation Behaviour

Bachelor of Business/Bachelor of Arts (BBusBA)
- Italian
- Japanese
- Korean
- Vietnamese

Bachelor of Engineering (BEng)*
- Civil Engineering
- Communication and Electronic Computer Systems Engineering
- Electrical Power and Control
- Manufacturing (Production)
- Manufacturing (Chemical)
- Mechanical Engineering
* In certain circumstances this degree may be combined with the Graduate Diploma in Management.

Bachelor of Information Technology (BInfTech)

Bachelor of Technology (BTech)*
- Aviation
- Building Surveying
- Fire Technology
- Studies may be undertaken in various areas offered by the departments with the Faculty of Engineering.

Diplomas
Courses leading to diploma qualifications are available in the following area:

Diploma of Art (DipArt)
Graphic Design

Postgraduate
Graduate Diplomas
The Institute offers courses leading to the following graduate diploma awards:

Accounting GradDipAcc
Air-conditioning GradDipAircond
Animation/Interactive Multimedia GradDipAniminteract
Applied Colloid Science GradDipAppSc
Applied Psychology GradDipAppPsych
Biomedical Instrumentation GradDipAppSc
Business Administration GradDipBusAdmin
Business Information Technology GradDipBusInfTech
CAD/CAM GradDipCAD/CAM
Chemical Engineering GradDipChemEng
Civil Engineering Construction GradDipConstr
Computer Integrated Manufacture GradDipCIM
Computer Science GradDipAppSc
Computer Systems Engineering GradDipCompSysEng
Corporate Finance GradDipCorpFin
Entrepreneurship and Innovation GradDipEnt&Innov
Equal Opportunity GradDipEOAdmin
Equal Opportunity Administration
Industrial Chemistry/Biochemistry  GradDipAppSc
Industrial Microbiology  GradDipAppSc
Japanese  GradDipJapanese
Japanese for Professionals  GradDipJapanese(Prof)
Maintenance Engineering  GradDipMaint
Management  GradDipMgt
Management Systems  GradDipMgt
Manufacturing Technology  GradDipMgt
Market Modelling  GradDipMgt
Organisation Behaviour  GradDipMgt
Risk Management  GradDipMgt
Social Statistics  GradDipMgt
Urban Research and Policy  GradDipMgt

Graduate Certificates
Business Administration  GradCertBusAdmin
Business Information technology  GradCertBusTech
Computer Science  GradCertAppSc
Social Statistics  GradCertAppSc
Taxation and Finance  GradCertTaxFin

Not all these courses will be offered for new students in 1993.

Degree of Master
By coursework:
Master of Applied Science  MAppSc
Applied Colloid Science
Biomedical Instrumentation
Social Statistics
Master of Arts  MA
Counselling Psychology
Japanese
Urban Research and Policy
Master of Business  MBAus
Organisation Behaviour
Master of Business Administration MBA
Master of Engineering  MEng
Computer Integrated Manufacture
Information Technology
Master of Enterprise Innovation  MEntInnov
Master of Information Technology  MinfoTech
Master of Technology  M Tech
Computer Integrated Manufacture
Construction
Masters by thesis can be undertaken in all faculties.
Enquiries should be made to the Assistant Registrar of the faculty concerned.

Degree of PhD
By research and thesis.
Enquiries should be made to the Office of Research and Graduate Studies on 819 8238.

Entrance requirements and application procedure
Undergraduate

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

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

Any person offered a place at Swinburne may be required to present for a 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.

For the Eastern Campus at Lilydale, preference may be given to applicants from the outer eastern metropolitan region of Melbourne.

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

3. Each faculty 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.

Application procedure

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

Applications must be made on the appropriate VTAC form:
Form N
For students studying VCE in 1992. Copies of the form are made available through the schools and colleges concerned. Students should consult the VTAC publication, Guide to Courses in Colleges and Universities.

Form E
For all other applicants. Copies of the form, and the Guide to Courses in Colleges and Universities in which it is enclosed, are obtainable from VTAC.

Special entry
Applications for all courses, except full-time Arts, must be made to the Admissions Officer on a Swinburne application form. Application for full-time study in Arts should be made through VTAC.

Full-time
Second year and higher
Applications for Art and Engineering should be made direct to Swinburne. Forms can be obtained from the Admissions Officer, 819 8386.

Closing dates for full-time places in second and higher years are:
Art → Graphic Design 18 September 1992
Engineering 15 January 1993

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

Part-time
Part-time courses are offered in all faculties except Applied Science and Art.

All applications for part-time courses must be made direct to Swinburne. Forms are obtained from the Admissions Officer, 819 8386.

Closing dates for part-time places are:
Arts 8 January 1993
Business 18 December 1992
Engineering 15 January 1993

The special provisions for mature-age entry set out above apply for entry to first year part-time courses. Applications for part-time places should be forwarded to the Admissions Officer by the dates stipulated.

Deferred entry
Students who are offered a place in first year for 1993 may apply for a deferment until 1994. Applications must be addressed to the Registrar, and must be made at the time an offer is received.

Students who have been granted a deferment will be informed in writing by the faculty concerned.
Postgraduate

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 qualifications, 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 faculty sections.

Application procedure

All applications for enrolment in postgraduate courses other than Masters degree by research and by publication or PhD must be made to the Admissions Officer from whom application forms are available, 819 8386.

Applications for admission to postgraduate courses should be received by:
- Applied Science
  - Computer Science: 20 November 1992
  - Social Statistics: 20 November 1992
  - All other courses: 15 January 1993
- Arts
  - Graduate Diplomas
    - Applied Psychology: 23 November 1992
    - Equal Opportunity Administration: 23 November 1992
    - Japanese: 15 January 1993
    - Japanese for Professionals: 15 January 1993
    - Urban Research and Policy: 15 January 1993
  - Higher Degrees: 15 January 1993
- Business
  - Graduate Diploma and Certificates: 18 December 1992
  - All Masters: 15 January 1993
- Engineering
  - All Courses: 13 November 1992

Late applications will be considered if places are available.

All applications for enrolments in courses leading to the degree of Master by research or by publication or Doctor of Philosophy should be addressed to the Registrar or the Office of Research and Graduate Studies.

Copies of the Statutes for the degree of Master by research and by publication and PhD are set out on pages 33, 34, 35.

Student Administration Office

The Student Administration Office provides information for students on admissions, enrolment and examinations regulations and procedures. Other functions include the processing, maintenance and storage of students’ academic records and personnel details.

A more detailed description of the various enrolment and examinations regulations and procedures is outlined below.

Location and office hours

The Student Administration Office is located in Room AD109, Administration Building (AD), John Street, opposite the Business and Arts Building (BA) and the Library. (See map inside back cover.)

Office hours are as follows:
- During teaching weeks: 8.30am — 6.30pm Monday to Thursday
  8.30am — 5.00pm Friday
- During non-teaching weeks: 9.00am — 5.00pm Monday to Friday

Note: The Office is closed on public holidays.

Academic statements

1. Students receive automatically the following records of their academic progress:
   - result certificates are posted to each student at the end of each semester;
   - a consolidated statement of all subjects so far attempted is printed on the student’s re-enrolment form. (The student keeps a receipted copy of this form when re-enrolling.)

2. Other statements are available, on request, at the fees shown:
   - (a) List of all results: $10.00
   - (b) A list of all results and a statement indicating completion of course: $15.00
   - (c) A list of all results plus a list of those remaining to be passed for the completion of the course: $15.00
   - (d) A special letter indicating some matter requested by the student: $10.00
   - (e) A statement certifying enrolment at Swinburne at date of certificate: $40.00

Reports

A detailed report of (final) examination is available on request and without fee.

Enquiries regarding marks or access to scripts should be made directly to the appropriate department or faculty office.

Students nearing completion of their courses

Students nearing completion of their courses may obtain a statement indicating all results to date and those subjects required to complete their courses. Fee $15.00

Any student who has been involved in a change of syllabus (e.g. from the 1974 syllabus to the 1974 syllabus revised 1978, or to the 1979 syllabus, etc.) and who has not previously obtained a statement, would be wise to do so before starting the final semester.

Awards

Applications for degree and diploma

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 Student Administration Office, Administration Building.

Applications for all awards close on 31 May (for students completing their courses at the end of first semester) or 30 September (for students completing their courses in December), of the year in which the student anticipates completion of the academic work for the award.

Enrolment regulations

Definitions

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 Student Administration section of the Registrar’s Department; the singular includes the plural.

Awards department means the department or, where courses are organised on a faculty basis (Applied Science, Arts and Business) the faculty responsible for the particular
course; 'head of awarding department' has a similar meaning and includes the dean of the faculty where appropriate and the nominee of the head of the awarding department or dean. 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 faculty 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 intimation, 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;
- the approval of the head of the awarding department (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 and standards of conduct of Swinburne University of Technology and to grant to the Registrar the authority to provide appropriate authorities who have permitted a particular student to enrol at the University, details of that person's academic progress as may be required as a condition of approval by that department or authority;
- the payment of the 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;
- the lodging of all documents required by the Registrar at the Cashier's Office or the Student Administration Office as appropriate to the procedure being followed.

Single subject enrolments
Under the conditions set out below, it is possible to study single subject 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 1993 will be at the rate per weekly contact hour as set by the faculty, plus the appropriate General Service Fee. The offering of places in single subjects is at the discretion of the faculty concerned and can be done only after full-credit students have been accommodated. Thus offers may be as late as the first week of teaching. An application form is available from the faculty concerned or the Admissions Officer.

General Service Fee*
All enrolling students are required to pay a general service fee. At the time of printing, fees for 1993 had not been determined. As a guide, the fees for 1992 were:
- Full-time students $170.00
- Part-time students $80.00
- Students studying in the cooperative mode $93.00

Note: All students enrolling at Swinburne for the first time will be required to pay an additional $20.00 towards the Student Union Capital Reserve Fund.
Some fee exemptions and concessions exist.
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 75% of the full-time course load.

Students studying under the 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
- Art (Graphic Design) degree 3rd year
- Civil, Electrical and Electronic, Manufacturing and Mechanical Engineering degrees 3rd and 4th years
- The General Service Fee has 2 components:
  (1) Student Union Capital
  (2) Sports Association

Late enrolment fees
Students who do not attend for enrolment (including any required review of second semester subjects) on the date and at the time specified by their faculty or awarding department, will be required to pay a late fee of $20.00 (where re-enrolment is completed before the commencement of the following semester's teaching); or $40.00 (where re-enrolment is completed after the commencement of teaching for the semester).

Additional fees
A part-time student who adds any subject to those for which he or she was enrolled and thereby increases the number of contact hours involved in his or her course to more than 75% of the full-time course load, will be required to pay the difference between the part-time and the full-time general service fee.

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 Division (Swinburne University) have to make a contribution to the cost of their studies. In 1992 the annual charge was $2,250.00 for a full-time student (or $1,125.00 for each full-time semester). Part-time students pay a contribution in proportion to their full-time load. Students have the option of:
- (i) Making a contribution ‘up front’ in a lump sum (thereby attracting a 15% discount), or
- (ii) Paying the contribution on a deferred basis through the taxation system, or
- (iii) Making one partial payment ‘up front’ (minimum $100.00) 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.

Students have an opportunity each semester of changing their options.

Students exempt from the scheme include:
- those who have paid fees to Swinburne 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;
- 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 Office.
Refund of fees

Later VTAC offer
A student who has enrolled as a result of an offer made through the Victorian Tertiary Admissions Centre (VTAC) and who receives a later offer from VTAC for a higher course preference, may receive a refund of all fees paid if notice of the withdrawal and application for the refund is lodged at the Student Administration Office, Administration Building, prior to 31 March 1993.

No later VTAC offer
A student who withdraws and does not receive a higher preference offer from VTAC may receive a refund of fees, less a service charge, if notice of the withdrawal is lodged at the Student Administration Office, Administration Building, prior to 31 March 1993 for semester one and 31 August 1993 for semester two.

No refunds of fees will be made where a student withdraws from study after 31 March 1993 for semester one and 31 August 1993 for semester two.

No refunds of fees will be made under any of the provisions set out above unless the student returns to the Student Administration with the notice of withdrawal, his or her 1993 student identity card. A copy of the student’s enrolment receipt must also be attached for any refund applications. No refunds can be processed without a copy of the receipt.

HECS refunds

HECS refunds will be made to upfront payees where a student withdraws from the course on, or before 31 March for semester one and 31 August for semester two. Students who require a refund must apply to the HECS Officer, Student Administration. A copy of the receipt must be provided.

Postgraduate fees refunds

Students should contact course authorities for details.

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 is also realised that such errors can cause a great deal of inconvenience to students (and staff) if not detected.

Students are therefore asked to check the record of each semester’s enrolment.

Students who do not check the statements, or who do not by the due date notify the Student Administration Office of any errors existing in the records will be required to pay a substantial fee for each amendment to be made.

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 1993 or
(b) for subjects concluding at the end of the second semester 31 August 1993.

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 — failure 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 dean of the faculty concerned, and the Registrar. Circumstances supporting the application must be set out on the Amendment to Enrolment form on which the approval for the withdrawal is sought. A late fee of $5.00 per subject may be imposed. 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 prior to 31 March 1993 for semester one, or for semester two, prior to 31 August 1993.

HECS liability

Students who withdraw from subjects or total enrolment after 31 March 1993 for subjects concluding at the end of the first semester or after 31 August 1993 for subjects concluding at the end of the second semester will still incur a HECS liability for that semester.

Students who withdraw from a full year subject after 31 March 1993 will still incur a HECS liability for semester one. Students who withdraw from a full year subject after 31 August 1993 will incur a HECS liability for two semesters.

Adding subjects

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

Notwithstanding any faculty rules, after 31 March 1993 (for subjects concluding at the end of the first semester) or 31 August 1993 (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 dean of the faculty concerned and the Registrar has been given. A fee of $10.00 per subject will be charged. Students not enrolled in a subject during examination period must seek approval of the dean of the faculty concerned and the Registrar has been given. A fee of $50.00 per subject added will be charged.

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 at the Cashier’s Office.

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 in writing addressed to the Registrar. 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 is considered within the faculty concerned under any specific faculty rules relating to leave of absence. Students who have been granted leave of absence will be notified in writing by the faculty 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 1993 General Service Fee only if their application is received prior to 31 March 1993 for semester one or 31 August 1993 for semester two. Students must also attach copy of their enrolment receipt with their application. Refunds cannot be processed without a copy of the receipt.

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 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.
Identity cards
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 will be issued for a fee of $10.00.

No refund of the general service fee will be made unless the identity card is returned to Student Administration with the notice-withdrawal from a course.

Assessment Regulations
At time of printing, the assessment regulations are under review by the University's Academic Board. A copy of the revised assessment regulations will be available at re-enrolment in December and at enrolment in February.

Preamble
The aim of these regulations are to safeguard academic standards, to ensure that assessment relates to the objectives and content of the courses taught, to enable students to have reasonable redress in cases where they may feel that an injustice has been done, and to ensure the prompt approval and accurate documentation of all results.

The Academic Board believes that a variety of forms of assessment should be accepted for courses at Swinburne University of Technology to enable faculties to select those they consider most appropriate to each course. No attempt has been made herein to specify appropriate procedures for the facilitation of learning, the evaluation of course content, or determining course objectives, methods of instruction and assessment as these matters are the prerogative of each faculty.

1. Definitions and interpretation

Assessment categories
The range of results which may be issued for a subject.

Award
Includes the degrees of Doctor of Philosophy, Master and Bachelor, and the awards of Graduate Certificate, Graduate Diploma, Diploma and Associate Diploma awarded by the Swinburne Council to persons who have completed a course of study at Swinburne University of Technology.

Awarding department
The department of Swinburne University of Technology which has the overall responsibility for a particular Swinburne award and includes a 'faculty' where that responsibility is taken at the faculty level.

Head of awarding department
The person responsible for the academic leadership and administration of the awarding department. In the case of an award being within the responsibility of a faculty rather than department it means the dean of that faculty.

Awarding faculty board
The faculty board responsible for making recommendations to the Swinburne Council for the grant of a particular award.

Chief Examiner
The Chief Examiner is the Vice-Chancellor of Swinburne. Responsibilities of Chief Examiner are, for the time being, delegated to the deans of the awarding faculties.

Course
A set of subjects the completion of which leads to the student being eligible for the grant of an award by the Swinburne Council.

Convener
The person designated to convene meetings of the particular subject panel established under section four of these regulations.

Examination
The formal testing of all students enrolled in a subject during a period specified by the Academic Board for the purpose of examination subject to the control of the Registrar through his designated officer and for which a result must be produced, published and recorded on the student's record.

Examinations notice-board
A public notice-board on the Swinburne campus designated by the Registrar for the purpose.

Examinations Officer
The member of staff of the Registrar's Department who is responsible for the day-to-day administration of examinations.

Faculty board
Includes any properly constituted sub-committee of a faculty board authorised to approve results for a subject.

Head of teaching department
The person who holds the position of head or chair of the department at Swinburne University of Technology which is responsible for the teaching of a particular subject.

Irregularity
An irregularity is the unauthorised use or attempted use by or for any student of any means to gain an unfair advantage in any examination, test, assignment, essay or other work, the marks for which form part of the final assessment. It includes taking actions contrary to the instructions for such examination or work, taking into an examination any material with the intention of using it to obtain an advantage.

Student
A person who is enrolled in any subject or subjects offered by Swinburne University of Technology whether formally enrolled for a course or not.

Subject
A course of study by whatever name known (including 'unit') within a particular discipline which is recorded in a register of subjects maintained by the Registrar. A subject has a unique code number and a title and is recorded in the register as being taught for a number of weeks (duration).

Subject panel
A panel of members of the academic staff of Swinburne University of Technology established under section four of these regulations.

Student Administration Office
Room AD109 in the Administration Building.

Teaching department
The department of Swinburne University of Technology which has the responsibility for the teaching of a particular subject.

Teaching faculty board
The board of the faculty within which the department responsible for the teaching of a particular subject is located.
2. The objectives of assessment
These regulations shall, in any question of interpretation, be read subject to the following objectives:
2.1 For the purpose of these regulations the main functions of assessment are:
2.1.1 the facilitation of learning which includes such matters as:
   (a) helping to establish learning situations appropriate to the needs, abilities and potentialities of the individual student;
   (b) enabling the diagnosis and alleviation of specific learning difficulties;
   (c) motivating and directing learning experiences;
   (d) developing and maintaining skills and abilities.
   One of the most effective ways of facilitating learning is to provide the student with 'feedback', that is, to let the student know, as soon as possible after they are discerned, any specific errors, misunderstandings and shortcomings, and then to assist in overcoming them.
2.1.2 the certification of the level of achievement which students have reached in subjects and/or courses at Swinburne University of Technology;
2.1.3 assistance with the evaluation and review of course content and objectives;
2.1.4 assistance with the evaluation and review of methods of instruction.
2.2 Although these regulations concentrate chiefly on the certification aspect of assessment, the Academic Board considers that the other functions of assessment stated in section 2.1 above are of even greater importance in the educative process.

3. Forms of assessment
3.1 Without limiting the generality hereof, assessment of students enrolled in a subject may be undertaken in any of the following, or any combination of the following:
3.1.1 examination at the conclusion of the duration of the subject;
3.1.2 formal or informal tests conducted at any time from the commencement of the subject to the end of the examination period designated under these regulations;
3.1.3 assignment, project work, field work, essay, report or such other activities as the subject panel shall see fit.

4. Subject panels
4.1 For each subject for which a result is required there shall be a subject panel (hereafter called the panel) comprising at least two members of the academic staff of Swinburne University of Technology.
4.2 The panel shall be appointed by the head of the teaching department not later than the end of the second week of the semester in which teaching of the subject commences for that particular year.
4.3 The panel shall be reported to the teaching and awarding faculty boards for noting, in the case of subjects commencing in the first semester, no later than the April meeting of the faculty boards and, in the case of subjects commencing in the second semester, no later than the August meeting of the faculty boards.
4.4 The dean of the awarding faculty or head of the awarding department, where such faculty or department is not also the teaching faculty or department, may nominate one person to be a member of a panel for courses for which he or she is responsible.

4.5 The panel shall, subject to these regulations:
4.5.1 After consultation with the head of the teaching department:
   4.5.1.1 determine, prior to the issue of the first test or assignment or test for the subject of the year, the form or forms of assessment to be used;
   4.5.1.2 determine the assessment categories to be used for the particular year.
4.5.2 Ensure that each panel member and each person teaching the subject is familiar with the content and objectives of the subject.
4.5.3 Determine the minimum standards which a student must reach or specific work which a student must complete in order to be notified to a faculty board as a passing candidate in the subject.
4.5.4 Ensure that all students enrolled in the subject are informed of the procedures for assessment including minimum attendance requirements and allocation of marks for the subject, prior to the issue of the first assignment or test for the subject for the year.
4.5.5 Be satisfied as to assessment solutions or statements prepared by or for the convener under section 4.66 prior to the issue of the particular assignment or test.
4.5.6 Determine whether electronic calculators may be used in an examination or test and, if so, the level of sophistication of the calculators which may be used and whether or not the room supervisors shall indicate on a candidate's examination script that a calculator has been used.

4.6 The convener of the subject panel shall, subject to these regulations:
4.6.1 Ensure that the Registrar is notified, in writing, of the form of assessment to be used for the subject and semester.
4.6.2 Ensure that the Registrar is notified, at least one week prior to the commencement of the examination period for the semester, of any subject for which pass/not pass results only are required.
4.6.3 Ensure that assessment for the subject is conducted.
4.6.4 Allocate and supervise the drafting of examination papers and assignments as required by the subject panel.
4.6.5 Ensure that all examination and test papers for the subject are error-free prior to their issue to candidates.
4.6.6 Be empowered to require written solutions to assessable materials, or a statement of minimum qualities acceptable for assessment purposes from the teaching staff responsible for writing or otherwise determining a part of the assessment.
4.6.7 Be present, or a nominee shall be present, in each examination room at the beginning of each examination in the subject to:
   4.6.7.1 answer any questions which may arise regarding the subject matter of the examination;
5. Candidature

5.1 Candidature for assessment is established by the recording of an approved enrolment in the appropriate subject(s) (i.e., no separate application is required to sit for an examination). No result can be given in a subject for which the student is not formally enrolled.

5.2 A student who withdraws from a subject within nine weeks of the commencement of the examination period of the semester in which the final assessment takes place shall be deemed to have failed that subject unless special permission has been given by the dean of the awarding faculty and the result shall be recorded as "Not Pass because of late withdrawal" (NWD). No student may withdraw from a subject after the commencement of the examination period in which final assessment takes place.

5.3 The teaching faculty board may specify minimum requirements for attendance at classes, lectures, tutorials, and practical sessions in order for a student to be eligible for a passing grade in a subject.

5.4 It is the responsibility of a student to become familiar with the subject attendance requirements and methods of assessment adopted for each subject undertaken; enquiries should be directed to the convener of the appropriate subject panel.

5.5 Students requiring extra time

Subject conveners may make special arrangements for students with temporary or permanent disabilities. Applications for such arrangement (including extra writing time) should be made to the Examinations Officer. If possible, such applications should be made before the date set down for the notification of timetable changes.

6. Examination

6.1 Examination period

The Academic Board shall, on the advice of the Registrar, designate a period of time in each semester during which period any and all examinations shall be held.

6.2 Timetables

6.2.1 Approximately half-way through each semester a provisional timetable for examinations to be held during the semester's examination period will be posted on the examinations notice-board. It is the responsibility of students to note their examination times and report immediately any clashes to the Examinations Officer.

6.2.2 The final examination timetable will be posted on the examinations notice-board approximately two weeks prior to the beginning of the examinations. It is the responsibility of students to note dates and times of examinations.

6.2.3 No information on examination timetables may be given over the telephone by a member of the Swinburne staff.

63 Conduct of examinations

Unless otherwise stated on the examination timetable, the following arrangements will apply:

(a) candidates for morning examinations will begin writing at 9.15am. A period of reading time prior to 9.15am may be allowed. The examination timetable will show the period of reading time.

(b) candidates for afternoon examinations will begin writing at 1.45pm. A period of reading time prior to 1.45pm may be allowed. The examination timetable will show the period of reading time.

In (a) and (b) above the examination will be deemed to have commenced at the time candidates began writing.

Except for the completion of any identification materials as may be required by the Examination Supervisor, no writing or marking of examination material shall be permitted during a period of reading time.

Electronic calculators may not be used during reading time.

Students will not be permitted to enter the examination room after 30 minutes have elapsed from the commencement of the examination, and will not be permitted to leave during the first 30 minutes nor during the last 15 minutes of the examination.

At the end of the examination students are required to remain seated until the room supervisor has collected all scripts and University material.

Unless expressly prohibited by the subject panel, electronic calculators may be used. Such calculators must be battery operated.

Students are required to provide their own calculators, and drawing instruments. Students will not be permitted to borrow or lend any equipment or material during an examination.

6.4 Examination discipline

When an apparent irregularity is observed in an examination room, the student will be informed immediately by the supervisor but will be permitted to finish the examination paper. The Examinations Officer will immediately report the circumstances to the Chief Examiner, the subject convener, and the heads of the appropriate teaching and awarding departments.

At the conclusion of the examination the Chief Examiner will decide whether or not there has been an irregularity. If it is the decision of the Chief Examiner that there has been an irregularity, a meeting of the following persons will be convened:

(a) the student concerned;

(b) the subject convener;

(c) and the heads of the awarding and teaching departments;

to decide whether any penalty shall be imposed upon the student. The maximum penalty for cheating or other examination irregularity is that the student be permanently excluded from further study at the University and if any penalty is imposed the student shall be notified in writing.

A student shall have the right of appeal as to the finding of the Chief Examiner and/or the penalty to
a committee appointed for the purpose by the Director.

The Appeals Committee shall consist of five persons, of whom:

(a) one shall be the nominee of the Chief Examiner;
(b) one shall be a student of the University nominated by the President of the Student Union;
(c) one shall be the convener of the subject or his nominee;
(d) two shall be nominated from the academic staff of the University;

provided that no member of the Appeals Committee shall have been a party to the original investigation.

Results

7.1 Result categories

7.1.1 The following assessment categories only may be used to record a student's performance in a subject:

- High distinction (HD)
- Distinction (D)
- Credit (C)
- Pass (P)
- Not pass (N)
- Not pass — late withdrawal (NWD)
- Not pass — no attempt (NA)

7.1.2 Where it is not appropriate for results in a subject to be issued through the full range of categories authorised by these regulations, two categories only shall be used:

- Pass (P)
- Not pass (N)

If this provision is used a statement shall be included in the published results to the effect that only one category of satisfactory achievement was awarded in the subject concerned.

7.1.3 The following notations are applicable in special circumstances:

- Special exam (SPX)
- Deferred (DEF)
- Continuing (CON)
- Exempt (EXM)

7.1.4 In courses in engineering and applied science for which block passing schemes have been approved by the Academic Board the following results only may be used for 'Faculty Result' subjects:

- Pass (P) where all individual subjects have been passed;
- Faculty pass (FP) where one or more subjects have been failed but the student is permitted to proceed to the next stage without being required to repeat the subject or subjects failed;

Not pass (N) where one or more subjects have been failed and the student is required to repeat all or some of the subjects undertaken in the stage for which the faculty result of 'Not pass' was obtained.

7.2 Processing results

7.2.1 The convener shall submit the following to the head of the teaching department:

7.2.1.1 The results recommended for each student enrolled for the subject;

7.2.1.2 Such statistics as are required by the head of department and faculty board;

7.2.1.3 A signed subject report in a form approved by the awarding faculty board, including:

- certification that these regulations have been carried out;
- statement of the assessment procedure followed;
- copies of all examinations, tests and assignments;
- where appropriate, copies of solutions or statements of minimum qualities; and
- an appraisal of the subject as a whole.

7.2.2 Before recommending the results to the awarding faculty board the head of department shall ensure that a review has been carried out of the work of all candidates who are recommended as having failed a subject, or whose results are borderline to an assessment category.

7.2.3 The head of department shall recommend to the awarding faculty board results of all enrolled students for approval.

7.2.4 After faculty board has approved the results, the head of department shall arrange for the entry, by the convener, of the results on the official result sheets; for the transcription to be checked and for the official result sheets to be delivered to the Student Administration Office.

7.3 Deferred results

7.3.1 A deferred result may be granted only by the faculty board and then only when special circumstances justify the grant of an extension of time for the completion of work prescribed for the subject before a student's result in that subject is finalised.

7.3.2 When a deferred result has been granted, the result must be finalised in readiness for notification to the awarding faculty board by a date to be fixed by the board, not later than two months after the date of publication of the deferment. The student and the subject convener shall be advised of the date and conditions set for the finalisation of the result.

7.3.3 Any extension of the period of deferment must have the prior approval of the dean of the awarding faculty who shall fix an alternative date by which the student must have completed the requirements of the subject. Details of the extension granted and the reasons for it shall be notified to the next meeting of the faculty board.
7.4 Continuing notation
The notation 'continuing' may be used:
(a) in those subjects in which enrolment will normally extend for more than one year;
(b) in cases where a result is determined on submission of a report or thesis; and
(c) in cases where a student may be required to extend his or her enrolment in a subject for longer than the normal duration of the subject without a failing result being recorded for the earlier period of enrolment.

The notation 'continuing' will appear on the official examination result certificate issued to students, with a note that, in the normal course of events, re-enrolment in the next semester will be required and that no final result will be issued until the end of that semester.

7.5 Publication and withholding certification
7.5.1 Except by resolution of the awarding faculty board and provided in section 7.5.6, results of assessments in a subject shall be published within two weeks of the end of the examination period nearest to the conclusion of the subject. In the case of a faculty board resolving to publish results after the normal publication period the Academic Board shall be advised of the rescheduled publication date and the reasons for the later publication.

7.5.2 The Student Administration Office is the only official source for the publication and certification of results.

7.5.3 Official publication of results shall be by their display in a pre-designed place on the Institute campus on the date or dates announced by the Registrar for the release of that particular semester's or year's results.

7.5.4 No results will be given over the telephone.

7.5.5 A certificate of results for the particular semester will be produced and made available to every enrolled student.

7.5.6 No certification of current or past academic results will be produced or made available to any student or previously enrolled student or to any other person on behalf of a student or previously enrolled student of the University who has failed to return outstanding materials borrowed from the Swinburne Library or who has failed to pay any fine or imposition relating thereto, or who has any other outstanding commitment to the University, after notice to that effect had been posted by the Registrar to the student at the address most recently recorded in the University records for the particular student.

7.6 Reports
Any student may, on application to the Faculty Office within 30 days of the publication of the result of assessment for a subject, and after payment of the fee prescribed, obtain a detailed report by the examiner on any material formally assessed.

Fees for such reports shall be determined from time to time by the Vice-Chancellor. (Access to examination scripts and marks for each question will be available on request and without fee. Enquiries regarding marks or access to scripts should be made directly to the appropriate department or faculty office.)

7.7 Alteration to results
Any alteration to an examination result (whether finalising a deferred result or altering a published result) which is submitted within two months of publication of the original result, may be approved by the dean of the awarding faculty as chair of the faculty board. An Alteration to Result form shall then be forwarded, via the Secretary, to the Faculty Board, to the Faculty Office. The Secretary shall record the details of the alteration and the reasons for it on the agenda of the next faculty board meeting. The faculty board will receive the alterations for noting. The Faculty Office will take action on the deans signature.

Where an alteration to examination result, other than finalising a result for which an extension of time to complete has been granted under section 7.5.3, 7.5.4, or 7.5.6, is submitted more than two months after publication of the original results, the alteration must be approved by the awarding faculty board before the Alteration to Result form is forwarded to the Student Administration Office.

8. Special examinations
8.1 A special examination may be granted by the Chief Examiner:

8.1.1 Where a student is absent from the whole or part of an examination due to illness or other misadventure. Application under this clause, accompanied by evidence of inability to attend, must be lodged at the Faculty Office, not later than midday of the third working day after the day of the examination; or

8.1.2 Where a student has obtained a pass category in all subjects except one for an undergraduate qualifications and who has failed the subject in the final semester, or where a student has failed, in his/her penultimate semester, a subject which was not again available in the final semester. Application under this clause must be lodged at the Faculty Office not later than midday of the seventh working day after the day of the publication of the results of the subject in the final semester.

8.2 Special examinations granted in accordance with section 8.1 must be notified to faculty board at its first meeting after the granting of the special examinations and the student and subject convener advised.

8.3 When a special examination has been granted the result must be finalised in readiness for notification to the awarding faculty board by a date fixed by the faculty board, but no later than two months after the date of publication of the original result.

8.4 Any extension of that period must have the prior approval of the dean of the awarding faculty who shall fix an alternative date by which the special examination must be finalised. Details of the extension granted shall be notified to the next meeting of the faculty board.
8.5 The subject convener must submit the result of the special examination to the head of department in time for it to be approved by the dean of the awarding faculty before the due date. The dean shall notify the result to the Student Administration Office and the faculty board.

8.6 The Student Administration Office shall notify the dean of the awarding faculty of any results which are outstanding for more than two months from the date of publication of the original results. The faculty board must deal with the matter at its next meeting.

9. Retention of assessed work
The head of department shall arrange for the retention of all examination scripts for a period of three calendar months after the publication of results. The head of department shall arrange for the storage of copies of a representative sample of all assessed material (including examination scripts) for all subjects taught by the department for a period of at least 24 months after the publication of results.

10. Special consideration
A student whose work during the academic year or whose performance in an examination or other assessment has been affected by illness or other serious cause may lodge an Application for Special Consideration with the Registrar. This will be considered by the subject panel concerned.

An application for special consideration must be accompanied by appropriate evidence such as a medical certificate, a letter from a student counsellor, etc. Applications should be lodged at the faculty office not later than midday on the third working day after the conclusion of the day of the examination. Where no examination is held, application must be made before the end of the first week of the examination period.

No application will be considered after the publication of results.

11. Appeal
Any student or group of students has the right of appeal to the head of the appropriate teaching department about any aspect of the assessment procedure in any subject. Such appeal shall be lodged within sixty days of publication of the results in that subject, unless otherwise agreed by the Chief Examiner.

General grievance procedure for students

1. Policy
1.1 Swinburne Council adopted an Equal Opportunity Policy in 1984. The policy affirms commitment to the principles of equal opportunity with regard to employees of, and applicants for employment within Swinburne, and to students admitted to, and prospective students of Swinburne.

1.2 The policy and its successive amendments stipulate that there shall be no discrimination on the grounds of sex, marital status, disability, race, religious or political beliefs, age, sexual preference, or being a parent, childless or a defacto spouse.

2. Definition of terms used in grievance procedure
2.1 Grievance: a complaint presented by an individual, or a group, based on the opinion that they are, or have been, receiving treatment that differs from the treatment received by other individuals or groups.

2.2 Discrimination:
   a) Direct Discrimination — any decision or action which specifically excludes a person or group of people from a benefit or opportunity, or significantly reduces their chances of obtaining it, because a personal characteristic irrelevant to the situation is applied as a barrier.
   b) Indirect Discrimination — attitudes and assumptions which are incorporated into rules, policies and practices, that appear to be neutral or to treat everyone equally, but may in fact disadvantage one group.

2.3 Status or Private Life: The Victorian Equal Opportunity Act 1984 stipulates that no person shall experience discrimination on the grounds of that person's status or private life. 'Status' refers to a person's sex, marital status, race, impairment, being a parent, childless or a defacto spouse. 'Private Life' refers to the holding or not holding of any lawful religious or political beliefs and engaging or refusing to engage in any lawful religious or political activities. The Act applies to education and employment.

2.4 Complainant: person who lodges a grievance.
2.5 Respondent: person who it is alleged undertook the behaviour which resulted in the grievance.
2.6 Grievance Procedure: a prescribed set of actions to be followed when a grievance is presented.

3. Behaviours or actions which give rise to a grievance
3.1 A grievance arises when a student cannot obtain redress through normal channels for what he/she considers to be unfair or different treatment. Such treatment may occur in course assessment, or in classroom behaviour and interactions.

3.2 A grievance may include behaviour outlawed by the Victorian Equal Opportunity Act, the Federal Racial Discrimination Act or the Federal Sex Discrimination Act, such as discrimination on the basis of sex or marital status, or racial harassment.

A separate grievance procedure exists to handle cases relating to sexual harassment.

4. Resolving a grievance
   Informal procedure
4.1 In the first instance, the student should discuss the complaint where relevant, with the lecturer (Higher Education Division), member of teaching staff (TAFE Division) or member of administrative staff in an attempt to resolve the complaint.

4.2 If the grievance cannot be resolved in this way, the student may then raise the matter with the Head of Department.

4.3 Where a student has a complaint against a member of staff who is also the Head of Department, or in a case where the student feels that to approach the Head of Department is not appropriate, the student may take his/her complaint to the Dean or Head of School. The Dean or Head of School will carry out the role otherwise assigned to the Head of Department, in these grievance procedures.

4.4 The Head of Department will discuss the complaint with the student and advise the student where documentation describing the grievance procedure is available.

4.5 If the student's preferences for internal resolution of the complaint, the Head of Department will take a written record of the complaint on a pro forma grievance form.
It will contain:
a) the name of the complainant;
b) the name of the person(s) against whom the complaint is made;
c) the date the complaint is made;
d) the date(s) the behaviour resulting in the grievance took place;
e) a brief description of the nature of the complaint;
f) a summary of follow-up actions taken.
The complainant will read and sign the grievance form as being a true record, after making any appropriate alterations.

4.6 No written record shall be taken or any further action initiated, if the complainant is not willing to name the respondent or does not permit the Head of Department to enter into a conciliation process with the respondent.

4.7 In cases where complaints are made by a class (two or more students) concerning academic or teaching staff, the complainants will not be named and the Head of Department may proceed with conciliating and resolving the complaint.

4.8 With the agreement of the complainant, the Head of Department will then attempt to resolve the grievance with the member of staff named in the complaint through informal discussion and conciliation.

5. Conciliation and resolution
5.1 The Head of Department will meet informally with the respondent for the purposes of:
a) outlining the grievance and naming the complainant (except as covered by Clause 4.7);
b) making a written record of the respondent's reply to the complaint, which is signed and considered a true record;
c) attempting to reach an agreement with the respondent that is acceptable to the complainant;
d) attempting to ensure that there are no reprisals taken against a student who has made a complaint in good faith;
e) outlining the requirements of State and Federal Government anti-discrimination legislation or Swinburne Council policy, where relevant;
f) advising the respondent that another staff member will be nominated to re-assess the student's work.

5.2 If the grievance is successfully resolved, the informal procedure will cease at this point.

5.3 The written record of the informal complaint will be retained for a period of 12 months in a confidential file in the office of the Head of Department.

6. Re-assessment of submitted work or examination paper
6.1 If the complaint concerns assessment of written work which includes assignments, reports or exam papers, the Head of Department may proceed with assessing the complaint with the staff member named as the respondent, nominate another staff member to re-assess the student's work.

6.2 In the case where the respondent is also the Head of Department, the Dean or Head of School, acting as the student's contact person may nominate a member of staff from another discipline or a member of staff from the same discipline in another institution to undertake a re-assessment of the student's work.

7. Follow-up actions
7.1 The Head of Department will meet with the student each semester for a period of 12 months following successful resolution of the complaint, to ensure that retaliatory actions were not taken against the student by virtue of the complaint.

7.2 The Head of Department will ensure wherever practically possible, that work presented by the complainant will be marked independently for a period of one year, following successful resolution of the complaint.

7.3 Where the student is subjected to retaliation, the Head of Department may approach the Head of Department or Head of School or Dean where appropriate and an investigation will be instituted.

7.4 Where a member of staff is found to have retaliated against the student, disciplinary procedures will be instituted.
Such disciplinary action may be taken against the member of staff complained of in the original complaint or any other member of staff undertaking retaliatory action.

8. Formal procedure
8.1 If a grievance cannot be successfully conciliated by the Head of Department to the satisfaction of the complainant, the complainant may instruct the Head of Department to proceed with a formal complaint.

8.2 All formal complaints will be presented to the Appeals Committee.

8.3 The Appeals Committee will comprise:
a) the Vice-Chancellor's nominee from within the Chancellory, who shall act as the Chair;
b) a representative of either the TTUV, SASO, or ACUSA, depending upon the constituency of the respondent; and
c) a representative of the Student Union.

8.4 The written reports, compiled by the Head of Department and signed by the complainant and the respondent will be forwarded by the Head of Department to the Chair of the Appeals Committee.

8.5 The complainant or the respondent may submit any other written material to the Committee in support of their case. Any additional evidence so provided, should first be submitted to the other party or parties named in the complaint.

8.6 The Chair of the Appeals Committee will advise the Manager, Equity Office if the grievance includes allegations of behaviour outlawed under State or Federal Government anti-discrimination legislation or Council Policy on Equal Opportunity.

9. Investigation of complaint
9.1 The Appeals Committee will investigate the grievance in the following manner:
a) the Committee will meet within seven working days of the date the formal complaint is made and consider all written documentation including the written statements of the complainant and respondent and the written statements of witnesses;
b) the Committee may call the complainant or the respondent to attend the meeting to explain any aspect of their written statement.
If the complainant is required to appear before the Appeals Committee he/she may be accompanied by his/her Head of Department.
If the respondent is required to attend he/she may be accompanied by his/her staff association or union representative.

The complainant and respondent would not normally appear before the Appeals Committee at the same time;

c) the Committee may call any witnesses who have submitted written statements concerning the grievance to appear before the Appeals Committee;

d) if the complaint contains allegations of behaviour outlawed by Federal or State Government antidiscrimination legislation or Council Policy on Equal Opportunity, the Manager, Equity Office will attend the Appeals Committee meeting and advise the Committee accordingly. The Manager, Equity Office, will not have voting rights.

9.2 Following deliberations the Committee will make appropriate recommendations. Committee decisions will be achieved through consensus or agreement reached between all members.

9.3 The Committee will forward its written recommendation to the Vice-Chancellor together with documentation of the grievance.

Actions which may be taken are limited to:
a) not upholding the case;
b) upholding the case and stating that the following be considered, where relevant:

- reparation be made to the complainant for any loss of academic credit or achievement suffered as a consequence of the behaviour
- re-admitting a student who has been excluded from a course
- directing the respondent to undertake appropriate staff development programs
- reprimanding the respondent
- ensuring that the complainant is not subjected to retaliatory action by virtue of the complaint

c) in the case where a grievance which concerned discrimination against a student on the grounds of status or private life being upheld, the following action may also be recommended:

- suggesting that the respondent undertake counselling.

9.4 All grievances shall have undergone the process of a formal resolution within a period of three months of the receipt by the Chair of the Appeals Committee of the formal written complaint.

9.5 The complainant and the respondent will be advised in writing by the Chair of the Appeals Committee of the decision made within seven days of submission of the Appeals Committee's recommendation to the Vice-Chancellor.

10. Appeals

10.1 Either party shall have the right of appeal. The appeal should be submitted in writing to the Vice-Chancellor within seven days of the receipt of the Committee's decision. The appellant shall be entitled to present new evidence or to re-argue his/her case.

10.2 The finding of such an appeal shall be communicated to the appellant within fourteen days of the appeal being lodged.

11. Complaints of discrimination — external procedures

11.1 In the case of a grievance being concerned with allegations of discrimination against the complainant on the grounds of that person's status or private life, the complainant has the right to present a complaint to the appropriate external authority.

11.2 Where internal grievance procedures are being followed, the complainant may wish to refer the matter to the appropriate external authority at any stage of the process, and in particular:

a) when no further action is taken;
b) when he/she may wish to appeal against the Committee's decision.

11.3 Where the matter is taken up with the external authority, the internal grievance procedure shall cease to apply in the case.

11.4 The appropriate external authority in the case of minimal complaints is the Commissioner for Equal Opportunity in Victoria.

12. Confidentiality

12.1 Confidentiality will be strictly observed throughout the conciliation and resolution process. Information and records related to complaints will be considered exempt documents under Freedom of Information legislation.

13. Record keeping and storage

13.1 The written record of the complaint will be retained for a period of 12 months in a confidential manner.

13.2 Where all appeal mechanisms are exhausted or where the complaint is not sustained, written documentation of the case will be destroyed.

13.3 The Manager, Equity Office shall have access to statistical information concerning discrimination related complaints.

14. Conflict of interest

14.1 If the Head of Department feels that to undertake conciliation of a complaint would place him/her self in the situation of a conflict of interest, the Head of Department will direct the student to take the grievance to the Dean or the Head of School.

14.2 A complainant may at any stage of the informal procedure seek the assistance of the Dean or Head of School if he/she believes a conflict of interest exists or may arise as a result of the complaint.

15. Resources

15.1 The complainant may at any stage of the grievance procedure approach where relevant, the following offices or persons for advice and/or support:

a) Student Union;
b) Swinburne Student Services;
c) Equity Office.

15.2 Members of staff so contacted are advised to direct the complainant to his/her Head of Department.

15.3 The respondent may approach the staff association or union for advice and support.

Statute for the degree of Master (by research)

1. Definitions
In this statute:
Council means the Council of Swinburne University of Technology;
University means Swinburne University of Technology;
Faculty Board means the sub-committee of the University’s Academic Board called the ‘Faculty Board’ (or any authorised sub-committee thereof) which is responsible for studies being undertaken in the area;
Head of Department means the person appointed Head of Department or elected as Chair of Department responsible for studies in the particular discipline.

2. Title of degree
The degree of Master may be awarded in a field of study of any faculty of the University. Degrees shall be designated as follows:
- Master of Applied Science MAppSc
- Master of Arts MA
- Master of Business MBus
- Master of Engineering MEng

3. Grading of degree
The degree of Master shall be awarded in one grade only.

4. Admission to candidature
4.1 Entry requirements
A person wishing to be admitted to candidature shall have:
4.1.1 qualified, at a sufficiently meritorious standard for a degree of the University (in a field relevant to the work proposed) or such other degree as the Faculty Board may deem equivalent for this purpose; or
4.1.2 qualified for an award judged by the Faculty Board to be of relevant character and appropriate standard; and have experience which the Faculty Board deems to be a suitable preparation for the applicant’s proposed field of study.

4.2 Application
No application for admission to candidature may be approved by the Faculty Board except with the support of the Head of Department.

4.3 Supervision and facilities
An applicant shall be admitted to candidature only if the Faculty Board is satisfied that the proposed program is a suitable study in the discipline or area concerned and that adequate facilities and supervision are available.

5. Program
The candidate shall carry out a program of research, investigation or development involving the submission of a major thesis embodying the results of that program carried out during the period of candidature in:
5.1 a department or other recognised unit of the University, or
5.2 industrial, commercial, governmental, educational or research organisations approved by the Faculty Board, or
5.3 a combination of 5.1 and 5.2.
In addition, a candidate may be required to undertake other formal studies as approved by the Faculty Board.

6. Duration
The candidate may undertake the program on a full-time or part-time basis. Excluding any periods of intermission as set out below, the duration of candidature shall be:
6.1 for a candidate whose degree under 4.1.1 or whose award under 4.1.2 involved less than four years full-time study (or its part-time equivalent): not less than 21 months and not, under normal circumstances, more than 36 months of full-time study;
6.2 for a candidate whose degree under 4.1.1 or whose award under 4.1.2 involved not less than four years full-time study (or its part-time equivalent): not less than 15 months and not, under normal circumstances, more than 36 months of full-time study;
6.3 where a student undertakes the masters degree program (or any portion thereof), by part-time study, the maximum time shall normally be not more than 72 months.

After taking advice from the supervisor(s) and the Head of Department, the Faculty Board may grant a period of intermission of candidature on such conditions as the Faculty Board sees fit.

7. Supervision
For each candidate the Faculty Board shall appoint, on the recommendation of the Head of Department, and on such terms and conditions as the Faculty Board determines, one or two supervisors, one of whom shall be a member of the academic staff of the University.
If a program is carried out within the University, at least one supervisor shall be a member of the academic staff of the department in which the program is conducted.
Where two supervisors are appointed or shall be designated the Co-ordinating supervisor. The Co-ordinating Supervisor must be a member of the staff of the University. The Co-ordinating Supervisor shall have overall responsibility for the administrative conduct of programs. If for any reason a supervisor is unable effectively to supervise the candidate for a period exceeding three months, the Faculty Board shall, on the recommendation of the Head of Department, appoint a replacement supervisor.

8. Progress
At the expiry of twelve months from the date of admission to candidature and at such other times as the Faculty Board may decide, the Faculty Board requires a report on the progress of each candidate. The report is prepared by the supervisor (or, where there is more than one supervisor, the Co-ordinating Supervisor). Prior to the preparation of the report the supervisor (or Co-ordinating Supervisor) will be required to interview the candidate. The candidate will be given access to the report and will have the opportunity to comment to the Faculty Board on the supervisor’s assessment of progress.

Where the Faculty Board is of opinion that a candidate’s progress is not, prima facie, of a satisfactory level, a candidate may be required to show cause why candidature should not be terminated.
Failure on the part of the candidate to demonstrate satisfactory progress may result in the Faculty Board terminating candidature.

9. Thesis
9.1 Three copies of the thesis shall be submitted to the Registrar. At least two of the copies must be bound.
9.2 The thesis must be typed one and a half spaced, in English on A4 size paper, and conform to any other specifications prescribed by the Faculty Board.
9.3 One copy of the thesis shall, if passed by the Faculty Board, be lodged in the Swinburne Library, one shall be held by the department in which the work was done, and one shall be returned to the candidate.

9.4 With the Faculty Board's prior approval a candidate may submit work other than in the form set out in 9.2 and 9.3.

10. Examination
The Faculty Board shall appoint on the recommendation of the Head of Department and the Co-ordinating Supervisor, on such terms and conditions as the Faculty Board determines, at least two examiners in respect of each candidate's thesis. The candidate's supervisor shall not normally be appointed as an examiner. At least one examiner shall be external to the University.

The name of the examiners shall not, without the approval of the Faculty Board, be disclosed to the candidate. Each examiner shall provide a report to the Faculty Board on the standard of the candidate's thesis and recommend one of the following courses of action:

(a) that the thesis be passed;
(b) that the thesis be passed subject to the inclusion of minor specified amendments;
(c) that the thesis be returned to the candidate for major revision and re-submission within a specified period;
or
(d) that the thesis be failed.
Each examiner should indicate whether the report is to be made available to the candidate in whole or in part.

11. Patents and registered designs
The patent rights or right to register a design for any device, process, chemical or the like which has been invented or developed by a candidate for the degree of Master by research in the course of the program being undertaken for the degree shall, unless otherwise determined by Council on the advice of the Faculty Board, be the property of Swinburne University of Technology.

12. Confidentiality
It is the Faculty Board's view that in general the public should have access to the material contained in a Masters thesis once the degree has been awarded. However, the Faculty Board recognises that where a program of research is carried out in or in conjunction with the type of organisation referred to in 5.2 above, the candidate, in order to pursue such a program, may be given access by that organisation to restricted information which the candidate or the organisation does not wish to disclose freely. In such cases the Faculty Board must receive, in writing, from the organisation, notice of such materials and the reason why, in its opinion, disclosure would be undesirable.

Where such material is involved the Faculty Board's prior approval is obtained, the candidate may submit a thesis in two volumes, one containing the general thesis, the second containing only the restricted data or information. The Faculty Board may restrict access to the second volume for a specified period.

Where the thesis has only one volume, the Faculty Board, on receipt of a request in writing from the candidate and supported by a statement in writing from the Head of Department, may order that, for a period of up to three years from the date of that order, the copies of the thesis forwarded to the Swinburne Library and the department shall be made available only to researchers or readers specifically authorised in writing by the Faculty Board.

13. Copyright
Copyright in the thesis is the property of Swinburne University of Technology. Those rights, or any part of them, may be assigned by Council, on the advice of the Faculty Board, to the candidate.

14. Regulations
The Faculty Board may recommend to the Academic Board that regulations be made under this statute regarding the admission to candidature, reports on candidates during the period of candidature, the examination of candidates and related matters.

15. Change in statute
This statute may be amended from time to time by Council on the advice of the Academic Board acting on the recommendation of the Faculty Board. In the event of an amendment being made subsequent to the beginning of a student's candidature, that candidate may elect to continue under the statute which was in effect at the time candidature began.

Statute for the degree of Master
(by publication)

1. Definitions
1.1 General
Committee means the Higher Degrees Committee of the Academic Board;
Council means the Council of Swinburne University of Technology;
University means Swinburne University of Technology;
Faculty Board means the sub-committee of the University's Academic Board called the 'Faculty Board' (or any authorised sub-committee thereof) which is responsible for studies being undertaken in the area;
Head of Department means the person appointed Head of Department or elected Chair of Department responsible for studies in the particular discipline.

1.2 Publication
Publication is a major published paper, a collection of papers or a monograph. A publication must be based on original research, investigation or development, mental work carried out by the candidate in an industrial, commercial, governmental, educational or research organisation, or carried out as a member of the staff of a college of advanced education provided that the subject and nature of the research work are accepted by the University as appropriate for examination of the award of the degree of Master.

2. Title of degree
The degree of Master may be awarded in a field of study of any faculty of the University. Degrees shall be designated as follows:

- Master of Applied Science MAppSc
- Master of Arts MA
- Master of Business MBus
- Master of Engineering MEng

3. Grading of degree
The degree of Master shall be awarded in one grade only.
4. Admission to candidature

4.1 Admission requirements

A candidate for a degree of Master by publication shall:

(a) have held for a minimum period of five years:
   (i) a degree of the University or of any other institution approved by the Committee for this purpose; or
   (ii) such other qualification or experience as might be accepted as equivalent to (i) above.
(b) submit to the University a publication or publications.

4.2 Application

No application for admission to candidature may be approved by the Committee except with the support of the appropriate faculty board.

5. For the purpose of assessing an application, the University shall require that any publication submitted in respect of the application:

(a) has been the subject of critical independent examination;
(b) is available to the general public; and
(c) where it consists of several papers, relates to one aspect of the same subject.

6. A report issued by an organisation shall not, without the express consent of the organisation and the University, be accepted as a publication for the purpose of this statute.

In the event of joint publication, the applicant shall provide the University with a written statement indicating the extent and nature of the applicant's personal contribution to the project. The applicant's statement should be countersigned by the joint author(s) and supervisor (where applicable), or a written statement should be provided by the joint author(s) and supervisor (where applicable).

7. The publication submitted should represent work which is considered by the appropriate faculty board to be the equivalent of two years full-time study.

8. A candidate shall normally be required to present at least one seminar to staff and students of the University on the subject of publication.

9. A candidate may not submit for examination work previously submitted for any previous academic qualification.

10. In the first instance three copies of the publication shall be forwarded to the Registrar of the University who shall request the Committee to assess whether the candidate and the publication presented conforms to the guidelines numbered above (2-10) and are worthy of examination for the award of Masters degree by publication.

11. The publication submitted shall be in English; if the original publication is in a language other than English, a translation must be supplied.

12. If the publication is deemed worthy the Committee shall instigate the examination of the submission. The publication shall be examined by two examiners appointed in the same manner as those for the degree of Master by research. At least one of the examiners shall be external to the University.

13. Each examiner shall be asked to give an opinion as to whether the publication demonstrated:

(a) a thorough understanding of the relevant field of study;
(b) a high level of competence;
(c) a discernable contribution in the field of study.

14. Each examiner shall assess the publication submitted as either:

(a) pass, or
(b) fail.

Publications which have been deemed to have failed may not be re-submitted.

15. If the examiners disagree, the Committee may appoint a third examiner and a majority view will determine the result; the candidate may be required to undertake an oral examination.

16. One copy of the publication, if passed by the Committee, shall be lodged in the Swinburne Library, and one shall be held by the department whose field of interest is closest to that of the candidate's work, and one shall be returned to the candidate.

17. This statute may be amended from time to time by Council on the advice of the Academic Board acting on the recommendation of the Committee.

Statute for the degree of Doctor of Philosophy

1. Definitions

In this statute:

Committee means the Higher Degrees Committee of the Academic Board;
Council means the Council of Swinburne University of Technology;
University means Swinburne University of Technology;
Faculty Board means the Sub-committee of the University of Academic Board called the 'Faculty Board' (or any authorised sub-committee thereof) which is responsible for studies being undertaken in the area;
Head of Department means the person appointed Head of Department or elected as Chairman of Department responsible for studies in the particular discipline.

2. Grading of degree

The degree of Doctor of Philosophy shall be awarded in one grade only.

3. Admission to candidature

3.1 Entry requirements

A person wishing to be admitted to candidature shall have:

3.1.1 qualified for the award of the degree of Master of the University (in a field relevant to the work proposed) or for the award of such other degree as the Committee may deem equivalent for this purpose; and shall have demonstrated to the Committee's satisfaction a capacity for research and investigational work in the area of study proposed; or

3.1.2 qualified for an award judged by the Committee to be of relevant character and appropriate standard; and have experience which fulfills the requirements set out in 3.1.1.

3.2 A candidate who is enrolled for the degree of Master in the University may be permitted to transfer his/her candidacy to the degree of Doctor of Philosophy after the completion of not less than twelve months (or its equivalent) of full-time research/coursework.

3.3 Application

No application for admission to candidature may be approved by the Committee except with the support of the faculty board.
Supervision and facilities

An applicant shall be admitted to candidature only if the Committee is satisfied, on advice supplied by the faculty board, that the proposed program is a suitable study in the discipline or area concerned and that adequate facilities and supervision are available.

4. Program

4.1 The candidate shall carry out a program of research, investigation or development involving the submission of a major thesis embodying the results of that program. The program shall be one which will make a distinct contribution to knowledge and in the execution of it the candidate shall demonstrate a substantial degree of originality.

4.2 In addition, a candidate may be required to undertake other formal studies as approved by the Committee.

4.3 The program may be carried out in:
   4.3.1 a department of the University, or
   4.3.2 an industrial, commercial, governmental, educational or research organisation approved by the Committee, or
   4.3.3 a combination of 4.3.1 and 4.3.2.

4.4 A candidate wishing to undertake other studies in addition to any specified by the Committee under 4.2 must seek the approval of the Committee.

5. Duration

5.1 The candidate may undertake the program on a full-time or part-time basis. Excluding any periods of intermission as set out below, the duration of candidature normally shall be:
   5.1.1 36 calendar months for a full-time candidate from the date of commencement.
   5.1.2 72 calendar months for a part-time candidate from the date of commencement.

5.2 In the case of a transfer of candidature as set out in 3.2 the Committee shall determine what period of master's candidature shall count towards the candidate for the degree of PhD.

5.3 Where a candidate is permitted to transfer between full-time and part-time candidature the Committee shall determine the duration of candidature.

5.4 A candidate may pursue the program on a part-time basis only if the Committee is satisfied that the candidate is able to devote sufficient time to the program.

5.5 Where an applicant has been accepted as a doctoral candidate the applicant shall enrol in the University and pay the appropriate fees and charges.

6. Intermission

After taking advice from the supervisor(s) and the Head of Department, the Committee may grant a period of intermission of candidature on such conditions as the Committee sees fit. The total period of intermissions granted during candidatures shall not exceed 12 months unless the Committee deems the circumstances to be exceptional.

Supervision

For each candidate the Committee shall appoint, on the recommendation of the faculty board, and on such terms and conditions as the Committee determines, one or two supervisors, one of whom shall be a full-time member of the academic staff of the University. If the program is carried out within the University, at least one supervisor shall be a member of the academic staff of the department in which the program is conducted. Where two supervisors are appointed one shall be designated the Co-ordinating Supervisor. The Co-ordinating Supervisor must be a member of the staff of the University. The Co-ordinating Supervisor shall have overall administrative responsibility for the conduct of programs.

If for any reason a supervisor is unable effectively to supervise the candidate for a period exceeding three months, the Committee shall, on the recommendation of the faculty board, appoint a replacement supervisor.

8. Progress

8.1 At the expiry of twelve months from the date of admission to candidature and at such other times as the Committee may decide, the Committee will request a report on the progress of each candidate. The report is to be prepared by the supervisor (or, where there is more than one supervisor, the Co-ordinating Supervisor). Prior to the preparation of the report the supervisor (or Co-ordinating Supervisor) will be required to interview the candidate. The candidate will be given access to the report and will have the opportunity to comment to the Committee on the supervisor's assessment of progress. Where the Committee is of opinion that a candidate's progress is not, prima facie, of a satisfactory level, a candidate may be required to show cause why candidature should not be terminated.

Failure on the part of the candidate to demonstrate satisfactory progress may result in the Committee terminating candidature.

9. Thesis

9.1 Three copies of the thesis shall be submitted to the Registrar. At least two of the copies must be bound.

9.2 The thesis must be typed 1% spaced, in English, on A4 size paper, and conform to any other specifications prescribed by the Committee.

9.3 One copy of the thesis shall, if passed by the Committee, be lodged in the Swinburne Library, one shall be held by the department in which the work was done, and one shall be returned to the candidate.

9.4 With the Committee's prior approval a candidate may submit work other than in the form set out in 9.2.

9.5 The thesis shall be accompanied by a certificate from the supervisor(s) stating that in their opinion the thesis is ready for examination.

9.6 When submitting the thesis the candidate must sign a declaration that the thesis has not previously been submitted for a degree or similar award at another institution.

10. Examination

The Committee shall appoint on the recommendation of the faculty board, on such terms and conditions as the Committee determines, at least two examiners in respect of each candidate's thesis. The candidate's supervisor shall not normally be appointed as an examiner. At least one examiner shall be external to the University. The names of the examiners shall not, without the approval of the Committee, be disclosed to the candidate. Each examiner shall provide a report to the Committee on the standard of the candidate's thesis and recommend one of the following courses of action:

(a) that the degree be awarded;
(b) that the degree be awarded subject to the inclusion in the thesis of minor specified amendments;
(c) that the degree be awarded subject to the candidate passing a written and/or oral examination in subjects related to the thesis;
(d) that the thesis be returned to the candidate for major revision and re-submission within a specified period;
14. Regulations

The Committee may make or amend regulations under this statute regarding the admission to candidature, reports on candidates during the period of candidature, the examination of candidates and related matters.

15. Change in statute

This statute may be amended from time to time by Council on the advice of the Academic Board acting on the recommendation of the Committee. In the event of an amendment being made subsequent to the beginning of a student's candidature, that candidate may elect to continue under the statute which was in effect at the time candidature began.

Swinburne Centres

Centre for Animation/Interactive Multimedia (AIM)

Director
John Bird, 819 8117
Enquiries: Administrative Officer, Robyn Blake, 819 8590
Lecturer in Charge: David Atkinson, 819 8963

The Centre was established in 1992 to provide a focus for research and training relevant to the needs of the animation and interactive multimedia industries.

Centre aims

The Centre aims to encourage the creative and innovative use of animation, computer visualisation and interactivity as a means of entertainment, communication, personal expression and information exchange, and seeks to equip aspiring writers/directors/animators and producers with craft skills that lead to creative, technical and artistic control over the medium.

The Centre also aims to: encourage the local publishing and distribution of interactive works via in-house produced programs which exploit the potential of interactivity; ensure that high standards for attractive and functional human-computer interface design; help establish a special interest group and technical section; encourage the publication, distribution and exhibition of such works.

Centre activities

The Centre conducts professional training via its specialist short course program, hosts industrial seminars, provides a neutral form where the latest developments in new media technologies can be demonstrated and evaluated, undertakes applied research in computer animation, interactive and new media technologies at M.A. and PhD level to develop tools for the local industry, provides consultation and advice to industry and educationalists, conducts a postgraduate diploma course in animation/interactive multimedia.

Postgraduate studies

The prime activity of the Centre is a one year full-time Postgraduate Diploma course in Animation and Interactive Multimedia. The objective of the course is to foster the development of artistic and creative talent through practical production. Whilst based upon the heritage and tradition of animation and the motion picture arts, the course also takes into account the new opportunities for artistic expression and potential areas of employment created by changing technology. In the course of the year, students are expected to take on the role of writer/director and produce a substantial body of personal works for examination and exhibition.

The Graduate Diploma course is also intended to lay the foundation for persons wishing to undertake further advanced study at M.A. and PhD level.
Centre for Applied Colloid and BioColloid Science

Head
Professor D.E. Mainwaring
Department of Applied Chemistry, 819 8576

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 Centre has extensive development projects in applied research and contract research in applied colloid science for medical and physiological use. The Centre draws on the strengths in instrumentation and biophysics within the Department of Physics.

Centre for Biomedical Instrumentation

Director
Dr. D. Murphy
Department of Physics, 819 8834

The Centre was established in 1985 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 Department of Physics.

At present, research activities include electrical impedance tomography, instrumentation for isometric muscle-strength assessment, instrumentation for electroencephalography, instrumention for ambulatory monitoring, electromyography applied to muscle-fibre characterisation, effects of electromagnetic fields on tissue and a fibre-optic based respiratory monitor.

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 one centre.

Centre for Computer Integrated Manufacture (CIM Centre)

Director
Professor W. Thompson
School of Manufacturing and Mechanical Engineering, 819 8459/9272

Established in 1985 under the Key Centres of Teaching and Research Program funded by the Commonwealth Tertiary Education Commission, the Centre aims to provide a focus for teaching and research in Computer Integrated Manufacturing (CIM). Funding has been provided to establish a Computer Integrated manufacturing facility to be used for high level teaching and research at Swinburne, for industrial research and consulting and for training of academics from other institutions.

The Centre has a group of staff available to assist in industrial development projects in CIM and advanced manufacturing, industrial prototyping can also be done.

Centre for Applied Neurosciences

Director
Professor R.B. Silberstein
Department of Physics, 819 8273

The Centre for Applied Neurosciences was established in 1985.

Its 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) brain electrical activity and schizophrenia;
- (b) cortical evoked potentials and recovery from brain damage;
- (c) cortical evoked activity and the objective assessment of selective attention;
- (d) ageing and brain electrical activity;
- (e) effects of emotional state on brain electrical activity;
- (f) monitoring of awareness and anaesthetic depth using visual evoked potentials.

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.

Centre for Computing Productivity Institute

Director
P. Kindler
Faculty of Business, 819 8883

The mission of the Computing Productivity Institute is to:
- Provide a data base of information on available computing productivity methods and tools for use with the whole spectrum of computer systems.
- Provide a data base of information on the vendors and users of productivity tools, identifying opportunities for Australian software houses to distribute and/or build products where gaps exist.
- Provide and maintain an environment to evaluate and demonstrate productivity tools and techniques.
- Conduct ongoing research into use and misuse of these methods and tools.
- Provide on-campus and in-house courses to raise awareness and facilitate the correct use of the productivity methods and tools.
- Provide consulting in the selection, installation and use of productivity tools.
Design Centre
Manager
S. Huxley, 819 8216
This is a unit which provides equivalent Industry Based Learning professional design practice for postgraduate students to qualify for a conversion to the award of Bachelor of Arts degree, working on professional commercial projects for industry and governments and selected non-commercial projects for community groups.
The Centre, which is fund generating, operates under the management of a lecturer who is assisted by other staff on a project needs basis.

Energy Systems Engineering Centre
Director
Professor J.H. Perry
School of Mechanical and Manufacturing Engineering, 819 8458
Established in 1989, the Centre aims to provide a focus for research and teaching in every related matter for the power, mineral and chemical process industries.
In meeting its obligations, the centre is developing two 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; and
- 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 born particle sizing.

Centre for Housing and Planning
Director
Professor L.A. Kilmartin, 819 8146
Enquiries: 819 8825, 819 8837
The Centre was established in 1991 in order to undertake independent research and education in the fields of housing and planning. The objectives of the Centre are: to undertake research on housing and strategic planning issues with a view to improving the effectiveness and affordability of the public and private housing sectors and urban development; to develop a housing information system to improve decision making in the public and private housing sectors and to enable more effective policy development and marketing; to develop an export education program targeted at third world countries; to provide a mechanism to bring together public and private sector decision makers in order to allow information exchanges and debate in a 'neutral' setting; to develop a 'clearing house' for housing and strategic planning information research; to provide a focus for state and national co-operation and liaison around housing issues; to develop links with other higher education institutes and evolve a co-ordinated approach to the provision of housing information and teaching.

Centre for Industrial Democracy
Chair
J. Morison, Department of Social and Political Studies, 819 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 and employee participation.
Consulting, the writing of occasional papers, organising workshops and seminars, preparation of videotaped and printed training materials are all part of the Centre's work.

Laboratory for Concurrent Computing Systems
Director
Professor G.K. Egan
School of Electrical Engineering, 819 816718516
The Laboratory for Concurrent Computing Systems was established in 1990 to foster research into concurrent computing systems, including supercomputers, and their applications.
The Laboratory's charter is to:
- maintain high quality research into computational models and architectures applicable to parallel and supercomputing systems, and through this research maintain strong links with other major international research groups;
- establish, maintain and contribute to a directory of parallel programming tools and algorithms;
- identify applications which would benefit from the results of its research and the research of others, with particular emphasis on applications of national or commercial importance;
- develop selected applications which are within the capacity of the Laboratory, and where appropriate seek partners for their further development and transfer to industry or government bodies;
- provide educational programs for industry and government;
- provide a direct consulting service to industry and government on specific applications or issues.
The Laboratory has collaborative links with major research groups including Lawrence Livermore Laboratories, the Massachusetts Institute of Technology, the Australian Bureau of Meteorology Research Centre and the CSIRO, and has industry support from Cray Research and IBM.

Centre for Marketing Strategy
Director
L. Zimmerman
Department of Marketing and Organisation Behaviour, 819 8074
The establishment of the Marketing Strategy Centre has been a major initiative of the Faculty of Business. The Centre will provide a focal point between the business and government sectors and the marketing discipline at Swinburne.
The Centre aims to help Australian business and industry in their decision-making concerning domestic as well as international business. It offers a range of consultancy, marketing research, strategic research and management development services. Through its activities the Centre will facilitate the introduction and implementation of cooperative education. The Centre will continue to present the already well-patronised portfolio of short courses in Marketing, Services Marketing and Strategic Management.

Media and Telecommunications Centre
The Media and Telecommunications Centre, established in 1989, is based in the Media Studies subject area in the Faculty of Arts. Its role is to initiate educational programs that will foster closer co-operative 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 course work in the BA program, the production of Swinburne publications such as Staff News and Open Day information kits, 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 monographon film, television and general media subjects

research consultancies on telecommunications and media in the Pacific, Asia and Australia.

National Korean Studies Centre

Executive Director
Adrian Buzo, 819 8608

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 Studies courses in all sectors of the Australian education system
- fosters and undertakes high quality comparative regional 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 greater awareness of Australia in Korea.

Centre for Psychological Services

Manager
R.H. Cook

Department of Psychology, 819 8105 or 819 8653

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 Psychology Department, and enhances the teaching resources of the Department 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.

It is located at 16 Park St., Hawthorn.

Science Education Centre

Chair
Professor J.G. McLean
Faculty of Applied Science

Co-ordinator
Peter Lees, 819 8503

The Science Education Centre operates as part of the Faculty of Applied Science to promote interest in science and technology. The major activities of the Science Education Centre are:

- Operation of the Swinburne Travelling Science Show — a science stimulus program which visits primary and secondary schools throughout Victoria. A separate program for the wider community and professional events is also available.
- Provision of support for the Swinburne Travelling Science Show to teachers in the form of technical information, seminars and in-service training.

Taxation Research and Advisory Centre

Director
D. Vinen

Department of Accounting, 819 8077

The Taxation Research and Advisory Centre was formed firstly, in response to the community's need for easy access to advice on a progressively complex and difficult area and secondly, the college's growing awareness that its valuable resources should be made more readily available to the community.

Services Offered
- 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 income taxation department 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
The Science Shop
Manager
K. Mullins Gunst, 819 8705
The Science Shop promotes public access to science, engineering and technology through activities which include a free information service, project management and science sales. The Science Shop provides a means for individuals, community groups and small businesses to seek answers to scientific, engineering and technical questions arising from their daily lives, and for scientists and engineers to work on projects of interest and value to the community.
In addition The Science Shop publishes and disseminates information on the scientific and technical backgrounds to issues of concern to the community including the small business sector. Training consultancy services are among the special Corporate Services offered to scientific and technical organisations.
A range of projects and seminars are organised, designed to promote communication between scientists and the community. Fun science gifts, educational toys, kits and publications are all available for sale at The Science Shop.
The Science Shop was established in 1988 as a joint initiative of Swinburne with the Commission for the Future. It is seen as a national pilot project which will lay the foundations for other such centres throughout Australia.

Centre for Urban and Social Research
Chair
J. Pidgeon
Department of Information Systems, 819 8306
Enquiries: 819 8825, 819 8837
The Centre for Urban and Social Research was formed in 1986 by amalgamation of the Centre for Urban Studies and the Centre for Applied Behavioural Studies. The activities of the Centre range from consultancy research through short courses and seminars to community development and liaison.
Members of the Centre have researched and written numerous major consultancy reports for both public and private sector clients and have considerable research and policy development skills in the areas of survey research, housing, youth studies, ethnicity, social indicators, urban data bases and demographic forecasting and analysis.

Centre for Women’s Studies
Chair
T. Castleman
Faculty of Arts, 819 8466
The Centre for Women’s Studies is composed of members drawn from all divisions of Swinburne who have a wide range of expertise relevant to gender and the status of women.
The activities of the Centre include:
• Presenting short courses on topics which concern women and gender issues (e.g., feminist theory, Equal Opportunity Implementation, women and education). Such courses are open to the general public.
• Carrying out research projects which investigate aspects of the status of women and social policy relevant to the special needs of women.
• Compiling educational materials relating to women’s studies for use in teaching courses on sex and gender as well as for inclusion in existing courses.
• Preparation of occasional papers.
applied science

Undergraduate courses
Degree of Bachelor of Applied Science
- Computer-aided Chemistry
- Computer-aided Biochemistry
- Computer Science and Software Engineering
- Computing and Instrumentation
- Environmental Health
- Mathematics/Computer Science
- Medical Biophysics and Instrumentation
- Psychology and Psychophysiology
Bachelor of Information Technology
Degree of Bachelor of Applied Science
(Honours)

Postgraduate courses
Graduate Certificate of Applied Science
- Computer Science
- Social Statistics
Graduate Diploma of Applied Science
- Biomedical Instrumentation
- Computer Science
- Applied Colloid Science
- Industrial Microbiology
- Industrial Chemistry
- Social Statistics
Master of Applied Science
- by research
- Applied Colloid Science (by coursework)
- Biomedical Instrumentation (by coursework)
- Social Statistics (by coursework)
Master of Information Technology
Doctor of Philosophy
- by research
Subject Details
General Information
Swinburne Higher Education Division
Information
Faculty of Applied Science

Dean
Professor J.G. McLean, BVSc(Syd), HDA(Hons), PhD(Melb)

Associate Dean
E.P. Hauser, MSc(Oxon), DipEE, TTTC

Assistant Registrar (Applied Science)
J. Berry

Administrative Officers
C.A. Ball, BA(Ben)
N. Besley, BA(Lat), DipEd(Mon)
H. Giannakis, Diploma(Vir), GradDipEdAdmin(HIE)
E.A.R. Livingstone, BSc(Hons)(Lat)
R.L. Shaw, BSc(Mon)

Department of Applied Chemistry

Head
I.K. Jones, BAppSc, DipEd, PhD(Melb), FRACI

Professor
D.E. Mainwaring, BSc(Hons), DIC, PhD(Lon), FIEAust

Associate Professors
Ian G. McWilliam, AO, DSc(Lat), FRACI

Principal Lecturers
R. Laslett, MSc(Adel), DipEd(Melb), FRACI

Senior Lecturers
W.L. Baker, BSc(Hons)(WAust), PhC(Syd), FRACI, TTTC
I.C. Bowater, BSc(Hons), DipEd(Melb), PhD(Mon), ARACI

R.F. Cross, BSc(Hons)(Melb), DipEd(Mon), PhD(Melb), ARACI

J.V. Fecondo, MSc(Melb)

J.M.P. FitzGerald, BSc(Hons), PhD(Mon), PhC(Syd)

I.H. Harding, BSc(Hons), PhD(Melb)

J. O'Connor, MSc(Wat), MEd(Mon)

G.G. Rose, BSc(Hons), PhD(Melb)

M.J. Searle, BSc(Wat), DipEd, PhD(Melb)

M.G. Wong, BSc(Hons), PhD(Mon)

Lecturers
P. Barton, BSc(Hons), DipEd, PhD(Lat)

M. Cleaver-Wilkinson, DipAppSci(SIT)

R. Crawford, MAppSci(SIT)

G. Lonergan, BSc(Hons)(WAust)

R.G. Morris, DipPH(RMIT)

M. Nataraajan, MSc(Med), PhD(Mon)

A. Panow, BAppSci(SIT)

M.E. Redwood, BSc(Hons), PhD(Wont)

Coordinator of Environmental Health Programs
J.W. Davis, DipPH(RMIT), GradDipHealthEd(Lat), FAIEH

Manager, National Scientific Instrumentation Training Centre
J. Hall, BSc(Hons), PhD(Lat)

Department of Computer Science

Associate Professor and Head
D.D. Grant, MSc(Melb), PhD(Reading)

Principal Lecturers
G.A.K. Hunt, BA(Melb), DipAppChem(SIT)

Y.K. Leung, BA(Open), MSc(Heriot-Watt), MBA(Mon)

R. Smith, BSc(Hons)(Melb), GradDipCompStud(CCAE), PhD(Melb)

Senior Lecturers
K. Bluff, BSc(Hons), DipEd(Mon), GradDipComp, PhD(Deak)

W.J. Cosshall, BSc(Deak), GradDipEng(SIT)

M.J. Crock, BAppSci(SIT), BSc(Hons), DipEd, PhD(Melb)

I. Foley, BSc(Hons), PhD(Melb)

R. Jagielski, MSc(Kharkov), PhD(Kiev)

A.B. Oppenheim, BSc(Melb)

P.L. Robb, BA(Melb), MSc(Lat), TSTC(MCAE)

Lecturers
R.K. Allen, BSc(Hons), PhD(Tas)

E. Chang, BSc(Shijing), MSc(Lat)

B.L. Donaldson, BAppSci(SIT)

M.S. Harris, BSc(Eng)(Hons)(Cant)

S. Howard, MSc(Lond)

P. Hundle, BSc(Hons)(Punjabi), MSc(York)

K. Mouzakidou, BSc(Edin), GradDipAppSci CompSc(SIT)

G. Mphys, BSc(Edin), GradDipAppSci CompSc(SIT)

R.L. Raddum, BSc(Hons), PhD(Melb)

A. Tsiaronis, BAppSci(CompTech)(FIT)

R.B. Watson, MSc(Melb), GradDipOpRes(CCAE), PhD(ANU)

R. West, BAppSci(SIT)

S. Yip, MSc(Melb), GradDipInfSystDes(RMIT), DipCompStud(Lat)

Computer Systems Officers
G. Collins, BAppSci(RMIT), GradDip(AutComp)(RMIT), BAppSci(Cart)(RMIT)

D. Tran, BAppSci(SIT)

Department of Mathematics

Head
J.R. Iacono, BA(Mon), MSc, TPTC

Associate Professors
S.R. Clarke, BSc(Hons), DipEd(Melb), MA(Lanc)

A.K. Easton, MSc(FLin), DipI(ATEC), PhD(FLin), FlMA

P.L. Jones, BSc(Melb), DipEd, PhD(Mon)

Principal Lecturers
P.A. Evans, DipEd, MSc(Melb)

B.H. Phillips, BSc, Bed(Mon), MSc(SocSci)(London)

Senior Lecturers
C.R.F. Arling, DipEd(Haw), MSc(Lat)

N.F. Garnham, DipEd(Melb), MSc(Kent)

D.H. Noble, BSc(Hons)(St Andrews), MA(Lanc)

M. Singh, MSc, PhD(Roorkee)

J.M. Steiner, BSc(Hons), PhD(Mon)

S.E. Weal, BAppSci(RMIT), M.A(Lanc)

Lecturers
G.J. Francis, BSc(Hons), PhD(Mon)

F. Ghob, MSc, PhD(GU)

G.D. Handley, BE, BSc(Hons), MBA(Melb)

J.C. Herzel, BSc(Hons), PhD(Melb)

D. Jackson, BSc(Hons)(Mon), AMusA(AMEB), PhD(Mon)

N. Khan, MSc(BDA)

N. Liu, MSc(China)

D. Lucy, BSc(Hons)(Mon), DipEd, PhD(Melb)

D.C. Mainwaring, DipEd(MSc), MSc(Lat)

D.J. Richards, BSc(Melb), LLB(Mon)

J. Sampson, BSc(Mon), GradDipDP(CIT), DipSurv(RMIT), TTTC

A.P. Skewes, BSc, DipEd(Melb)

J.H. Taffe, BA(Mon), MSc(Melb)

P.C. Tobin, BSc(Hons)(Melb), DipEd(MCAE), MEdSt(Mon), BAppSci(RMIT), FlMA

Mathematics Education Resource Centre

Coordinator
B.M. Leary, BAppSci(VE), FRMIT

Assistant Co-ordinator
K.B. Clarke, BA(Melb), TSTC

Research Associate
M.A.M. Boers, MSc(Utrecht), PhD(Maryland)
Department of Physics

Head
Professor R.B. Silberstein, BSc(Hons)(Mon), PhD(Melb)
Associate Professor
R.E. Hendtlass, MSc(Otago), PhD(Massey), FIIA
Senior Lecturers
P.S. Alabaster, MSc, PhD(Manchester)
E.N. Bakshi, MSc(Odessa), PhD(Mon)
A.P. Mazzolini, BAppSc, PhD(Melb)
E.D. McKenzie, CertEd(ATTT), MSc(Melb)
D. Murphy, BE(Mon), MSc(Lond), DPhil(Oxon)
J. Patterson, MSc, PhD(Melb)
J.M. Venema, BSc, BA(Melb), DipEE(GIT), TTTC(Haw)
D. Ward-Smith, BSc(Hons), DipEd, PhD(Melb)
A.W. Wood, BSc(Hons)(Bristol), PhD(Lond)
Lecturers
A. Bartel, MSc(Melb)
P.J. Cadusch, BSc(Hons), PhD(Melb)
J. Ciorciari, BAppSc(SIT)
P.D. Ciszewski, BAppSc(SIT)
T.G. Edwards, BSc, PhD(Lond), FRSC
J. Patterson, MSc, PhD(Melb)
D. Ward-Smith, BSc(Hons), DipEd, PhD(Melb)
M. Schier, MSc(Mon)

Centres Associated with Faculty of Applied Science
Centre for Applied Colloid/Biocolloid Science
Centre for Applied Neurosciences
Centre for Biomedical Instrumentation
Centre for Systems Methodologies
National Scientific Instrumentation Training Centre
Science Education Centre
The Science Shop
The Advising Centre for Women

Courses offered:
Bachelor of Applied Science
2051 Computer-Aided Chemistry
2052 Computer-Aided Biochemistry
2063 Computer Science and Software Engineering
2064 Medical Biophysics & Instrumentation
2065 Biophysics & Instrumentation (Final Year)
2066 Environmental Health
2067 Computing & Instrumentation
2068 Mathematics & Computer Science (Hawthorn Campus)
2069 Mathematics & Computer Science (Lilydale Campus)
2070 Psychology & Psychophysiology
2071 Environmental Health — Degree Conversion

1050 Bachelor of Information Technology
Bachelor of Applied Science (Honours)

Z069 Environmental Health
Z066 Medical Biophysics
Z068 Medical Biophysics and Instrumentation
Z067 Scientific Instrumentation
Z065 Computer Science
Graduate Certificate:
2077 Computer Science
Z076 Social Statistics
Graduate Diploma:
2081 Graduate Diploma (Applied Colloid Science)
2082 Graduate Diploma (Industrial Microbiology)
2083 Graduate Diploma (Biomedical Instrumentation)
2085 Graduate Diploma (Industrial Chemistry)
2086 Graduate Diploma (Social Statistics)
2088 Graduate Diploma (Computer Science)

Masters of Applied Science:
2090 by research
2091 Applied Colloid Science — by coursework
2093 Biomedical Instrumentation — by coursework
2096 Social Statistics — by coursework
1090 Master of Information Technology
2001 Doctor of Philosophy

Hawthorn and Eastern Campus courses
Courses are offered at the Hawthorn and Eastern campuses. Currently, at the Eastern Campus only the Bachelor of Applied Science degree program, in Mathematics and Computer Science, is offered but other programs will be available at a later stage.

Honours Year
For information regarding Honours Year studies please contact the faculty office.

General Information
Application procedure
Application for admission to Undergraduate or Postgraduate* courses in 1993, at Hawthorn or Eastern campus, should be made on the appropriate form, obtained and lodged as follows:

Course: Bachelor of Applied Science
Apply through: VTAC
40 Park Street, South Melbourne

UNDERGRADUATE
— Bachelor of Applied Science
— Bachelor of Applied Science (Honours)

POSTGRADUATE**
— Graduate Certificate Applied Science
— Graduate Diploma Applied Science

Masters by Coursework
SPECIAL ENTRY**
UNDERGRADUATE
— Bachelor of Applied Science
— Bachelor of Applied Science (Honours)

MASTERS BY RESEARCH and DOCTOR OF PHILOSOPHY
— Faculty of Applied Science
— Faculty of Applied Science
— Faculty of Applied Science

Candidates should apply in writing to the Registrar, Swinburne University of Technology

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

Special entry
A Special Entry Scheme operates, designed primarily to benefit those whose qualifications do not meet normal entry requirements. Special entry provisions are as follows:

Applicants must be over 23 years of age and not have failed any entrance assessment within the last three years. Applicants may be required to undertake a special entry test or to attend an interview.

Selection is based on the relevance of the applicants’ employment and on their educational background, particularly in the appropriate prerequisite subjects.

Applicants under the special entry scheme should include in their applications a complete record of their educational background from their final secondary year. They should also include a statement of their work experience.

Normally the number of special entry scheme admissions will not exceed 10% of any new intake in any year.
Admission with advanced standing

Certain subjects passed at another institute or at a university may provide advanced standing in the above courses.

All applications for subject exemptions should be submitted to the Assistant Registrar on the appropriate form at the time of initial enrolment in the course. Each application is considered by the appropriate departments in consultation with the Applied Science Faculty Board.

Exemptions are granted by the Faculty Board and applicants are informed by letter of the Board's decisions. Until this letter is received, applicants should not assume the approval of any application for exemption.

Diploma/Degree Transfer

Holders of recent associate diplomas in chemistry or biochemistry may apply, preferably before 1 November, for admission to the Bachelor of Applied Science degree program in Computer Aided Chemistry or Biochemistry. Applications and level of entry are considered individually by the Head of the Department of Chemistry in consultation with the Applied Science Faculty Board.

Holders of the Associate Diploma of Applied Science in Laboratory Technology from Swinburne's TAFE Division who have studied an appropriate choice of subjects and undertaken a suitable bridging program will be allowed direct entry into the second year of the Bachelor of Applied Science degree program in Computer Aided Chemistry or Biochemistry.

Laboratory material 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 of $250.00. Lockers are allocated by the Chemistry Laboratory Manager to whom application for a locker must be made at the time of enrolment.

Laboratory and practical work requirements

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 relevent to the current year, or obtain reapproval for work previously completed at Swinburne or elsewhere.

Students seeking such reapproval should consult the lecturer in charge of the subject.

Mentor scheme

Each first-year undergraduate student, whether part-time or full-time 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, courses, exemptions and re-enrolments.

Re-enrolment

Re-enrolling students who require advice about their courses 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 change to the new syllabus. Students who are in doubt about their courses should consult their mentors before attempting to re-enrol.

Assessment of student performance regulations

Assessment of student performance is carried out in accordance with the Assessment Regulations set out in the Swinburne University of Technology section of the Handbook. In addition, the Faculty of Applied Science operates under the following regulations, a scheme of passing by years.

Student performance is assessed by various methods, e.g., 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 early in each semester.

Attendance

It is expected that students will attend all lectures, classes, demonstrations, tutorials and practical sessions. In addition, satisfactory performance in carrying out the tasks and prescribed work in all subjects is required. Failure to comply with these requirements may lead to disqualification or presenting at examinations. Students so disqualified will usually be notified in writing by the Faculty of Applied Science, but the Faculty is not bound to give such notification.

Interruption to studies

Students prevented by illness or other serious cause from satisfying attendance requirements for one week or more should report their absences in writing to the Assistant Registrar. Staff associated with the relevant subjects will be advised so that consideration may be granted by the Faculty where necessary.

Special examinations

In addition to information in this Handbook students are advised that unless all assessment requirements during the semester have been complied with, approval for special examinations will normally not be granted.

1. Passing by years

1.1 General

1.1.1 Eligibility

The Applied Science Faculty Board operates a scheme of passing by years. The scheme applies to students enrolled for all subjects of a standard full-time or cooperative undergraduate course of study except that students repeating any subject and students undertaking the final semester of a course are not eligible.

All other students are required to pass on a subject-by-subject basis.

1.1.2 Release of results

Results for subjects of the first year of the degree courses are released at the end of the second semester. All other subjects are released on completion of the subject. Eligible first year full-time students are assessed on the whole year's work at the end of the second semester.

All other eligible students are assessed on one semester's work at the end of that semester. Work experience and similar subjects are not part of the scheme.

1.2 The Faculty Result

1.2.1 Categories

An eligible student enrols for a Faculty Result and is assessed on the whole of the semester's (or year's) work and this assessment is issued as a Faculty Result in one of the following categories:

P Pass: where the student passes all subjects.
FP Faculty Pass: where the student fails one or more subjects but is considered by the Board to merit an overall pass (see clause 1.3). Such students are not required to repeat the failed subject(s).
N Not Pass: where the student fails one or more subjects and is considered by the Board not to merit an overall pass (see clause 2). Such students are required to repeat the failed subject(s).

The achievement of a Faculty Pass does not alter results in individual subjects but removes the necessity to repeat subjects not passed in the group considered.
1.3 The Faculty Pass formula

1.3.1 Assessment categories

In submitting results, the teaching department should report the assessment of student performance in each subject by an aggregate score and assessment category, as set out below:

<table>
<thead>
<tr>
<th>Assessment category</th>
<th>Aggregate score</th>
<th>Grade score</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD</td>
<td>85&gt;</td>
<td>4</td>
</tr>
<tr>
<td>D</td>
<td>75-84</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>65-74</td>
<td>2</td>
</tr>
<tr>
<td>P</td>
<td>60-64</td>
<td>1</td>
</tr>
<tr>
<td>P*</td>
<td>50-59</td>
<td>1</td>
</tr>
<tr>
<td>N*</td>
<td>40-49</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>&lt;40</td>
<td></td>
</tr>
</tbody>
</table>

The GPA is a weighted average of grade scores. For further information or the calculation of the GPA, contact the Applied Science Faculty Office.

1.3.2 Automatic Faculty Pass

Except as stated in clause 1.3.1, an automatic Faculty Pass will only be awarded to students whose minimum subject assessment is N* in no more than two subjects, and whose Grade Point Average (GPA) is greater than 3.0 in all subjects.

The GPA is a weighted average of grade scores. For further information or the calculation of the GPA, contact the Applied Science Faculty Office.

1.3.3 Deliberative Faculty Pass

The Board may award a Faculty Pass to a student whose subject assessment contains no more than two N results and which satisfies the formula in clause 1.3.2, but this is done only in exceptional circumstances, and then only if the progression of the student through the course can be facilitated without adversely affecting academic standards.

1.3.4 Exceptions

Notwithstanding clause 1.3.2, a student whose academic record in the course contains a previous Faculty Pass shall not be awarded an automatic Faculty Pass. A student who fails a designated subject will not be eligible for an automatic Faculty Pass. A list of designated subjects will be available to students at the beginning of each semester.

1.4 Supplementary assessment

At the discretion of the Board a scheme of restricted supplementary assessment operates for students who have failed to satisfy the examiners in one or two subjects. In these cases consideration of a student’s Faculty Result is deferred until the results of the supplementary assessments are available. Students will be advised if they are required to undertake supplementary assessment when they re-enrol in December. This assessment and the Faculty Result must be finalised before progression to later years.

It is the responsibility of the student to ensure they enrol and complete the requirements of the supplementary assessment.

2. Student performance

2.1 Unsatisfactory performance

A student's performance shall be deemed to be unsatisfactory if a Faculty Result of N is published or, if not eligible for a Faculty Result, the student fails in any subject(s).

A student whose performance is unsatisfactory will be required to repeat the subject(s) failed at the first opportunity and will not be permitted to enrol in any other subject(s) unless with the specific agreement of the Courses Committee which will only act on the specific recommendation of the Head(s) of the teaching department(s).

2.2 Exclusion

If in any semester (or year in the case of first year full-time and all part-time students) a student fails all subjects or fails any subject(s) being repeated, then that student will be excluded from further study in the Faculty.

In addition, a student who passes only one or two subjects, may be excluded.

Excluded students will be permitted to appeal to the Courses Committee. The appeal may be either by a submission in writing, or by an appearance before the committee in which case the student must give written notification of the intention to appear. At least five working days' notice will be given of the closing date for submissions or notifications to reach the Assistant Registrar.

If the student makes no appeal to the committee by the due date or if the committee after considering an appeal does not rescind the exclusion, the student will not be permitted to undertake further study in the Faculty without making formal application for readmission and no application will be considered until a period of two years has elapsed.

3. Assessment Irregularity

Cheating and plagiarism, that is the action or practice of taking and using one's own, the thoughts, writings or other work of someone else with the intent to deceive, constitutes an irregularity as described under Examination Description of the Swinburne Assessment Regulations. Such an action is a major infringement of the Institute’s academic values.

If it is essential that students understand that plagiarism or cheating shall be considered to have occurred if:
- a computer program substantially written by someone else (either another student, a previous student or the author of a publication) is presented as the student’s own work;
- paragraphs, and even sentences in essays which are written by someone else are not enclosed in quotation marks, and accompanied by full reference to source;
- work of someone else is paraphrased, and is not appropriately attributed and referenced.

4. Interpretation

Nothing in these regulations shall be interpreted as contravening the Assessment Regulations of the Academic Board.

Cooperative education

In the Applied Science Faculty, the Bachelor of Applied Science courses are undertaken as programs of cooperative education.

Undergraduate courses offered as four year programs in the Faculty of Applied Science are run in the cooperative format and include three years of academic study plus one year of paid industry based learning. The industry based learning (IBL) is an integral part of the academic program and makes up part of the final assessment.

In these programs students learn in both academic and work settings, and these two phases of learning are related to one another in a planned manner. Swinburne, the employer and the student collaborate to provide a complete professional education.

Students benefit educationally as they are provided with practical experience in solving real problems under authentic conditions using the theoretical concepts learned in the classroom. They are given an appreciation of the structure and purpose of the various organisations concerned, enabling them to make more realistic decisions regarding the area
of the profession in which they wish to become involved. Two main models exist. Under the 'traditional' model which has operated at Swinburne since 1963, students are paid a salary during their period in industry. A new model, operating since 1988, utilises scholarships. Under this model, students are not paid any salary during their periods of Industry Based Learning.

Employers of cooperative students benefit by obtaining a reliable and continuing source of personnel and by establishing a direct liaison with Swinburne. Contact with cooperative students assists employers in choosing the best graduates and reduces the cost of recruiting and training new professional staff.

The students are visited regularly by academic staff during their industrial semesters. 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 fur Technik, Mannheim, West Germany
- University of Surrey, England
- FachHochschule fur Technik, Mannheim, West Germany

Students without permanent resident status should be aware that Industry Based Learning is not 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 Faculty will assist students in finding an industrial placement, it is frequently impossible to find local employment for students without permanent resident status because priority is given to Australian citizens and permanent residents. Students without permanent resident status are advised to seek placement in their home country. The Faculty will provide information on academic institutions capable of providing supervision of industrial placement in the home country.

FACULTY OF APPLIED SCIENCE
Prizes and Scholarships

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

Food Science Prize
Awarded by the Joint Working Group of the Victorian Divisions of the Australian Institute of Environmental Health, Australian Institute of Food Science and Technology, and the Council of Food Technology Associations to the best student in the food science subjects of the Bachelor of Applied Science (Environmental Health).

Miles Hancock Prize
Awarded in the area of postgraduate colloid science. Awarded on an occasional basis by the Colloid Department to an outstanding student. The value of the prize is between $500-$1,000.

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. The scholarship value is $9,000 per annum for 3 years.

Postgraduate Scholarships
Currently, four research scholarships to the value of $15,000 per annum are awarded annually by the Chemistry Department. The scholarships are advertised openly and eligibility is a degree with honours or equivalent.

Department of Computer Science

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 for students with appropriate skills.

Departmental Scholarship
This scheme provides a stipend of $10,000 pa. In addition, a teaching assistantship may be negotiated up to an additional $300 pa. 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.

Four prizes are currently available to Computer Science students:

Aspect Computing Prize
Amount of $1,000 awarded to a student in the final year of a computing degree course (not BIT) on the basis of results in second year computing units. The student should have completed IBL if they are undertaking a degree which has an IBL component. The department 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
Amount of $150 awarded to the 'best' student on a degree accredited by the ACS at level 1 or 2. Students are evaluated on the basis of their aggregate performance on final year computing units.

Currently, 3 prizes are awarded for degrees/diplomas offered by the department: Computing and Instrumentation, Mathematics and Computer Science, and the Graduate Diploma in Applied Science (Computer Science). It is expected that a prize will also be awarded for the BIT degree and in the BAppSci(Computer Science) from 1993 on. The department nominates the best student in each degree/diploma.

Ada Association Prize
Amount of $200 awarded to the student on the BAppSci(Computer Science) who achieves the highest marks in unit SQ400 (Concurrent Programming). This was awarded for the first time in 1992. The department nominates the best student.

Software Practice 1 Competition Prize
Amount of $1,000. All students in unit SQ103 (Software Practice 1) are invited to participate in a programming contest in semester two. Students work in teams (generally of two people) at developing a solution to a programming problem in number theory. The winning team is that whose program gives correct output in the least running time. Entries are sought as part of the SQ103 program in second semester.
Department of Mathematics
Graduate Research Scholarship
Amount of $15,500 awarded based on academic achievement consisting of a good honours degree and work experience.

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 recommendation of the Mathematics Department teaching panel. There is no monetary value involved; instead, the successful student is required to present a paper at the annual ASOR (Melbourne Chapter) student conference.

Department of Physics
Physics Department Postgraduate Scholarship
A twelve month scholarship, of the value of $13,504 pa, is awarded to provide financial assistance for students undertaking full-time postgraduate research in an area of study relevant to the Department.

Swinburne Centre for Applied Neurosciences Postgraduate Scholarship
A twelve month scholarship, of the value of $6,252 pa, is awarded to provide financial assistance for students undertaking full-time postgraduate research in an area of study relevant to the Department.

Course details
Bachelor of Applied Science
To qualify for a degree, a student must complete successfully one of the following courses:
1. computer-aided chemistry;
2. computer-aided biochemistry;
3. medical biophysics and instrumentation;
4. computing and instrumentation;
5. mathematics and computer science;
6. computer science;
7. environmental health;
8. psychology and psychophysiology.*

The structures of courses are described below. Courses combining the single major computer-aided chemistry with instrumentation, computing or mathematics are also offered on an individual basis, subject in each case to the approval of the Faculty Board.

* A co-major is offered by the Faculty of Applied Science and Faculty of Arts.

As some courses are being reaccredited in 1992 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.

1. Z051 Computer-aided Chemistry
VTAC Course Code — SHSC
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 such 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, fertilizers, detergents, plastics, dyes, paints, pharmaceuticals, etc.) or in the processing of food, coal, oil, gas, minerals, etc.

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 1993)
Units 1 and 2: four units of Mathematics. Units 3 and 4: Chemistry and two units of Mathematics chosen from Space and Number, Reasoning and Data, Change and Approximation, Extensions (C & A).

TAFE Articulation
Students who have completed the Swinburne TAFE Associate Diploma of Applied Science (Laboratory Technology), with appropriate bridging units TL501, TL502, TL503 may be admitted into second year of the course.

Full-time course
(1990 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC154 Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>SC108 Biology</td>
<td>4</td>
</tr>
<tr>
<td>SK190 Computer Science</td>
<td>5</td>
</tr>
<tr>
<td>SM108 Mathematical Methods</td>
<td>5</td>
</tr>
<tr>
<td>SP106 Physics or</td>
<td></td>
</tr>
<tr>
<td>SP108 Physics</td>
<td>5</td>
</tr>
</tbody>
</table>

| Semester 2 |
| SC254 Chemistry | 12 |
| SC208 Biology | 6 |
| SM214 Mathematics | 4 |
| SP220 Instrumental Science | 2 |

| Semester 3 |
| SC370 Chemistry | 6 |
| SC390 Computers in Chemistry | 3 |
| SC353 Applied Chemistry | 4 |
| SC380 Practical Chemistry | 7 |
| SP320 Instrumental Science | 3 |

| Semester 4 |
| SC470 Chemistry | 5 |
| SC490 Computers in Chemistry | 3 |
| SC414 Industrial Problem Solving | 2 |
| SC430 Scientific Communication | 1 |
| SC453 Applied Chemistry | 2 |
| SC480 Practical Chemistry | 7 |
| SP420 Instrumental Science | 3 |

| Semester 5 |
| SC508 Industry Based Learning | |
| Semester 6 |
| SC608 Industry Based Learning | |

| Semester 7 |
| SC570 Chemistry | 6 |
| SC590 Computers in Chemistry | 3 |
| SC708 Scientific Communications | 1 |
| SC553 Applied Chemistry | 7 |
| SC560 Practical Chemistry | 7 |

| Semester 8 |
| SC670 Chemistry | 4 |
| SC690 Computers in Chemistry | 3 |
| BS619 Business in Management | 4 |
| SC608 Scientific Communications | 1 |
| SC653 Process Chemistry | 5 |
| SC660 Practical Chemistry | 7 |

ICI is a major partner of this course. Dโฉదโฉษโช
2. **Z052 Computer-aided Biochemistry**

**VTAC Course Code — SHSB**

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 the chemistry and working with biochemicals and biochemical instrumentation, the modern biochemist has to make extensive use of computers. Computers are used to control 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 computer-aided biochemistry 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 application 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 1993)**

Units 1 and 2: four units of Mathematics. Units 3 and 4: Chemistry and two units of Mathematics, chosen from Space and Number, Reasoning and Data, Change and Approximation, Extensions (C & A).

**TAFE Articulation**

Students who have completed the Swinburne TAFE Associate Diploma of Applied Science (Laboratory Technology), with appropriate bridging units TL501, TL502, TL503 may be admitted into second year of the course.

**Full-time course**

*(1990 syllabus)*

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</table>

ICI is a major supporter of this course. It provided funds for the purchase of molecular graphics equipment as well as continuing support for the cooperative program.

**Application procedure**

See entry under General Information.

3. **Z061 Medical Biophysics and Instrumentation**

**VTAC Course Code — SHSI**

This program is unique to Swinburne and combines major studies in medical biophysics with scientific instrumentation.

It is designed to produce 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 kidney, respiration, and the brain. Biomechanics, sports science and the basis of physical therapy are also included.

Medical is complemented by the study of scientific instrumentation provides students with a sound understanding 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 application 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, anaesthetics 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 1993)**

Units 1 and 2: four units of Mathematics. Units 3 and 4: Physics, two units of Mathematics chosen from Space and Number, Reasoning and Data, Change and Approximation, Extensions (C & A).

**Special entry**

A limited number of places are currently offered to students without VCE Physics. These students will undertake a special expanded first semester program.

**Full-time course**

**(1991 syllabus)**

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<td>SP530 Scientific Instrumentation B</td>
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<tr>
<td>SP524 Biophysics (Neurosciences A)</td>
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<td>SP624 Biophysics (Neurosciences B)</td>
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</table>

**Application procedure**

See entry under General Information.

**4. 2056 Computing and Instrumentation**

**VTAC Course Code — SHCI**

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 as Level 1. Graduates eligible for associate membership. After 4 years relevant work experience, a graduate can apply for full membership.

**Prerequisites (entrance 1993)**

Units 1 and 2: four units of Mathematics. Units 3 and 4: Physics, two units of Mathematics chosen from Space and Numbers, Reasoning and Data, Change and Approximation, Extensions (C & A). Bonus points will be awarded for Information Technology (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.

**Special entry**

A limited number of places are currently offered to students without VCE Physics. These students will undertake a special expanded first semester program.
### 5. 2059 Mathematics and Computer Science

**VTAC Course Code** — SHMC (Hawthorn Campus), SLMC (Lilydale Campus)

This program combines major studies in computer science with a mathematics major comprising studies operations research and applied statistics.

Computer science includes the study of programming methodology using the C programming language, data structures and algorithms, software engineering, and databases.

Operations research is 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. Computer methods are used extensively in both the classes and group work.

Applied statistics is concerned with the collection and analysis of data. Students will learn 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.

Suitably qualified candidates may be admitted to an honours year.

#### Career potential

The mathematics and computer science major sequence provides 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 work 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 1993)

Units 1 and 2: four units of Mathematics. Units 3 and 4: two units of Mathematics chosen from Space and Numbers, Reasoning and Data, Change and Approximation, Extensions (C & A).

**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.

### Full-time course

(1991 syllabus)

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Three elective subjects must be chosen from the Computer Science electives offered in semester seven. Two elective subjects must be chosen from the Computer Science electives offered in semester eight.

#### Application procedure

See entry under General Information.
Faculty of Applied Science

Software engineering focuses on aspects of building large scale software systems encompassing methodologies such as functional decomposition, object oriented design, and documentation methods. Software practice exposes students to a variety of situations which are designed to provide experience in problem solving strategies, group dynamics, individual and group communication, resource analysis, critical evaluation and review, and the management of large scale projects.

The program is usually offered as three years of full-time study. A four year full-time program including a year of industry based learning may be available for some students on a competitive basis.

**Career potential**

This program aims to produce graduates who have extensive skills in software engineering, particularly large scale systems.

**Positions**

are initially taken up as part of a programming team, then progressing to positions such as Computer Scientists, Software Engineers, Systems Analysts and Computer Programmers. Those who choose an honours year may go on to a career in computer science research.

**Professional recognition**

This course qualifies graduates at Level one (the highest level) of the Australian Computer Society’s requirements for professional membership.

**Prerequisites (entrance 1993)**

Units 1 and 2: four units of Mathematics. Units 3 and 4: two units of Mathematics chosen from Space and Numbers, Reasoning and Data, Change and Approximation, Extensions (C & A).

Bonus points will be awarded for: Information Technology (Information Systems) 10%. 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.

**Full-time course**

(1993 syllabus)

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</table>

## 6. 2063 Computer Science and Software Engineering

**VTAC Course Code — SHCS**

This program provides an extensive education in contemporary approaches to the analysis, design and implementation of large scale computer systems. The major components of the program may be classified as computer science, software engineering, and software practice. Computer science is the core content of the program and includes the study of programming methodologies, data structures and algorithms, and operating systems.

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</thead>
<tbody>
<tr>
<td>Semester 5</td>
<td>Project Management B</td>
<td>Operations Research 5</td>
<td>Applied Statistics 5</td>
<td>Database</td>
<td></td>
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<tr>
<td>Semester 6</td>
<td>Industry Based Learning</td>
<td></td>
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<tr>
<td>Semester 7</td>
<td>Industry Based Learning</td>
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</tbody>
</table>

Computer Science Elective 1

One subject chosen from:

- SQ500 Concurrent Programming
- SQ031 Functional Programming
- SQ052 UNIX Systems Programming
- SQ088 Computer Graphics A
- SQ099 Artificial Intelligence A

Complementary Studies

One subject chosen from:

- BS167 Computers and the Law
- BS168 Behaviour in Organisations
- SM332 Social Change in the Modern World

## Changes to the syllabus may occur in 1992. Details available on enrolment.

### Application procedure

See entry under General Information.

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### Faculty of Applied Science

Software engineering focuses on aspects of building large scale software systems encompassing methodologies such as functional decomposition, object oriented design, and documentation methods. Software practice exposes students to a variety of situations which are designed to provide experience in problem solving strategies, group dynamics, individual and group communication, resource analysis, critical evaluation and review, and the management of large scale projects.

The program is usually offered as three years of full-time study. A four year full-time program including a year of industry based learning may be available for some students on a competitive basis.

**Career potential**

This program aims to produce graduates who have extensive skills in software engineering, particularly large scale systems.

**Positions**

are initially taken up as part of a programming team, then progressing to positions such as Computer Scientists, Software Engineers, Systems Analysts and Computer Programmers. Those who choose an honours year may go on to a career in computer science research.

**Professional recognition**

This course qualifies graduates at Level one (the highest level) of the Australian Computer Society’s requirements for professional membership.

**Prerequisites (entrance 1993)**

Units 1 and 2: four units of Mathematics. Units 3 and 4: two units of Mathematics chosen from Space and Numbers, Reasoning and Data, Change and Approximation, Extensions (C & A).

Bonus points will be awarded for: Information Technology (Information Systems) 10%. 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.

**Full-time course**

(1993 syllabus)

#### Semester 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours/week</th>
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<tbody>
<tr>
<td>SM127</td>
<td>Mathematics 1</td>
<td>5</td>
</tr>
<tr>
<td>SQXXX</td>
<td>Communications Unit (to be determined) OR</td>
<td></td>
</tr>
<tr>
<td>SQ106*</td>
<td>Communication Skills for Software Engineering</td>
<td>4</td>
</tr>
<tr>
<td>SQ100</td>
<td>Programming in Ada</td>
<td>6</td>
</tr>
<tr>
<td>SQ103</td>
<td>Software Practice 1</td>
<td>4</td>
</tr>
<tr>
<td>SQ117</td>
<td>Introduction to Computer Systems</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>* For students from non-English speaking backgrounds.</td>
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</table>

#### Semester 2

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>SM240</td>
<td>Mathematics 2</td>
<td>3</td>
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<tr>
<td>SQ100</td>
<td>Programming in Ada</td>
<td>6</td>
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<tr>
<td>SQ103</td>
<td>Software Practice 1</td>
<td>4</td>
</tr>
<tr>
<td>SQ214</td>
<td>Formal Methods</td>
<td>3</td>
</tr>
<tr>
<td>SQ207</td>
<td>Computer Organisation</td>
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#### Semester 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours/week</th>
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</thead>
<tbody>
<tr>
<td>SQ300</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>SQ303</td>
<td>Software Practice 2</td>
<td>3</td>
</tr>
<tr>
<td>SQ305</td>
<td>Database</td>
<td>3</td>
</tr>
<tr>
<td>SQ404</td>
<td>Systems Analysis</td>
<td>3</td>
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<tr>
<td>SQXXX</td>
<td>Elective 1</td>
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</table>

#### Semester 4

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ303</td>
<td>Software Practice 2</td>
<td>6</td>
</tr>
<tr>
<td>SQ306</td>
<td>Human-Computer Interaction</td>
<td>3</td>
</tr>
<tr>
<td>SQ407</td>
<td>Data Communications</td>
<td>3</td>
</tr>
<tr>
<td>SQXXX</td>
<td>Elective 2</td>
<td></td>
</tr>
<tr>
<td>SQXXX</td>
<td>Elective 3</td>
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</table>

#### IBL Semester 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours/week</th>
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<tbody>
<tr>
<td>SQ405</td>
<td>Database</td>
<td>3</td>
</tr>
<tr>
<td>SQ625</td>
<td>Industry Based Learning</td>
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</table>

#### IBL Semester 2

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ623</td>
<td>Industry Based Learning</td>
<td></td>
</tr>
</tbody>
</table>

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### 6. 2063 Computer Science and Software Engineering

**VTAC Course Code — SHCS**

This program provides an extensive education in contemporary approaches to the analysis, design and implementation of large scale computer systems. The major components of the program may be classified as computer science, software engineering, and software practice. Computer science is the core content of the program and includes the study of programming methodologies, data structures and algorithms, and operating systems.
Semester 5
SQXXX Elective 4
SQXXX Elective 5
SQXXX Elective 6
SQ503 Software Practice 3

Semester 6
SQ604 Object-Oriented Programming 3
SQXXX Elective 7
SQXXX Elective 8
SQ503 Software Practice 3 6

Computer Science elective units available are:
Semester 3 or 5:
SQ402 Operating Systems 3
SQ527 Computer Architecture 3
SQ511 Declarative Programming 3
SQ411 COBOL Programming 3
Semester 4 or 6:
SQ601 Translator Engineering 3
SQ618 Computer Graphics 3
SQ419 Artificial Intelligence 3
SQ502 Unix Systems Programming 3
SQ412 Systems Programming 3

Note: Either SQ402 (Operating Systems) or SQ412 (Systems Programming) must be selected amongst the electives. SQ502 (Unix Systems Programming) has SQ402 as a prerequisite. Students may therefore not take both SQ502 and SQ412.

Students will also have the option of taking a minor sequence of four electives in another discipline. Other disciplines are expected to include Mathematics and Business.

Application procedure
See entry under General Information.

7. Z062 Psychology and Psychophysiology

VTAC Course Code — SHSP

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, Alzheimers 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 Faculty of Applied Science or the Faculty of Arts and aims to produce graduates who are qualified to take up professional careers in psychology. It will contribute towards qualification for associate membership of the Psychological Society and will be suitable for admission to a course in applied psychology, ergonomics, neuropsychology, and research.

The special emphasis of the course are to develop technical skills in the use of monitoring instrumentation specific to recording biological signals related to behaviour, insight into the biological basis of behaviour and to allow detailed study of both normal and abnormal specific human neurophysiological functions.

For details of Psychology subjects see Psychology major, Faculty of Arts.

Career potential

Employment opportunities are available in the areas 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.

Professional recognition

After an additional year of study, graduates are eligible for membership of the Australian Psychological Society.

Prerequisites (entrance 1993)

Units 1 and 2: four units of Mathematics. 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 technical background, employment and, in some cases, an interview.

**Alternative entry is available through the Arts Faculty, however different prerequisites apply.

Full-time course
(Applied Science only)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours/week</th>
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</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td>AY100 Psychology 4</td>
</tr>
<tr>
<td></td>
<td>SC108 Biology 4</td>
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<tr>
<td></td>
<td>SP105 Monitoring Instrumentation 3</td>
</tr>
<tr>
<td></td>
<td>SM106 Mathematics 3</td>
</tr>
<tr>
<td></td>
<td>SC133 Chemistry 3</td>
</tr>
<tr>
<td>Semester 2</td>
<td>AY101 Psychology 4</td>
</tr>
<tr>
<td></td>
<td>SP331 Neurohumoral Bases of Psychophysiology 8</td>
</tr>
<tr>
<td></td>
<td>SM278 Design and Measurement 2A 4</td>
</tr>
<tr>
<td>Semester 3</td>
<td>AY201 Social Psychology 4</td>
</tr>
<tr>
<td></td>
<td>SP431 Psychophysiology of Perception 8</td>
</tr>
<tr>
<td></td>
<td>SM279 Design and Measurement 2B 4</td>
</tr>
<tr>
<td>Semester 4</td>
<td>AY311 Methods and Measures 2</td>
</tr>
<tr>
<td></td>
<td>AY312 The Psychology of Personality 3</td>
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<td></td>
<td>SP527 Neurophysiology of the Normal Brain 5</td>
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<td>SP528 Higher Cortical Function 5</td>
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<tr>
<td>Semester 5</td>
<td>AY313 Cognition and Human Performance 3</td>
</tr>
<tr>
<td></td>
<td>AY314 Counselling and Interviewing 2</td>
</tr>
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<td></td>
<td>SP831 Neurophysiology of Mental Disorders 5</td>
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<tr>
<td></td>
<td>SP632 Psychophysiology Project 5</td>
</tr>
</tbody>
</table>

Application procedure
See entry under General Information.

8. H050 Environmental Health

VTAC Course Code — SHHE

This is the statutory qualifying course for environment health officers 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 the relevant specialised fields.

It normally takes the form of a four-year program of cooperative education 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.
Career potential

The majority of environmental health officers are employed by local government authorities and by the State Health Department but many 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 officers can thus be involved in varied duties such as infectious disease control and immunisation, enforcement of health standards in food shops, restaurants, hotels, etc., food quality surveillance, the control of domestic waste disposal, industrial hygiene, poisons control, pollution and health education.

Opportunities also exist in industry, particularly the food industry, where environmental health officers 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 1993)

Units 1 and 2: four units of Mathematics. Units 3 and 4: two units of Mathematics, plus one of Biology, Chemistry, or Physics. Bonus points will be awarded for: Chemistry (10%).

Full-time course

(1991 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours/week</th>
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<tbody>
<tr>
<td>AB2100 Behavioural Studies and Communication (1)</td>
<td>2</td>
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<tr>
<td>MP107 Engineering Drawing</td>
<td>2</td>
</tr>
<tr>
<td>SC100 Environmental Health</td>
<td>2</td>
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<tr>
<td>SC109 Biology</td>
<td>4</td>
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<tr>
<td>SC1500 Introductory Chemistry</td>
<td>5</td>
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<tr>
<td>SM110 Mathematical Methods</td>
<td>3</td>
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<tr>
<td>SP121 Physical Science</td>
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<tr>
<td>Semester 2</td>
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<tr>
<td>BS141 Introductory Law</td>
<td>2</td>
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<tr>
<td>SC252 Biological Chemistry</td>
<td>5</td>
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<td>SC209 Biology</td>
<td>6</td>
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<tr>
<td>SK2100 Computer Science</td>
<td>2</td>
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<tr>
<td>SM2100 Applied Statistics</td>
<td>3</td>
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<tr>
<td>SP221 Physical Science</td>
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<tr>
<td>Semester 3</td>
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<tr>
<td>AB310 Behavioural Studies and Communication (2)</td>
<td>2</td>
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<tr>
<td>SA203 Building Standards</td>
<td>4</td>
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<tr>
<td>BS2530 Environmental Health Law</td>
<td>4</td>
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<tr>
<td>ME249 Environmental Engineering</td>
<td>4</td>
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<tr>
<td>SC3400 Food Processing and Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CS349 Microbiology</td>
<td>4</td>
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<tr>
<td>Semester 4</td>
<td></td>
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<tr>
<td>BS2540 Legal Procedure and Evidence</td>
<td>4</td>
</tr>
<tr>
<td>SC451 Food Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>SC467 Environmental Health Practice (1)</td>
<td>5</td>
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<tr>
<td>SC468 Environmental Science</td>
<td>5</td>
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<tr>
<td>SC469 Epidemiology</td>
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<td>Semester 5</td>
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<td>SA508 Industry Based Learning</td>
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<td>Semester 6</td>
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<tr>
<td>SA608 Industry Based Learning</td>
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</table>

Application procedure

See entry under General Information.

1050 Bachelor of Information Technology

Manager: G.A. Murphy, BCom, CPA
Administrative Officer: R.J. Shaw, BSc

VTAC Course Code — SHAI

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 44 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 $9,000.

Career potential

The course equips graduates 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 1993)

Units 1 and 2: four units of Mathematics. Units 3 and 4: one of Change and Approximation, Reasoning and Data, or Space and Numbers.

Segment 1 | Hours/week |
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>IT101 Computer Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>IT102 Introduction to Programming</td>
<td>4</td>
</tr>
<tr>
<td>IT103 Business Applications and Systems 1</td>
<td>4</td>
</tr>
<tr>
<td>IT105 Behaviour and Communications in Organisations</td>
<td>4</td>
</tr>
<tr>
<td>BT104 Accounting 1</td>
<td>4</td>
</tr>
</tbody>
</table>

Segment 2 | |
| IT201 Decision Analysis | 4 |
| IT202 COBOL Programming | 4 |
| IT203 Business Applications and Systems 2 | 4 |
| Plus 2 Non-computing Electives | |

Segment 3 (Summer Term) | |
| IT301 systems software 1 | 27 (for 3 weeks) |
| IT302 Organisation Behaviour | 21 (for 3 weeks) |
| IT303 Data Base Management | 27 (for 3 weeks) |

Segment 4 | |
| IT401 Industry Based Learning | (20 weeks) |
Segments 5 and 6
Ten units must be studied in these two consecutive segments. They can be taken in any order that prerequisites allow, and must include six core units, two chosen from the specialist units on offer and two non-competing electives.

Core units*
IT501 Systems and Information Analysis 1 4
IT503 Data Base Management Systems 2 4
IT504 Data Communications 1 3
IT509 Software Engineering 1 3
IT601 Systems and Information Analysis 2 4
IT609 Software Engineering 3

Specialist units*
IT502 Systems Software 2 3
IT602 Systems Software 3 4
IT603 Data Base Management Systems 3 4

Other approved specialist computing units may be chosen from either the Bachelor of Applied Science or the Bachelor of Business courses.

Segment 8 (Summer Term)
IT801 Project
IT802 Seminars and Project Management and Control

* All units will not be offered each semester.

Application procedure
See entry under General Information.

Graduate Certificate courses

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 night, two nights per week consisting of a combination of lecture and practical work as applicable to the topic.

Subjects Hours/week
SM732 Survey Research Methods 4
SM742 Elementary Statistical Modelling 4
SM750 Basic Statistical Computing 4
SM751 Introduction to Data Analysis 4

Note: No exemptions are available to candidates for the Certificate.

Application procedure
See entry under General Information.

2077 Graduate Certificate of Applied Science (Computer Science)*
* Subject to accreditation
The course is designed to teach the crafting of software in a UNIX system environment and concentrates on developing programming skills in the languages C and C++.

The Graduate Certificate of Applied Science (Computer Science) involves one year of part-time study. The course consists of the first four units of the part-time Graduate Diploma of Applied Science (Computer Science) and would require a class attendance commitment of eight hours/week over two semesters.

Entry is open to applicants with a degree in a discipline other than computer science, or to applicants with at least two years experience in the computing industry.

(1993 syllabus)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours/Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ700 Programming in C</td>
<td>4</td>
</tr>
<tr>
<td>SQ702 UNIX Systems Program</td>
<td>4</td>
</tr>
<tr>
<td>SQ710 Advanced C Program</td>
<td>4</td>
</tr>
<tr>
<td>SQ714 Systems Analysis and Engineering</td>
<td>4</td>
</tr>
</tbody>
</table>

Students who complete the Graduate Certificate of Applied Science (Computer Science) with good results may be admitted to the Graduate Diploma of Applied Science (Computer Science) with advanced standing.

Application procedure
See entry under General Information.

Postgraduate courses

2084 Graduate Diploma of Applied Science (Biomedical Instrumentation)
A two year part-time program intended for graduates in a medical, scientific or engineering discipline who require a detailed knowledge of the design, construction and operation of modern biomedical instrumentation. It offers training in quantitative techniques and in specific instruments and their applications.

This option is designed to serve the needs of graduates working in the biomedical area. It offers training in instrumentation and quantitative techniques together with the biomedical applications of these techniques.

Each subject comprises fifty-six hours of class time (one evening per week for one semester). Enrolment in introductory subjects must be approved in each case by Head, Physics Department.

To qualify for the award a student must complete eight of the subjects listed below of which one must be the Project Unit. Students who complete four advanced subjects of the Graduate Diploma at an acceptable level will be permitted to transfer to the corresponding Master by coursework program.

Entry to Biomedical Instrumentation is open to applicants with a first tertiary qualification in 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.
(1992 syllabus)
Introductory unit
SP555  Introduction to Biophysical Systems  4

Biomedical units
SP531  Biophysical Systems and Techniques  4
SP532  Clinical Monitoring Techniques  4
SP534  Neurophysiological Techniques  4

Instrumentation units
SP541  Signal and Image Processing  4
SP545  Instrument and Interfacing Programming  4
SP547  Instrument Electronics  4

Project unit
SP535  Biomedical Project  4

The following subjects are available as alternatives for part of the Biomedical units in software development. The emphasis is on the acquisition of systems development skills in the environment.

(1993 syllabus)

Application procedure
See entry under General Information.

2088  Graduate Diploma of Applied Science (Computer Science)

A one year full-time or two year part-time program for graduates who require a specialised and practical education in software development. The emphasis is on the acquisition of systems development skills in the UNIX environment.

To qualify a student must complete the seven subjects listed below. The full-time program normally requires attendance for sixteen hours per week for two semesters and the part-time program eight hours per week for four semesters.

Students who successfully complete the program with an average grade of distinction will be admitted directly to the one year Master of Information Technology program.

Entry to the Graduate Diploma of Applied Science (Computer Science) is open to applicants with a first tertiary qualification, preferably in engineering or science. An applicant whose experience in chemistry is considered to be inadequate is required to undertake a course in physical chemistry prior to admission.

Semester 1  Hours/week
SC716  Basic Colloid Science  4
SC717  Basic Surface Science  4
SC733  Practical Techniques in Colloid Science  4
SC734  Practical Techniques in Surface Science  4

Semester 2
SC736  Research Skills, Part 1  2
SCXXX  Elective Unit (One)  4
SCXXX  Elective Unit (Two)  4

Semester 3
SC718  Surface Characterisation  4
SC719  Chemistry of Inorganic Colloids  4
SC735  Elective Practical Skills  4
SC738  Minor Research Project  4

Semester 4
SC737  Research Skills, Part 2  2
SCXXX  Elective Unit (Three)  4
SCXXX  Elective Unit (Four)  4

Electives
The elective subjects are to be chosen from the following list:
SC739  Colloid Rheology  4
SC740  Chemistry of Surface Coatings  4
SC741  Physical Properties of Surface Coatings  4
SC742  Corrosion and Protection of Metals  4
SC743  Food Colloids  4
SC744  Chemistry of Surfactants  4
SC745  Solution Behaviour of Surfactants  4
SC746  Advanced DLVO Theory  4
SC747  Adsorption from Solution  4
SC748  Water Treatment Technology  4
SC749  Polymer Flocculation  4
SC750  Detergency  4
SC751  Emulsion Technology  4
SC752  Polymer Stabilisation Technology  4
SC753  Thin Films and Foams  4
SC754  Light Scattering and Concentrated Dispersions  4
SC755  Surface Chemistry of Clays and Coal  4
SC756  Mineral Processing  4

2081  Graduate Diploma of Applied Science (Applied Colloid Science)

This program is designed for graduates with a background in chemistry who have a professional interest in the application of surface and colloid science to industrial problems. It is suitable for staff engaged in production, research and development, technical sales and service, and management for industry or government establishments.

The program is a two-year (four semester) part-time course involving up to eight hours per week (two evenings). Each topic runs for five weeks (one evening per week). Under special circumstances, the course may be offered on a full-time basis.

The program includes a variety of topics designed to cover the requirements of a wide range of industries. It comprises, in semesters one and three, a compulsory core of lectures and practical work which acquaints the student with the fundamental properties of colloids and interfaces. Semester two and four are devoted to a series of elective subjects which students choose from according to their interests and needs. Electives may also be offered during semesters one and three.

The first year of part-time study is common to that of the corresponding Master by coursework program.

Entry to the Graduate Diploma of Applied Science (Applied Colloid Science) is open to applicants with a first tertiary qualification in engineering or science. An applicant whose experience in chemistry is considered to be inadequate is required to undertake a course in physical chemistry prior to admission.

Semester 1  Hours/week
SC716  Basic Colloid Science  4
SC717  Basic Surface Science  4
SC733  Practical Techniques in Colloid Science  4
SC734  Practical Techniques in Surface Science  4

Semester 2
SC736  Research Skills, Part 1  2
SCXXX  Elective Unit (One)  4
SCXXX  Elective Unit (Two)  4

Semester 3
SC718  Surface Characterisation  4
SC719  Chemistry of Inorganic Colloids  4
SC735  Elective Practical Skills  4
SC738  Minor Research Project  4

Semester 4
SC737  Research Skills, Part 2  2
SCXXX  Elective Unit (Three)  4
SCXXX  Elective Unit (Four)  4

Electives
The elective subjects are to be chosen from the following list:
SC739  Colloid Rheology  4
SC740  Chemistry of Surface Coatings  4
SC741  Physical Properties of Surface Coatings  4
SC742  Corrosion and Protection of Metals  4
SC743  Food Colloids  4
SC744  Chemistry of Surfactants  4
SC745  Solution Behaviour of Surfactants  4
SC746  Advanced DLVO Theory  4
SC747  Adsorption from Solution  4
SC748  Water Treatment Technology  4
SC749  Polymer Flocculation  4
SC750  Detergency  4
SC751  Emulsion Technology  4
SC752  Polymer Stabilisation Technology  4
SC753  Thin Films and Foams  4
SC754  Light Scattering and Concentrated Dispersions  4
SC755  Surface Chemistry of Clays and Coal  4
SC756  Mineral Processing  4
These elective 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 student’s requirements. Students will need to complete four of the above electives.

**Application procedure**
See entry under General Information.

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**2082 Graduate Diploma of Applied Science (Industrial Microbiology)**

This course is for graduates or diplomats in chemistry, biochemistry or other life sciences, or engineering (though it is not necessarily restricted to these fields), whose professional activities require a practical knowledge of industrial microbiology.

The course provides theoretical knowledge and applied practical skills in all areas of microbiology, with particular emphasis on applied microbiology, including such areas as fermentation technology, growth kinetics, biotechnology, genetic engineering and the identification and control of microbes.

The areas of study are suitable for personnel engaged in production, sales, services and management in industrial and other fields. Special provision is made early in the course for those students whose knowledge of biochemistry is minimal or out-of-date.

The program is designed as a two-year part-time course, the timetable specifying seven hours per week for four fourteen-week semesters.

The practical component for semester four is a research project.

Entry to Industrial Microbiology is open to applicants with a first tertiary qualification in science or engineering. 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.

Entry to Industrial Chemistry is open to applicants with a first tertiary qualification in 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. 16 points accumulated from the following subjects: List of subjects

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**2086 Graduate Diploma in Applied Science (Social Statistics)**

This course is for people with similar backgrounds to those who have completed a 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. 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.

Subjects

The four subjects from the Graduate Certificate plus four subjects from:

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**Application procedure**
See entry under General Information.
2090 Master of Applied Science by research
(In areas of applied chemistry, biochemistry, biophysics, instrumental science, computer science, mathematics, operations research, statistics and mathematics education)

Graduates at Bachelor's degree level who have shown a high standard of academic achievement may be admitted to candidacy for the degree of Master of Applied Science.

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, governemental, educational or research organisation. Copies of the Statute for the degree of Master and application forms are available from the Registrar's Office.

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 work place or within the Swinburne Colloid laboratory or at a similar institution.

The program is 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. Under special circumstances, the course may be offered on a full time basis.

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 Masters course. Direct entry into the first year of the Masters 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.

Semester 1
SC716 Basic Colloid Science 4
SC717 Basic Surface Science 4
SC733 Practical Techniques in Colloid Science 4
SC734 Practical Techniques in Surface Science 4

Semester 2
SC736 Research Skills, Part 1 2
SCXXX Elective Unit (One) 4
SCXXX Elective Unit (Two) 4

Semester 3
SC718 Surface Characterisation 4
SC719 Chemistry of Inorganic Colloids 4
SC757 Research Project

Semester 4
SCXXX Elective Unit (Three) 4
SCXXX Elective Unit (Four) 4
SC757 Research Project

Semester 5
SCXXX Elective Unit (Five) 4
SC757 Research Project

Semester 6
SC737 Research Skills, Part 2 2
SC741 Physical Properties of Surface Coatings 4
SC742 Corrosion and Protection of Metals 4
SC743 Food Colloids 4
SC744 Chemistry of Surfactants 4
SC745 Solution Behaviour of Surfactants 4
SC746 Advanced DLVO Theory 4
SC747 Adsorption from Solution 4
SC748 Water Treatment Technology 4
SC749 Polymer Flocculation 4
SC750 Detergency 4
SC751 Emulsion Technology 4
SC752 Polymer Stabilisation Technology 4
SC753 Thin Films and Foams 4
SC754 Light Scattering and Concentrated Dispersions 4
SC755 Surface Chemistry of Clays and Coal 4
SC756 Mineral Processing 4

Electives
The elective subjects are to be chosen from the following list:
SC739 Colloid Rheology 4
SC740 Chemistry of Surface Coatings 4
SC741 Physical Properties of Surface Coatings 4
SC742 Corrosion and Protection of Metals 4
SC743 Food Colloids 4
SC744 Chemistry of Surfactants 4
SC745 Solution Behaviour of Surfactants 4
SC746 Advanced DLVO Theory 4
SC747 Adsorption from Solution 4
SC748 Water Treatment Technology 4
SC749 Polymer Flocculation 4
SC750 Detergency 4
SC751 Emulsion Technology 4
SC752 Polymer Stabilisation Technology 4
SC753 Thin Films and Foams 4
SC754 Light Scattering and Concentrated Dispersions 4
SC755 Surface Chemistry of Clays and Coal 4
SC756 Mineral Processing 4

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 student's requirements. Students will be expected to complete six of the above electives.

Application procedure
See entry under General Information.

1090 Master of Information Technology*
* subject to accreditation

This course is offered in conjunction with the Faculty of Business.

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:

- Disciplinary clusters, consisting of four units with a common theme.

- Complementary clusters, consisting of four units that complement the disciplinary cluster, previous experience and interests. Complementary clusters may be chosen from other clusters, honours degree units 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, we offer four discipline clusters, in the areas of:

- software engineering
- automated systems development
- human-computer interaction
- intelligent systems engineering

Faculty of Applied Science
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.

Entry is open to applicants who have completed an honours degree or graduate diploma in computer science, information technology, computer systems engineering, information systems or some closely related field. Applicants with three year degrees with substantial industry experience may also be eligible.

Students progressing from a graduate diploma would normally be expected to have maintained a distinction level average over the course.

(1993 syllabus)

<table>
<thead>
<tr>
<th>Clusters</th>
<th>Subject</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software IT904</td>
<td>The Software Process</td>
<td>4</td>
</tr>
<tr>
<td>Engineering IT914</td>
<td>Systems Analysis</td>
<td>4</td>
</tr>
<tr>
<td>IT924</td>
<td>Software Design</td>
<td>4</td>
</tr>
<tr>
<td>IT934</td>
<td>Implementation and Maintenance</td>
<td>4</td>
</tr>
<tr>
<td>Automated IT954</td>
<td>Information System</td>
<td>4</td>
</tr>
<tr>
<td>Development IT964</td>
<td>Resources for Information</td>
<td>4</td>
</tr>
<tr>
<td>IT974</td>
<td>System Development</td>
<td>4</td>
</tr>
<tr>
<td>IT984</td>
<td>Techniques</td>
<td>4</td>
</tr>
<tr>
<td>Human- Computer</td>
<td>Interaction</td>
<td>4</td>
</tr>
<tr>
<td>Interaction IT916</td>
<td>Programming the User Interface</td>
<td>4</td>
</tr>
<tr>
<td>IT926</td>
<td>Interactive Systems Development</td>
<td>4</td>
</tr>
<tr>
<td>IT996</td>
<td>HCI Project</td>
<td>4</td>
</tr>
<tr>
<td>Intelligent IT909</td>
<td>Foundations of Intelligent</td>
<td>4</td>
</tr>
<tr>
<td>Systems IT919</td>
<td>Adaptive Intelligent Systems</td>
<td>4</td>
</tr>
<tr>
<td>Engineering IT929</td>
<td>Systems</td>
<td>4</td>
</tr>
<tr>
<td>IT999</td>
<td>ISE Project</td>
<td>4</td>
</tr>
<tr>
<td>Research/ Project</td>
<td>IT903 Software Engineering</td>
<td>4</td>
</tr>
<tr>
<td>Project</td>
<td>Project (for 2 semesters)</td>
<td>8</td>
</tr>
<tr>
<td>IT913</td>
<td>Automated Systems Development</td>
<td>8</td>
</tr>
<tr>
<td>IT993</td>
<td>Research Project (for 2 semesters)</td>
<td>8</td>
</tr>
</tbody>
</table>

(IT903 and IT913 may only be chosen in conjunction with the appropriate cluster.)

**Application procedure**

See entry under General Information.

**Z093 Master of Applied Science (Biomedical Instrumentation)**

The Master of Applied Science (Biomedical Instrumentation) normally involves three years of part-time or one-and-a-half years of full-time study.

This 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.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td></td>
</tr>
<tr>
<td>Introductory</td>
<td></td>
</tr>
<tr>
<td>SP555 Introduction to Biophysical Systems</td>
<td>4</td>
</tr>
<tr>
<td>Advanced SP531 Biophysical Systems and Techniques</td>
<td>4</td>
</tr>
</tbody>
</table>

**Semester 2**

- SP532 Instrument Techniques
- SP547 Neurophysiological Techniques

**Semester 3**

- SP534 Software Design
- SP545 Instrument Programming and Interfacing

**Semester 4**

- SP541 Biophysical Systems
- SP537 Medical Imaging

**Semester 5**

- SP731 Technology Transfer
- SP732 Research Project

**Semester 6**

- SP733 Research Project

**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 approved four year degree plus successful completion of the Graduate Diploma, with at least two distinctions in the second year. Other applicants with suitable backgrounds (such as relevant work experience) may be considered for admission to the masters program.

**Subjects**

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 that the problem be employer based and have direct relevance to the student's employment.

- SM745 Project Planning
- SM748 Research Methodology
- SM749 Minor Thesis

**Application procedure**

See entry under General Information.

**2001 Doctor of Philosophy**

Programs are offered in areas of applied chemistry, biochemistry, biophysics, instrumental science, computer science, mathematics, operational 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 candidacy for the degree of PhD. Applicant 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 are available from the Registrar's office.

**Application procedure**

See entry under General Information.
Applied Science subject details

This section contains a brief description of the subjects which comprise the Applied Science courses.

As the courses are being reaccredited some changes to the subject details may occur after the Handbook has been published. Details of changes will be available on enrolment.

Reading guides

Because of the frequency with which individual publications become outdated, and are superseded, textbooks and references are not listed for all subject details.

In most subjects a detailed reading guide will be issued during the first week of classes and 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.

Students wishing to carry out preliminary reading in a subject should consult the lecturer in charge of that subject for guidance.

Subject details

Subject codes are listed in numerical order within the following groups.

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA</td>
<td>Applied Science</td>
</tr>
<tr>
<td>SC</td>
<td>Chemistry</td>
</tr>
<tr>
<td>SQ</td>
<td>Computer Studies</td>
</tr>
<tr>
<td>SM</td>
<td>Mathematics</td>
</tr>
<tr>
<td>SP</td>
<td>Physics</td>
</tr>
<tr>
<td>AB</td>
<td>Liberal Studies</td>
</tr>
<tr>
<td>BS</td>
<td>Business</td>
</tr>
<tr>
<td>CE</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>EA</td>
<td>Chemical Engineering</td>
</tr>
<tr>
<td>EE</td>
<td>Electrical and Electronic Engineer</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>ME</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>MP</td>
<td>Manufacturing Engineering</td>
</tr>
</tbody>
</table>

SA203 Building Standards

Four hours per week for one semester

Subject description

A second-year subject of the degree course in environmental health. Introduction to the elements of construction with particular emphasis on housing including timber-framed, brick, and cavity brickwork. Examination of foundations, beam structures, 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, and masonry. Relevant provisions of building and plumbing legislation, codes, and standards.

Plan review technique.

SA508 Industry Based Learning

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

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.

SC100 Environmental Health

Two hours per week for one semester

Assessment by assignment and examination

A first-year subject of the degree course in environmental health.

Subject description

Historical background: a history of public health in Victoria and the impact of environmental health on the prevention of spread of infectious diseases.

Professional role: role of the environmental health officer in government and industry, of environmental health.

Administration: the structure and role of State and Local Government agencies involved in environmental health and pollution control.

A brief overview of appropriate legislation that the environmental health officer is required to administer.

SC107 Biology

Four hours per week for one semester

A first-year subject of the degree course in medical biophysics and instrumentation.

For details see SC108 Biology.

SC108 Biology

Four hours per week (2 hours of lectures and 2 hours of practical work)

A first-year subject of the degree course in computer-aided chemistry/biochemistry.

Subject description

Cell structure and function.


Practical work reinforces the theory.

SC109 Biology

Four hours per week for one semester

A first-year subject of the degree course in environmental health. For details see SC108 Biology.

SC133 Chemistry

Three hours per week for one semester

Assessment by examination and assignments

A first-year subject for students completing the Psychophysiology map in Applied Science.

Atomic structure, shapes of molecules, chemical bonding. Organic chemistry — amines, aromatic compounds, amino acids, peptides, proteins, purines, pyrimidines.

Equilibria, kinetics, acid-base chemistry.

SC154 Chemistry

Five hours per week for one semester

First-year subject of the degree courses in computer-aided chemistry and computer-aided biochemistry.

Subject description

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, reaction mechanism.
Organic chemistry: nomenclature, reactions and classes of compounds.
Metals: properties, economic distribution and environmental aspects.
Corrosion and protection of metals, crystal types and packing models.
Practical chemistry: predicting chemical reactions, equilibria, kinetics, potentiometric titration, metals, solution skills.

SC208 Biology
Six hours per week for one semester
A first-year subject of the degree courses in computer-aided chemistry/biochemistry.

Subject description
The course 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: the exchange and transport; control of respiration. The properties of the respiratory system and balance of the kidney and urinary system. Basic main 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.

Immune systems: reticuloendothelial system. Inflammation, phagocytosis, lymphocytes, cell-mediated immunity, antibody-mediated immunity.

Nervous system: nerves and excitability; transmission, the synapse; simple reflex arc. Overview of functions and structures in the central nervous system.

Endocrine system: functions. Major glands, their products and functions.

Reproductive system: anatomy, gametogenesis, contraception, pregnancy.

Integration of body systems: responses to stresses such as exercise, shock.

Practical work in the course includes use of the microscope in the examination of cells and tissues, the testing of body parameters, physiological functions using biological models and equipment.

SC209 Biology
Six hours per week for one semester
A first-year subject of the degree course in environmental health.
For details see SC208 Biology.

SC252 Biological Chemistry
Five hours per week for one semester
A first-year subject in the degree course in environmental health.

Subject description
Organic chemistry: alkanes, alkenes, alkyynes; benzene and other aromatic compounds; alcohols; ethers; nitriles and amines; aldehydes and ketones; carboxylic acids and their derivatives.

Inorganic chemistry: ionic bonding; intermolecular forces.

Analytical chemistry: precipitation equilibria; complex ion equilibria.

Physical chemistry: Thermodynamics: First law; thermo-chemistry; second entropy; free energy and kinetics.

Practical chemistry: Analytical; volumetric, gravimetric, instrument analysis; inorganic synthesis reactions, characterisation of products.

SC318 Microbiology
Four hours per week for one semester
A second-year subject in the degree course in computer-aided biochemistry.

Subject description

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.

Immunology: basic tenets of immunology to include the mechanism of production of antibodies in response to antigens. Vaccination and immunisation.

Practical work will be conducted in conjunction with the above topics.

SC349 Microbiology
Four hours per week for one semester
A second-year subject of the degree course in environmental health.

Subject description

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.

Immunology: basic tenets of immunology to include the mechanism of production of antibodies in response to antigens. Vaccination and immunisation.

Practical work will be conducted in conjunction with the above topics.

SC353 Applied Chemistry
Four hours per week for one semester
A second-year subject in the degree course in computer-aided chemistry.

Subject description

In g reactions: a study of the major classes of gas reactions and associated equations. 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 reactions: Consecutive, parallel and reversible first order reactions; non equilibrium initial concentrations and ymec kinetics: for and chain reactions; the internal ibal pollution; batch and flow reactions.

Introduction to the chemical industry and chemical processing: fluid flow; heat transfer, separation processes, process analysis, process control.
SC360 Practical Chemistry  
Seven hours per week for one semester  
A second-year subject in the degree course in computer-aided chemistry.  

Subject description  
Quantitative analysis: manual titration, colorimetry, atomic absorption, electrodeposition, GC, HPLC and a project in quantitative atomic absorption.  
Physical chemistry experiments in thermodynamics, phase equilibria, kinetics and spectroscopy.

SC362 Biochemistry  
Two hours per week for one semester  
A second-year subject in the degree course in computer-aided biochemistry.  

Subject description  
Introduction to biomolecules: monosaccharides, disaccharides, polypeptides, amino acids, polypeptides, structure of proteins, lipids, nucleotides, enzymes, coenzymes, nucleic acids.  
Enzyme kinetics: simple enzyme mechanisms, Michaelis-Menten kinetics.  
Catabolic pathways: catabolic pathways for carbohydrate, lipid and protein.

Biochemistry of ATP.  

SC365 Practical Biochemistry  
Four hours per week for one semester  
A second-year subject in the degree course in computer-aided biochemistry.  

Subject description  
Laboratory exercises will include quantitative spectrophotometric analysis, colorimetric 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 of SC362 Biochemistry 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, calculations and interpretation of data from quantitative analyses.

SC370 Chemistry  
Six hours per week for one semester  
A second-year subject in the degree course in computer-aided chemistry and computer-aided biochemistry.  

Subject description  
Thermodynamics: formation; reaction; variations with temperature; chemical potentials; available work.  
Phase equilibria: one and two component systems, with emphasis on practical applications.  
Organic chemistry: aromaticity.  
Chromatography: general principles; column chromatography, GC, HPLC.  
Analytical chemistry: sampling.  
Spectroscopy: basic instrumentation; atomic, UV/visible and IR spectra.

SC380 Practical Chemistry  
Four hours per week for one semester  
A second-year subject in the degree course in computer-aided biochemistry.  

Subject description  
Analytical techniques: volumetric analysis, analysis using an atomic absorption spectrometer, UV/visible spectrometer, gas chromatograph and high performance liquid chromatograph.  
Physical experiments: thermodynamics and phase equilibria.

SC390 Computers in Chemistry  
Three hours per week for one semester  
A second-year subject in the degree course in computer-aided chemistry.  

Subject description  
Computer jargon, external and internal computer structure, operations of hardware and software, binary and hexadecimal notation and ASCII codes.

SC414 Industrial Problem-Solving  
Two hours per week for one semester  
A second-year subject in the degree course in computer-aided chemistry and computer-aided biochemistry.  

Subject description  
Company organisation and communications, problem-solving, example case study, patents, chemical economics, chemistry case study, decisions case study.

SC418 Microbiology  
Three hours per week for one semester  
A second-year subject in the degree course in computer-aided biochemistry.  

Subject description  
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.

SC430 Scientific Communication  
One hour per week for one semester  
Subject description  
Training and practice in the preparation of structured written reports, using scientific theories, models and/or hypotheses as the subject matter.  
Literature review on a selected scientific topic.  
Preparation of a curriculum vitae.

SC451 Food Microbiology  
Five hours per week for one semester  
A second-year subject in the degree course in environmental health.  

Subject description  
Food Hygiene  
Microbiological factors — microorganisms 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 microorganisms commonly transmitted via foods.  
Methods used to minimise unwanted microbial growth.  
Importance of the cleaning and sanitising of plant and equipment.  
Cleaning and sanitising techniques.  
Important types of cleaning and sanitising chemicals and applications.  
Evaluation of sanitation of plant and equipment (e.g., swabbing).  
Importance of water chlorination, with particular reference to can cooling water.  
Methods of chlorination.  
Testing of chlorinated water.  
Use of microorganisms.  
Use of microorganisms in the producing of foods.  
Use of microorganisms in the preserving of foods (e.g., yoghurt, cheese, beer, wine).  
Use of microorganisms in the manufacture of foods (e.g., vinegar, alcoholic beverages, cheese, sour cream, vitamins, etc.).

SC453 Applied Chemistry  
Two hours per week for one semester  
A second-year subject in the degree course in computer-aided chemistry.  

Subject description  
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.  
Characterisation of polymers and their measurement, including molecular weight and crystallinity by spectroscopy.
SC460 Practical Chemistry
Seven hours per week for one semester
A second-year subject in the degree course in computer-aided chemistry.
Subject description
Organic techniques: volumetric analysis for saponification and unsaturation equivalent, steam distillation, use of rotary evaporation, recrystallisation, syntheses, identification and characterisation of individual compounds and mixtures using chemical tests, physical measurements, gas chromatography, infra-red spectrometer and polarimeter, practical test.

SC462 Biochemistry
Two hours per week for one semester
A second-year subject in the degree course in computer-aided biochemistry.
Subject description
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 particularly be drawn from fermentation pathways.
This subject will particularly use literature assignments in order to cover the syllabus.

SC465 Practical Biochemistry
Three hours per week for one semester
A second-year subject in the degree course in computer-aided biochemistry.
Subject description
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 the oxygen electrode.

SC467 Environmental Health Practice (1)
Five hours per week for one semester
A second-year subject in the degree course in environmental health.
Subject description
Domestic waste: management; the inspection of sewerage disposal methods in non-sewered areas. Septic tanks and conversion methods. Transpiration, filtration and boil adsorption.
Food establishment legislation and inspection methodology; for example, food premises, eating houses, food factories and markets. Licensed premises. Reports.
Food hygiene: vending and transport.
Business communication: communication needs of the workplace (e.g. letter, report, memo preparation).

SC468 Environmental Science
Five hours per week for one semester
A second-year subject in the degree course in environmental health.
Subject description
Meteorology: Atmospheric variables, measurement of humidity, air pollution, atmospheric stability, inversion, plume behaviour, local effects.
Domestic chemistry in the house (e.g. pesticides, motor chemicals, children's toys).

SC469 Epidemiology
Three hours per week for one semester
A second-year subject in the degree course in environmental health.
Subject description
Overview, nature and scope of virology, bacteriology, mycology, parasitology, immunology, natural transmission, control of various diseases of public health importance including: exoteric diseases, sexually transmitted diseases, mycological and viral infections, food-borne diseases, skin contact diseases, parasitic infections and zoonotic diseases.
Immunology and immunisation procedures with particular reference to Victorian requirements.

SC470 Chemistry
Five hours per week for one semester
A second-year subject in the degree course in computer-aided chemistry and computer-aided biochemistry.
Subject description
Descriptive inorganic chemistry; selected compounds of main group elements — thermodynamics of formation, chemistry. Organic chemistry: acidity, basicity. Carboxyls, application to synthesis. Aromatic compounds.
Infra-red spectroscopy. Coordination chemistry: fundamentals.

SC480 Practical Chemistry
Four hours per week for one semester
A second-year subject in the degree course in computer-aided biochemistry.
Subject description
Organic techniques: volumetric analysis for saponification and unsaturation equivalent, steam distillation, use of rotary evaporation, recrystallisation, syntheses, identification and characterisation using chemical tests, physical measurements, gas chromatograph, infra-red spectrometer and polarimeter, practical test.

SC490 Computers in Chemistry
Three hours per week for one semester
A second-year subject in the degree course in computer-aided chemistry and computer-aided biochemistry.
Subject description
Statistical treatment of chemical data using spreadsheets: errors, distributions, confidence limits, significance tests, lines and curves of best fit, quality control charts.
Use of macros to automate spreadsheets. Exercises using the Acid-Base package.

SC504 Human Biochemistry
Two hours per week in semester seven
A fourth-year subject in the degree course in computer-aided biochemistry.
Subject description
Operating in living organisms. Steroid 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.

SC508 Industry Based Learning
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 (Computer-Aided Chemistry and Computer-Aided Biochemistry). 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
Two hours per week for one semester
A fourth-year subject in the degree course in environmental health.
Subject description
Students are introduced to research methods, both quantitative and qualitative, in preparation for a major research project.

SC541 Microbiology
Three hours of theory per week for one semester
A subject of semester one of the graduate diploma course in industrial microbiology.
Subject description
Introduction to microbiology: eukaryotic and prokaryotic microbes; algae, prokaryota, fungi, bacteria, cyanobacteria. The viruses. Microbial anatomy — introductory biochemistry of microbes. Methods of microbiology. Micropalaeontology and control of microbial growth, including sterilisation and disinfection.
SC542 Practical Work
Four hours of practical work per week for one semester
A subject of semester one of the graduate diploma course in industrial microbiology.

Subject description
The practical work complements the theory and develops the skills of students in the handling of micro-organisms.

SC543 Microbiology
Three hours of theory per week for one semester
A subject of semester two of the graduate diploma course in industrial microbiology.

Subject description
Identification of industrially imported micro-organisms; microbial metabolism; fermentation technology; computer control of fermentations; waste treatment.

SC544 Practical Work
Four hours of practical work per week for one semester
A subject of semester two of the graduate diploma course in industrial microbiology.

Subject description
The practical work complements the theory and develops the students' skills further in the techniques used by microbiologists.

SC545 Microbiology
Three hours of theory per week for one semester
A subject of semester three of the graduate diploma course in industrial microbiology.

Subject description
Microbial genetics; molecular biology; basic immunology and methods of immunology; downstream processing; dairy technology.

SC546 Practical Work
Four hours of practical work per week for one semester
A subject of semester three of the graduate diploma course in industrial microbiology.

Subject description
The practical work complements the theory and develops the students' skills further in the techniques used by microbiologists.

SC547 Microbiology
Three hours of theory per week for one semester
A subject of semester four of the graduate diploma course in industrial microbiology.

Industrial fermentations; biotechnology; food microbiology; microbial toxins; infection and infectivity.

SC548 Practical Work
Four hours of practical work per week for one semester
A subject of semester four of the graduate diploma course in industrial microbiology.

Subject description
The practical work complements the theory and develops skills further in the techniques used by microbiologists.

SC553 Applied Chemistry
Seven hours per week in semester seven
A fourth year subject in the degree course in computer-aided chemistry.

Subject description
Introduction to catalysis.

Applied Organic Chemistry
Chemistry of natural products: Saccharides.
Photochemistry: free radicals, colour sensitisation and quenching; optical pumping; 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 double layer; potential at interfaces; potential 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.

SC560 Practical Chemistry
Seven hours per week in semester seven
A fourth year subject in the degree course in computer-aided chemistry.

Subject description
Lectures in electrochemistry and colloid chemistry.
Qualitative and quantitative analysis of an unknown liquid mixture using distillation, physical measurements, an infra-red spectrometer, an NMR spectrometer and a mass spectrometer.
Stereoreactivity experiment, infra-red data station experiment and UV experiment.

SC562 Analytical Biochemistry
Three hours per week in semester seven
A fourth year subject in the degree course in computer-aided biochemistry.

Subject description
Advanced experiments in protein synthesis and analysis. Cell fractionation techniques. Extraction, purification and analysis of enzymes. Physical techniques will include use of spectrometry and fluorescence spectrometry, various forms of gel electrophoresis, molecular weight determinations and use of the ultracentrifuge.
Computers will be used for simulation, data analysis and modelling studies of structure-function relationships.

SC567 Environmental Health (2)
Three hours per week for one semester
A fourth year subject of the degree course in environmental health.

Subject description
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.
Public buildings: health and safety, emergency lighting, fire prevention, emergency exits.
Accommodation standards: Public and recreational housing. Introduction to indoor air quality issues.

SC568 Applied Food Science and Inspection
Five hours per week for one semester
A fourth year subject of the degree course in environmental health.

Subject description
A detailed study of the production of important food products, in particular, those that are potentially hazardous or liable to spoilage. For example: milk and other dairy foods; meat products (including smallgoods), poultry, fish; frozen, dried, canned and artificially preserved foods; bread manufacture; fruit juices; fermented products.
SC569 Urban Ecology
Four hours per week for one semester
A fourth year subject of the degree course in environmental health.

Subject description
Basic ecology: components of ecosystems, definitions, pathways for energy and materials in the biosphere, interactions among species, nutrient cycles and balances.

Hazardous waste: environmental and health hazards associated with hazardous wastes; storage and transport of hazardous wastes; intratissue, inorganic, and biological waste.

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
Six hours per week in semester seven
A fourth-year subject in the degree course in computer-aided chemistry and computer-aided biochemistry.

Subject description


Stereochemistry.

Qualitative and quantitative analysis of an unknown liquid mixture using distillation, physical measurements, an infra-red spectrometer, an NMR spectrometer, and a mass spectrometer.

SC580 Practical Chemistry
Three hours per week in semester seven
A fourth-year subject in the degree course in computer-aided biochemistry.

Subject description
Selected experiment in electrochemistry and surface chemistry. Qualitative and quantitative analysis of an unknown liquid mixture using distillation, physical measurements, an infra-red spectrometer, an NMR spectrometer, and a mass spectrometer.

Stereochemistry experiment and infra-red data station experiment.

SC590 Computers in Chemistry
Three hours per week in semester seven
A fourth-year subject in the degree course in computer-aided chemistry and computer-aided biochemistry.


Communications.

Instrumental data handling.

SC604 Biotechnology
Three hours per week in semester eight
A fourth-year subject in the degree course in computer-aided biochemistry.

Subject description


c) 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. A range of patterns and metabolism of enzymes in aerobic and anaerobic fermentations. Penicillin and cephalosporin production as examples of secondary metabolism in S. yog and Cephalosporium acremonium.

d) Enzyme technology.

Industrial enzymes; sources, methods of production and industrial uses of a range of selected enzymes.

Immmobilised enzymes; cells; organelles and co-enzymes. Methods of immobilisation. Typical supports. Spacer groups. Practical applications of immobilised enzymes, cells and organelles in:

(a) dairy, detergent, food and leather industries;

(b) biochemical analysis;

(c) clinical and pharmaceutical industries.

Protein engineering.


Downstream process: a qualitative assessment of the factors and problems involved in translating laboratory findings into pilot plant and finally production plant stages. Factors involved in scale-up: environmental control factors, mixing relationships, power input, momentum factors, impeller speeds and volumetrical mass transfer coefficient. Scale-up based on non-geometric similarity. Alteration of factors in optimising processes.

SC608 Industry Based Learning
A six-month period of employment occurring as part of the fourth year of the subject leading to the degree Bachelor of Science (Computer-Aided Chemistry and Computer-Aided Biochemistry). 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
Two hours per week for one semester
A fourth-year subject of the degree course in environmental health.

Subject description
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; |
| Health education, opportunities and responsibilities for environmental health officers; |
| Health education strategies and techniques for environmental health officers; |
| Instructional techniques and communication skills for health education; |
| Trends, performance indicators. |

SC653 Process Chemistry
Five hours per week in semester eight
A fourth-year subject in the degree course in computer-aided chemistry.

Subject description
Extraction of metals: free energy relationships applied to metal extraction: thermodynamic basis of free energy relationships. Pyrometallurgical processes for the extraction of metals from ores. Explanation of various aspects of these processes in terms of free energy relationships.

Catalysts and selected chemical processes: catalysts. The concepts of organometallic chemistry to a level sufficient to allow the design, preparation and application of catalysts. 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 wastes. 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 biological, physico-chemical and other hazardous waste.

Analysis and identification of polymers; differential thermal analysis; gel permeation chromatography; polymer applications of infrared and NMR spectroscopy; pyrolysis gas chromatography.
SC660 Practical Chemistry
Seven hours per week in semester eight
A fourth-year subject in the degree course in computer-aided chemistry.
Subject description
HPLC and GC/MS experiments. Project.

SC661 Environmental Analysis and Control
Four hours per week for one semester
A fourth-year subject in the degree course in environmental health. Analysis — review of analytical methods as applied to environmental analytes; techniques based on separation; techniques based on spectrochemical properties; techniques based on chromatographic approaches.
Use or process flow diagram. Simple process calculations (stoichiometry, combustion, heat and mass balances).

SC662 Analytical Biochemistry
Two hours per week in semester eight
A fourth-year subject in the degree course in computer-aided biochemistry.
Subject description
Radiosotope 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
Four hours per week in semester eight
A fourth-year subject in the degree course in computer-aided biochemistry.
Subject description

SC667 Environmental Health Practice (3)
Two hours per week in one semester
A fourth-year subject of the degree course in environmental health.
Subject description
Applied pest control encompassing: principles of taxonomy, lifecycles and general characteristics of insect species, legal aspects of control, pest species detection and identification, control measures and techniques.

SC668 Research Project
Eight hours per week for one semester
A fourth-year subject of the degree course in environmental health.
Subject description
Students undertake a research program on an environmental health topic which can include science, engineering, law, administrative or social issues.

SC670 Chemistry
Four hours per week in semester eight
A fourth-year subject in the degree course in computer-aided chemistry and computer-aided biochemistry.
Subject description

SC680 Practical Chemistry
Three hours per week in semester eight
A fourth-year subject in the degree course in computer-aided biochemistry.
Subject description
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
Three hours per week in semester eight
A fourth-year subject in the degree course in computer-aided chemistry and computer-aided biochemistry.
Subject description

SC708 Scientific Communication 7
One hour per week in semester 7
Subject description
Training and practice in the presentation of oral reports on industry based Yeamar and other scientific topics. Special requirements of oral reporting, including the use of visual aids.

SC709 Employment Experience
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
Four hours per week for five weeks
A core subject in the graduate diploma and masters (by coursework) in applied colloid science.
Subject description

SC717 Basic Surface Science
Four hours per week for five weeks
A core subject in the graduate diploma and masters (by coursework) in applied colloid science.
Subject description
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
Four hours per week for five weeks
A core subject in the graduate diploma and masters (by coursework) in applied colloid science.
Subject description
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.
Chemistry of Inorganic Colloids

Four hours per week for five weeks

A core subject in the graduate diploma and masters (by coursework) in applied colloid science.

Subject description
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 charges and potential characteristics of a number of different types of colloidal material. Differences in the origin of charge between dispersions, e.g., clays and sulphides, and its influence on particle stability. Application of colloidal dispersions to industry.

Applied Chemical Techniques

Four hours per week of lectures and assignment work.

A subject in the graduate diploma in industrial chemistry.

Subject description
Computers in chemistry.
Spectroscopy: IR, UV/Visible and atomic.
Chromatography: GC and HPLC.

Properties of Colloids and Interfaces

Four hours per week of lectures/tutorials.

A subject in the graduate diploma in industrial chemistry.

Subject description
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.

Industrial Chemistry

Four hours per week of lectures/tutorials/assignments.

A subject in the graduate diploma in industrial chemistry.

Subject description
NMR spectroscopy, mass spectrometry and Fourier transform techniques.
Liquid surfaces.
Electrochemistry.

Practical Chemistry

Four hours per week of practical work

A subject in the graduate diploma in industrial chemistry.

Subject description
Analytical experiments using GC, HPLC, AA, UV/Visible and IR techniques.

Advanced Biochemistry

Two hours per week of lectures/tutorials

A subject in the graduate diploma in industrial chemistry.

Subject description
Control mechanisms in living organisms. A review of the mechanisms which operate at the whole organism level to control metabolic functions. Includes steroid and trophic hormone effects, their target tissues and activities at the enzyme and nucleic acid levels. Also includes amplification of signals through receptors and synthetic analogues which modify signals. Applications to clinical chemistry and chemical pathology.

Biochemical Techniques

Two hours per week of lectures/tutorials

A subject in the graduate diploma in industrial chemistry.

Subject description
Students study two subject areas from three options. These options are:

- separation techniques in biochemistry and purification strategies
- analysis of biomolecules including primary, secondary, tertiary and quaternary structural determinations in proteins
- techniques and overall strategies used in molecular biology.

Industrial Biochemistry

Two hours per week of lectures/tutorials

A subject in the graduate diploma in industrial chemistry

Topics covered in this subject will vary depending on the expertise of the staff in the department.

Industrial Microbiology

Two hours per week of lectures

A subject in the graduate diploma in industrial chemistry.

Subject description
Students study subject areas from six options. The subject areas are:

- micromial genetics
- fermentation technology
- fermentation reactions
- enzyme technology
- waste treatment and disposal
- down stream processing.

Microbiology

Four hours per week of lectures and practical work

A subject in the graduate diploma in industrial chemistry.

Subject description

Industrial Biochemistry

Six hours per week of practical work

A subject in the graduate diploma in industrial chemistry.

Subject description
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, paper chromatography, fractionation using the tannin precipitation, affinity labelling techniques, gel electrophoresis and enzyme kinetics.

Practical Work

Four hours per week of practical work

A subject in the graduate diploma in industrial chemistry.

Subject description
Liquid surfaces and electrochemistry experiment. Qualitative and quantitative analysis of an unknown liquid mixture using distillation, physical measurements, an IR spectrometer, an NMR spectrometer and a mass spectrometer.

Practical Techniques in Colloid Science

Four hours per week for five weeks

A core subject in the graduate diploma and masters (by coursework) in applied colloid science.

Subject description
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. Microelectrophoresis 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
Four hours per week for five weeks
A core subject in the graduate diploma and masters (by coursework) in applied colloid science.
Subject description

SC735 Elective Practical Skills
Four hours per week for five weeks
A core subject in the graduate diploma in applied colloid science.
Subject description
Cleaning techniques and surface treatment. Emulsion polymerisation. Preparation of a 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.

SC736 Research Skills, Part 1
Two hours per week for five weeks
A core subject in the graduate diploma and masters (by coursework) in applied colloid science.
Subject description
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
Two hours per week for five weeks
A core subject in the graduate diploma and masters (by coursework) in applied colloid science.
Subject description
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
Four hours per week for five weeks
A core subject in the graduate diploma and masters (by coursework) in applied colloid science.
Subject description
A minor research project carried 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
Four hours per week for five weeks
An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC716 and SC717 are recommended prior to this subject.
Subject description

SC740 Chemistry of Surface Coatings
Four hours per week for five weeks
An elective subject in the graduate diploma and masters (by coursework) in applied colloid science.
Subject description

SC741 Physical Properties of Surface Coatings
Four hours per week for five weeks
An elective subject in the graduate diploma and masters (by coursework) in applied colloid science.
Subject description
Surface physics including colour reflectivity and surface hardness. Drying of films and the role of pigment dispersion to successful drying. Surface rheology and other characterisation, including spectrosopy. Measurement and influence of critical pigment volume and humidity. Tactile strength and durability.

SC742 Corrosion and Protection of Metals
Four hours per week for five weeks
An elective subject in the graduate diploma and masters (by coursework) in applied colloid science.
Subject description
Electrochemical principles of corrosion. Thermodynamic aspects of corrosion, Pourbaix diagrams, protective measures. Kinetics of corrosion, electrophysical techniques for determining corrosion rate, corrosion inhibition, inhibitors, passivation, anodic and cathodic protection. The unit will include some practical work on corrosion measurement and galvanic corrosion.

SC743 Food Colloids
Four hours per week for five weeks
An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC716 is recommended prior to this subject.
Subject description
Emulsion theory and colloid rheology as applied to foods. Common emulsifiers in food and their safety, use, detection purpose. Wettability of nonaqueous materials (eg. fats, flour) in the presence and absence of emulsifiers. Applicability of colloid theory to foods.

SC744 Chemistry of Surfactants
Four hours per week for five weeks
An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC717 is a prerequisite for this subject, and SC744 is recommended.
Subject description

SC745 Solution Behaviour of Surfactants
Four hours per week for five weeks
An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC717 and SC744 are recommended.
Subject description
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**
Four hours per week for five weeks

An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC716 is a prerequisite for this subject.

**Subject description**
DLVO (Derjaguin-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**
Four hours per week for five weeks

An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC716 is a prerequisite for this subject and SC717 is recommended.

**Subject description**
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 applications in waste water treatment. Practical aspects of adsorption phenomena including experimental design.

Adsorption of simple electrolytes.

**SC748 Water Treatment Technology**
Four hours per week for five weeks

An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC716 and SC717 are prerequisites for this subject and SC747 is advised.

**Subject description**
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**
Four hours per week for five weeks

An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC716 and SC717 are prerequisites for this subject and SC747 and SC752 are advised.

**Subject description**

**SC750 Detergency**
Four hours per week for five weeks

An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC744 and SC77 are prerequisites for this subject and SC716 is advised.

**Subject description**
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, eg. softeners, conditioners. Specific examples of interest, eg. removal of lanolin from wool and the formulation of hair shampoos.

**SC751 Emulsion Technology**
Four hours per week for five weeks

An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC744, SC716 and SC717 are prerequisites for this subject.

**Subject description**
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 (eg. rupture). Breakdown of emulsions (thermodynamics). Applications to cosmetics, food, bitumen, wax, etc.

**SC752 Polymer Stabilisation Technology**
Four hours per week for five weeks

An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC716 is a prerequisite for this subject.

**Subject description**

Experimental methods for measuring the thickness of an adsorbed layer. Implications of the adsorbed layer in particle stability. Design of copolymers and selection of various structural components. Application to the dispersion of pigments in various media and to polymer flocculation.

**SC753 Thin Films and Foams**
Four hours per week for five weeks

An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC716, SC717 are prerequisites for this subject and SC744 and SC751 are advised.

**Subject description**
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**
Four hours per week for five weeks

An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC716, SC717 are prerequisites for this subject and SC718 and SC719 are advised.

**Subject description**
Radial distribution function (g(r)) — relationship between g(r) 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**
Four hours per week for five weeks

An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC716, SC717 are prerequisites for this subject and SC718 and SC719 are advised.

Application of colloid and surface science to clays and coal. Origin of charge including isomorphous substitution in the case of clays. Clay structure — swelling and non-swelling clays. Behaviour of clays in aqueous and non-aqueous media. Use of clays (eg. as fillers) and its colloidal implications in use. Importance of colloid chemistry in determining the properties of soils containing clay.

SC756 Mineral Processing
Four hours per week for five weeks
An elective subject in the graduate diploma and masters (by coursework) in applied colloid science. SC716, SC717 are prerequisites for this subject and SC718 and SC719 are advised.

Subject description

SC757 Research Project
Four hours per week throughout second and third year
An elective subject in the graduate diploma and masters (by coursework) in applied colloid science.

Subject description
A research project carried either at the student's 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.

SC808 Scientific Communication 8
One hour per week in semester 8

Subject description
Literature search and written report on current developments in organic chemistry. Obtaining and analysing experimental data.

SC1255 Chemistry
This is a full year subject. Four hours per week first semester and four hours per week second semester.
This is a first year subject of the degree course in medical biophysics and instrumentation.

Subject description
Semester One:
Basic chemical concepts; revision of names, symbols and electronic configurations; chemical reactions.
Structure of elements and compounds; properties and nature of metallic, ionic and covalent bonding.
Chemical periodicity.
Weak bonding interactions: dipole, hydrogen and Van der Waals.
An introduction to the preparation and processing of foods. Stoichiometry: mass-mass; mass-volume; volume-volume and redox calculations.
Thermochemistry: rates of chemical reactions.
Equilibria: acidbase, solubility, complexation, speciation. Practical work: Chemical reactions, titrations, pH measurement. Equilibria.

Semester Two:
Organic chemistry: alkanes, alkenes, alkynes; benzene and derivatives: alcohols, carboxylic acids; esters, ethers; amines.
Cellular biology: major organic groupings in biological 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; oxidation phosphorylation. Practical work: illustrative of some of the above topics.

SC1500 Introductory Chemistry
Five hours per week for one semester
A first year subject of the degree course in environmental health.

Subject description
Basic chemical concepts; revision of names, symbols and electronic configurations; chemical reactions.
Structure of elements and compounds; properties and nature of metallic, ionic and covalent bonding.
Chemical periodicity.
Weak bonding interactions: dipole, hydrogen and Van der Waals.
Stoichiometry: mass-mass; mass-volume; volume-volume and redox calculations.
Thermochemistry: rates of chemical reactions.
Equilibria: acidbase, solubility, complexation, speciation. Practical work: Chemical reactions, titrations, pH measurement. Equilibria.

SC3400 Food Processing and Analysis
Four hours per week for one semester
A second year subject of the degree course in environmental health.

Subject description
Food processing: introduction to processes used in the food industries for the preparation and processing of foods. Chemical problems associated with those processes that have implications for community health.
Food chemistry: techniques used in the determination of the amounts of carbohydrates, protein and lipid in foods. Determination of the amounts of miconutrients in foods. Methods used for determining the water content of foods. Determination of the calorie or joule contents of foods. Other manual and instrumental techniques used in food analysis.

A comprehensive study of a reasonably advanced version of BASIC (example Turbo BASIC) including array and file handling. Problem solving skills.

SK190 Computer Science 1 (Chemistry)
Five hours per week for one semester
Instruction is by a combination of lecture and laboratory sessions
A first-year subject of the degree courses in computer-aided chemistry and biochemistry and medical biophysics and instrumentation.

Subject description
Programming in BASIC
A comprehensive study of a reasonably advanced version of BASIC (example Turbo BASIC) including array and file handling. Problem solving skills.

General Computer Technology
Computer concepts such as means of data representation, assemblers, compilers, operating systems. Elementary computer hardware.

SK210 Applied Computing Methods
Two hours per week for one semester
Instruction is by a combination of lecture and tutorial sessions
A first-year subject of the degree course in environmental health.

Subject description
Software tools: an introduction to the main software tools encountered by environmental health specialists — job command languages, editors, word processors, spreadsheets, etc.
Computer software: an introduction to the use of Microsoft works, illustrated by the use of case studies.
Computer hardware: an introduction to microcomputer hardware architecture including peripheral devices, communications, subsystems and current technology I/O systems (graphics, OCR).
SK290 Computing

Four hours per week for one semester
Instruction is by a combination of lectures and laboratory sessions
Assessment by examination and assignments

A first year subject for students completing the Psychophysiology
Medical Biophysics major.

Subject description
Introduction to the personal computer; introduction to programming
in C.

SM106 Mathematics

Three hours per week for one semester
Assessment by examination and assignment

A first-year subject in the degree course in psychology and
psychophysiology

Subject description

Functions and graphs
Basic function: polynomials of degree one (linear functions), polynomials of degree
two (quadratic functions), polynomials of degree N ≥ 2. Roots and factors of polynomials. Linear interpolation and extrapolation. Fitting polynomials to data.

Functions for science: Exponential growth function, power series representation of e^x, approximations for small x. Index laws. Graph of y = e^x. Decay function. Hyperbolic functions. Fitting exponential functions to data.

Trigonometric functions: Degrees and radius. Amplitude, period, frequency, phase angle.

Inverse functions: composite functions. Logarithms. Inverse trigonometric functions.

Other functions: the function f = 1/x. Limits and continuity, Quotients of polynomials. Asymptotes.

Differentiation

Integration

First-order ordinary differential equations
Variables separable. Linear.

Matrices

Vectors
Components, addition, unit vector, position vectors. Scalar and vector products. Applications: work done, moment of force.

Statistics
Mean and standard deviation. Linear regression in fitting functions to data.

In this subject students learn to use a graphics calculator to solve problems in functions, graphs, differentiation, matrices, vectors and statistics.

Prescribed text:
Berry, J., Norcliffe, A. and Humble, S. Introductory mathematics through

Prescribed calculators:
Texas Instruments Advanced Scientific TI-81 graphics calculator.

SM108 Mathematical Methods

Five hours per week for one semester
Assessment by tests/examination and assignments

A first-year subject of the degree course in computer-aided chemistry
and computer-aided biochemistry.

Subject description

Vectors
Vectors in 2 and 3 dimensions. Dot and cross products of 2 vectors in space and applications.

Numerical calculations
Introduction to numerical methods. Errors and their propagation. Numerical solution of equations by graphical and iterative methods.

Plane analytic geometry
Coordinate geometry in Cartesian co-ordinates; graphs of linear, polynomial, rational and power functions and of conic sections.

Functions of one variable
Standard functions and their graphs. Finite and infinite limits; continuity.

Calculus
Differentiation: geometric interpretation; derivatives of standard functions; product, quotient and chain rules; implicit differentiation. Applications of differentiation: graph sketching; related rates; optimisation; differentials and approximations; Taylor polynomials; L'Hopital's rule. Integration: definite and indefinite integrals and their interpretations; integrals of standard functions; integration by substitution and by parts; improper integrals; systematic integration of rational functions and of products of trigonometric functions. Numerical integration. Applications of integration: areas, volumes, lengths of curves and surface areas of surfaces of revolution; integrals of rates of change.

Textbooks

Prescribed Calculator
Texas Instrument Advanced Scientific TI-81

SM110 Mathematical Methods

Three hours per week for one semester
Assessment by tests/examination and assignments

A first-year subject of the degree course in environmental health.

Subject description

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
Trigonometric functions; exponential, logarithmic and natural logarithmic 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.

SM126 Applied Statistics 1

Two hours per week for one semester
Assessment by tests/examination and assignments

A first-year subject of the degree course in mathematics in computer
science.

Subject description

Data analysis
Numerical and graphical methods for summarising and presenting
data using various methods including frequency tables, stem-and-leaf
diagrams, box-and-whisker plots; measures of location and dispersion.

Measures of Association for two variables; correlation coefficients,
scatterplots.

Introduction to probability
Definition and calculation of probabilities using the addition and
product rules; conditional probability, independent events. Random
variables and expected values.

Discrete probability distributions; uniform, geometric, binomial and
hypergeometric.

The MINITAB computer package will be used in this subject.
SM127  Mathematics 1
Five hours per week for one semester
Assessment by tests/examination and assignments
A first-year subject of the degree course in computer science, and in mathematics and computer science.

Subject description
Numerical calculations
Simple calculations, including mathematics of finance (interest; annuities, net present value; internal rate of return). Introduction to numerical methods. Errors and their propagation. Numerical solution of equations by graphical and iterative methods.
Plane analytic geometry
Co-ordinate geometry in Cartesian co-ordinates; graphs of linear, polynomial, rational and power functions and of conic sections.
Functions of one variable
Standard functions and their graphs. Finite and infinite limits; continuity.
Calculus
Differentiation: geometric interpretation; derivatives of standard functions; product, quotient and chain rules; implicit differentiation.
Applications of differentiation: graph sketching; related rates; optimisation; differentials and approximations; Taylor polynomials; L'Hopital's rule.
Integration: definite and indefinite integrals and their interpretations; integrals of standard functions; integration by substitution and by parts; improper integrals; systematic solution of trigonometric functions. Numerical integration.
Applications of integration: areas, volumes, lengths of curves and surface areas of surfaces of revolution; integrals of rates of change.

Textbooks

SM214  Mathematical Methods
Four hours per week for one semester
Prerequisite: SM108
Assessment by tests/examination and assignments
A first-year subject of the degree courses in computer-aided chemistry and computer-aided biochemistry.

Subject description
Linear algebra
Matrices, determinants and the solution of systems of linear equations.
First order differential equations
The solution of separable first order differential equations with applications.
Functions of several variables
Partial differentiation; differentials and approximations; an introduction to optimisation.
Descriptive statistics
Numerical and graphical methods for summarising and presenting data. Cross-tabulation.
The MINITAB computer package is used in the statistical studies.

Probability
Probability and probability distributions such as binomial, Poisson and normal.

Inferential statistics
Hypothesis tests and confidence intervals for means, proportions and variances using the t, chi-square and F distributions
Regression and correlation
Scatterplots, the Pearson correlation coefficient, and linear least squares regression for one predictor. Applications to analytical chemistry.

Textbooks

SM225  Operations Research 2
Two hours per week for one semester
Assessment by examination and assignments
A first-year subject of the degree course in mathematics and computer science.

Subject description
History and methodology
Development of Operations Research: inter-disciplinary team; in-house OR teams; consultancy teams; methodology; role of techniques; application problems; problem formulation; model building; testing; validating; design and data problems; implementation; OR literature; OR societies.
Introduction to linear programming
Formulation of linear programming problems; graphical solution of two and three variables; simplex analysis and optimal solutions; practical problems. Use of computer packages such as MINITAB.
Assignment
Maximum and minimum problems.

Inventory control
Inventory systems: economic order quantity; backorders; continuous replenishment; safety stock under uncertainty.

SM226  Applied Statistics 2
Two hours per week for one semester
Assessment by tests/examination and assignments
A first-year subject of the degree course in mathematics and computer science.

Subject description
Applications of probability
Continuous probability distributions, including normal: expected values of continuous random variables; applications.

Statistical inference
Drawing random samples from finite and infinite populations.
The sampling distributions and chi-square: their use in hypothesis testing and estimation of means, proportions and variance. Examples of non-parametric hypothesis tests.
The MINITAB computer package will be used in this subject.

SM227  Mathematics 2
Three hours per week for one semester
Assessment by tests/examination and assignments
A first-year subject of the degree course in mathematics and computer science.

Subject description
Matrix algebra
Matrices and matrix algebra; determinants. Systems of linear equations; Cramer's rule; Jordan and Gaussian elimination; matrix inversion; procedures for numerical solution by direct and iterative methods.
2D polar coordinates
Definitions; graphs of equations; transformation to and from Cartesian coordinates; curve length and area.
Vectors and geometry
2D vectors: dot product and resolution; parametric equations of 2D curves; vector differentiation.

3D space: Cartesian and polar co-ordinates; simple surfaces and curves in space.
3D vectors: dot and cross-products; vector equations of lines and planes; parametric equations of 3D curves.

Functions of many variables
Graphs of surfaces as functions of two or more variables; partial differentiation and applications; directional derivatives and gradients; tangent planes to surfaces; differentials and approximations; optimisation and applications.

Textbooks

Prescribed
Texas Instrument Advanced Scientific TI81
SM240 Applied Statistics and Linear Algebra
Three hours per week for one semester
A first-year subject of the degree course in computer science.
Subject description
Applied statistics
Topics to be chosen from:
Exploratory Data Analysis: numerical and graphical methods for summarising and presenting data. Measures of association for two variables using Pearson and Spearman correlation coefficients, scatterplots. Straight line fits to data; residuals; outliers.
Probability: definition and calculation of probabilities using the addition and product rules; conditional probability, independent events.
Applications: probability distributions including binomial, Poisson, hypergeometric, exponential, normal; expected values of random variables and applications.
Statistical inference: drawing random samples from finite and infinite populations. The sampling distributions t and chi-square; their uses, the MINITAB computer package.
Linear Algebra:
Matrices and matrix algebra: determinants. Systems of linear equations: Cramer’s rule: Jordan and Gaussian elimination; matrix inversion; procedures for numerical solution by direct and iterative methods.

SM325 Operations Research 3
Two hours per week for one semester
A second-year subject of the degree course in mathematics and computer science.
Subject description
Network analysis
Introduction; history; areas of application: network construction; event time and activity time analysis; slacks and floats; cost analysis; monitoring and control of networks; problems of data collection; practical applications.
Simulation
General simulation model construction; generation of random variables; simulation output; variance reduction techniques; application of simulation to different models such as queuing and inventory.
Forecasting
Role of forecasting in decision-making; forecasting techniques; selecting the forecasting techniques; smoothing techniques; simple moving average; exponential smoothing; higher forms of smoothing; seasonal exponential smoothing; casual methods; forecasting with adaptive filtering; decomposition method of time series forecasting.

SM326 Applied Statistics 3
Two hours per week for one semester
A second-year subject of the degree course in mathematics and computer science.
Subject description
Statistical inference
Hypothesis testing and estimation: type I and type II errors and the power of an hypothesis test. The F distribution and applications. Contingency tables and goodness-of-fit tests.
Regression and correlation
Linear regression for both linear and non-linear equations. Model assumptions and how to check them. The method of least squares. Parameter and prediction estimates, and confidence intervals for both. Applications to scientific and economic data.
Correlation, including tests of significance.
The MINITAB package will be used in this subject.

SM327 Mathematics 3
Three hours per week for one semester
A second-year subject of the degree course in mathematics and computer science.
Subject description
Ordinary differential equations
Complex numbers
Definition and arithmetic; polar forms; solution of polynomial equations.
Linear algebra
Linear dependence of vectors; vector spaces, subspaces and bases; inner product. Matrices: rank; equivalence; nullspace and range. Square matrices: eigenvalues and eigenvectors; similarity of simple matrices; real symmetric matrices; applications including quadratic forms.
Combinatorial analysis
Systematic techniques of listing and of counting for arrangements, selections, partitions, etc.
Sequences and series
Definition of a sequence; limits; types of divergent behaviour. Infinite series: some simple tests of convergence; properties of power series. Series solution of ordinary differential equations.

SM404 Project Management A
Two hours per week for one semester
A second-year subject of the degree course in mathematics and computer science.
Subject description
Applied research/project management
Project characteristics: project stages; project management 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 3 or 4, will be required to undertake a project for a member of staff. 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. In short, they will be expected to manage the project as described. Oral and written reports will be required at the end of the semester on the management process and the results of the project.

SM425 Operations Research 4
Four hours per week for one semester
A second-year subject of the degree course in mathematics and computer science.
Subject description
Linear programming
Simplex method; Big M method; two phase method; duality; dual simplex method; sensitivity; revised simplex techniques; bounded variables; industrial applications. Use of computer packages such as SAS/OR.
Classical optimisation
Types of mathematical programming (optimisation) problems: global and local optimum solutions; non-linear optimisation; unconstrained optimisation; methods of Lagrange multipliers; Kuhn-Tucker theorems; numerical techniques; search gradients; quasi-Newton; penalty functions; sensitivity analysis.
Markov chains and queueing theory
Definitions of stochastic processes; Markov chains; transition matrix; steady state; absorption chains; in decision making. Queueing theory: transient and stationary state; the Markov model.
Case Studies
The students working in groups tackle an unstructured case study related to a practical situation. The case studies used are drawn from consulting activities conducted by Operations Researchers and have been carefully modified for student use. An oral preliminary report on each group’s progress towards a solution is expected. Before the end of the or both oral and written reports on their proposed solution are presented.

SM426 Applied Statistics 4
Three hours per week for one semester
Assessment by tests/examination and assignments

A second-year subject of the degree course in mathematics and computer science.

Subject description
The analysis of variance
Revision of inference for two independent groups. The analysis of variance for single-factor, completely randomised designs, randomised blocks, and two-factor equally replicated designs. Non-parametric methods including Kruskal-Wallis, Friedman and Kendall’s coefficient of concordance.

Multiple linear regression
Review of linear regression with one predictor. The linear model with several predictors. Assumptions for ordinary least squares. Methods for checking the assumptions, including normal probability plots, residual plots, the lack-of-fit test and the Durbin-Watson test for autocorrelation. Outliers.


Some theory of estimation

The MINITAB package will be used in this subject.

SM427 Mathematics 4
Three hours per week for one semester
Assessment by tests/examination and assignments

A second-year subject of the degree course in mathematics and computer science.

Subject description
Multidimensional space
Real n-dimensional space: subspaces, hyperplanes and convex sets. Inner product: resolution; distance between points; open, closed, bounded sets; limits of sequences. Functions, limits and continuity.

Linear functions
Matrix form: geometry of linear transformations. Canonical forms, definition, etc.

Non-linear analysis
Differentiability: Jacobian; change of basis. Real functions: Taylor expansion; extreme points and Hessian. Implicit function theorem.

Ordinary differential equations

Difference equations
Equations of first and second order: linear equations with constant coefficients; applications; numerical techniques.

SM504 Project Management B
Three hours per week for one semester
Assessment by tests, assignments, written and oral project reports, participation in tutorial classes and project teams

A third-year subject of the degree course in mathematics and computer science.

Subject description
Applied research project management
Further topics in the theory and practice of project management: decision-making; types of decisions; how to make decisions.

Faculty of Applied Science

SM525 Operations Research 5
Three hours per week for one semester
Assessment by examination, assignment

A third-year subject of the degree course in mathematics and computer science.

Subject description
Dynamic programming
Introduction to dynamic optimisation: recursive algorithm; computational procedures; forward and backward computations; stochastic problems; final value problems; infinite horizon problems; the problem of dimensionality; applications and case studies. Use of computer packages such as PROPS.

Advanced forecasting
The Box-Jenkins methodology, differencing of time series, sample autocorrelation and sample partial autocorrelation (SAC and SPAC), checking stationarity of time series using SAC and SPAC; autoregressive models; moving average models; general ARIMA models; autoregressive integrated moving average models (ARIMA) general ARIMA with seasonality, use of computer packages such as SAS/ETS.

Financial modelling
General financial modelling: consolidations; financial statement summaries; alternative decisions; capital investment techniques; multivariate statistics; discounted cash flow; linear programming; computer approach: how models are acquired: broad guidelines of development; cost of development; preparing business plans; factors cost dependence; conditions for successful development; case studies. Use of computer packages such as LOTUS.

SM526 Applied Statistics 5
Three hours per week for one semester
Assessment by tests/examination and assignments

A third-year subject of the degree course in mathematics and computer science.

Subject description
Sampling methods for Sample Surveys
Basic designs for sample surveys: simple random sampling, stratified sampling and systematic sampling.

Estimators for means, totals and proportions; variance estimation. The design effect; sample size determination; EPSEM samples. Practical issues and methods; questionnaire design.

Introduction to multivariate methods
An informal introduction to sampling from multivariate populations. The variance-covariance matrix, the multivariate normal distribution, multivariate mean, Hotelling’s T² statistic, the multivariate analysis of variance. Wilk’s lambda. An introduction to Principal Components Analysis, Factor Analysis and Cluster Analysis.

SM608 Industry Based Learning
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 the supervisor.

SM609 Special Project
Three hours per week for one semester
Assessment by written and oral presentations

A fourth-year subject of the degree course in mathematics and computer science. Students work in groups on an industrial research based project.
SM625 Operations Research 6
Three hours per week for one semester
Assessment by assignments, examination, oral presentation. Instruction by lectures, tutorials and seminars.

A fourth-year subject of the degree course in mathematics and computer science. Alternative topics may be substituted for those below.

Subject description
Inventory control
Probabilistic models; re-order point models with stochastic demand; periodic review models with stochastic demand; single period models; dynamic inventory models; simulation approach; MRP approach; JIT inventory systems; computer packages; industrial applications.

Replacement
Relevant cost in replacement models; cost equation; discounted cash flow techniques; replacement of items that fail, mortality curves; conditional probability of failure; group replacement; cost of replacement; minimisation of costs; network solutions; other models.

Scheduling
The job-shop-process; classification of scheduling problems; measures for schedule evaluation; finite sequencing for a single machine; flow-shop scheduling; general shop job-shop problems; applications; working with computer packages such as SAS/OR.

Throughout the semester, students will have the opportunity to present seminar and to participate in seminars by practitioners from business and industry.

Textbooks and References
Department of Mathematics notes

SM626 Applied Statistics 6
Three hours per week for one semester
Assessment by tests/examination and assignments

A fourth-year subject of the degree course in mathematics and computer science.

Subject description
Sample Surveys
Ratio estimation, sampling equal and unequal clusters, PPS sampling, cluster homogeneity, weighting.

Topics in Applied Statistics
A selection of two or three topics will be made from a range of current statistical methods, such as statistical quality control, multivariate statistics, econometric methods, non-parametric methods and design and analysis of experiments.

SM632 Social Change in the Modern World
Three hours per week for one semester
Assessment by assignment, oral presentation and media folio/report

Subject description
The course will consider the rapid nature of technological and social change in modern industrial society, with particular stress on the consequences which this has for man and the environment. Aiming to introduce the student to some basic concepts in sociology, the focus will be on the patterns of culture, social strata and in altitudes and social behaviour.

SM708 Industry Based Learning
A subject of industry-based learning occurring as part of the fourth year of the course leading to a 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.

SM732 Survey Research Methods
Four hours per week for one semester
Prerequisites: SM750, SM751

A subject of the degree course in applied science (social statistics).

Subject description
This subject aims 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 questionnaires, design of interview techniques and telephone/mail surveys and census methods. Basic models to analyse survey data such as construction of indices and scales. Data processing including editing, coding, quality control and preliminary analysis. Analysis of multiple regression response questions.

Textbooks and References
Given in class.

SM733 Demographic Techniques
Four hours per week for one semester
Prerequisite: SM742

A subject of the degree course in applied science (social statistics).

Subject description
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. It will include topics chosen from the following: Sources of demographic data. Elementary rates and ratios, examples from mortality, fertility, marriage and migration. Census data and use of CD ROM technology such as CADATA. The life table and use in predictions such as population projections. Models for regional demographic analysis.

Textbooks and References
Given in class.

SM735 Survey Sampling
Four hours per week for one semester

A subject of the degree course in applied science (social statistics).

Subject description
This subject aims to introduce the theory and practice of sampling methods for social surveys. The emphasis is on basic sampling methods such as simple random sampling, stratified sampling and cluster sampling, and includes the estimation of standard errors.

Textbooks and References
Given in class.

SM742 Elementary Statistical Modelling
Four hours per week for one semester
Prerequisites: SM750, SM751

A subject of the degree course in applied science (social statistics).

Subject description
This subject aims to extend the work done in Introduction to Data Analysis by further developing the concepts of statistical estimation and testing. Topics will include analysis of variance and regression. Introduction to linear algebra. Introduction to multiple regression. Analysis of categorical data.

Textbooks and References
Given in class.

SM743 Multivariate Statistics 1
Four hours per week for one semester
Prerequisite: SM742

A subject of the degree course in applied science (social statistics).

Subject description
This subject aims to identify and apply the multivariate techniques most commonly used in social research and to understand the assumptions underlying their use. The course will include a selection of topics chosen from multiple regression, structural equation inference for multivariate data, principal component analysis, factor analysis, discriminant analysis and cluster analysis.

Textbooks and References
Given in class.
SM744 Statistical Modelling
Four hours per week for one semester
Prerequisite: SM743
A subject of the master of applied science (social statistics) by coursework.

Subject description
This subject aims to make an in-depth study of a range of statistical modelling techniques with special emphasis on modelling of categorical data. Topics will be chosen from: Regression models for categorical data; log-linear models including logistic regression for analysing binary data; procedures for analysing two way tables such as social mobility tables and multi-way contingency tables. Causal modelling, structural equation models, LISREL.

Textbooks and References
Given in class.

SM745 Project Planning
Four hours per week for one semester
Prerequisites: Requirements of the Graduate Diploma in Social Statistics with at least two distinctions in the second year
A subject of the master of applied science (social statistics) by coursework.

Subject description
In this subject students define and plan a project and conduct an extensive literature search. The content will vary from student to student depending on the work undertaken. It will involve selecting an appropriate project and conducting an extensive literature search.

Textbooks and References
Given in class.

SM746 Multivariate Statistics 2
Four hours per week for one semester
Prerequisite: SM743
A subject of the master of applied science (social statistics) by coursework.

Subject description
This subject aims to make an in-depth study of a range of multivariate techniques used in social research. A selection of topics will be made from multivariate analysis of variance, multiple regression, factor analysis, discriminant analysis, cluster analysis, conjoint analysis, correspondence analysis and scaling techniques such as multidimensional scaling.

Textbooks and References
Given in class.

SM747 Secondary Data Analysis
Four hours per week for one semester
Prerequisite: SM733
A subject of the master of applied science (social statistics) by coursework.

Subject description
This subject aims to develop the ability to explore complex datasets with a view to formulate policy decisions. Starting with existing datasets, students will investigate policy formulation problems making use of the techniques learnt elsewhere in the course.

Textbooks and References
Given in class.

SM748 Research Methodology
Four hours per week for one semester
Prerequisite: SM745
A subject of the master of applied science (social statistics) by coursework.

Subject description
This subject aims to continue the project planning in SM745 by selecting the appropriate research methodology necessary to proceed and, if necessary, develop additional skills needed to complete the research. The content will vary from student to student depending on the project undertaken.

Textbooks and References
Depends on topic.

SM749 Minor Thesis
Eight hours per week for one semester
Prerequisite: SM748
A subject of the master of applied science (social statistics) by coursework.

Subject description
This subject follows on from SM748 and aims to carry out an original piece of social research and report the findings.

Textbooks and References
Depends on topic.

SM750 Basic Statistical Computing
Four hours per week for one semester
Prerequisites: None
A subject of the graduate certificate of applied science (social statistics).

Subject description
This subject aims to develop competence in the use of personal computers and associated statistical packages and a level of statistical computing literacy necessary for social research. It includes an introduction to micro-computers, a mainstream statistical package such as SPSS/PC+ and a mainstream spreadsheet such as Lotus 123 or Excel. Basic descriptive statistical techniques are used as applications.

SM751 An Introduction to Data Analysis
Four hours per week for one semester
Prerequisites: None
A subject of the graduate certificate of applied science (social statistics).

Subject description
This subject aims to give a computer based introduction to the concepts and practice of data analysis, statistical estimation and hypothesis testing. It includes exploring data, describing summarising data, analysis of crosstabulations, time series, drawing inferences from sample data, confidence intervals and testing hypotheses on means and proportions for two groups. Chi square and t-tests. Simple linear regression. Use of statistical packages such as Minitab and SPSS/PC+ as appropriate.

SM752 Advanced Statistical Computing
Four hours per week for one semester
Prerequisites: SM750, SM751
A subject of the graduate diploma of applied science (social statistics).

Subject description
This subject aims to expand the work done in Basic Statistical Computing by introducing the students to other aspects of statistical computing, in particular the SAS system. It will look at the basics of the SAS system as well as requiring the students to investigate the use of higher level statistical procedures using an appropriate data set. The subject will also cover an introduction to database systems using dBase III +. Interfaces between dBase and SAS will also be covered. The use of high level graphics packages may also be discussed. The course will be assessed by a mixture of practical assignments and tests. Students will be given the opportunity to work with their own data.

Textbooks and References
Will be supplied by the lecturer.

SM1200 Mathematical Methods
Four hours per week for two semesters
Assessment by test/ examination and assignments
A first-year subject of the degree course in computing and instrumentation.

Subject description
Vectors
Vectors in 2 and 3 dimensions. Dot and cross products of two vectors in space and applications.
Numerical calculations
Introduction to numerical methods. Errors and their propagation. Numerical solution of equations by graphical and iterative methods.
Plane analytic geometry
Co-ordinate geometry in Cartesian co-ordinates; graphs of linear, polynomial, rational and power functions and of conic sections.
Functions of one variable

Standard functions and their graphs. Finite and infinite limits; continuity.

Calculus

Differentiation: geometric interpretation; derivatives of standard functions; product, quotient and chain rules; implicit differentiation.
Applications of differentiation: graph sketching; related rates; optimisation; differentials and approximations; Taylor polynomials; L'Hôpital's rule.
Integration: definite and indefinite integrals and their interpretations; integrals of standard functions; integration by substitution and by parts; improper integrals; systematic integration of rational functions and of products of trigonometric functions. Numerical integration.
Applications of integration: areas, volumes, lengths of curves and surface areas of surfaces of revolution; integrals of rates of change.

2D polar coordinates

Definitions: Graphs of equations; transformation to and from Cartesian coordinates.

Complex numbers

Definition and arithmetic: polar form; de Moivre's theorem and exponential notation.

Ordinary differential equations


Vector functions

Calculus of vector functions of one variable with application to displacement, velocity and acceleration and to mechanics. Equations to lines and planes, gradient of a scalar field, directional derivative.

Functions of many variables

Partial differentiation and applications: differentials and approximations; optimisation and applications (including least squares) with first and second derivative tests.

Data presentation and analysis

Frequency distributions: tabulation; graphical presentation; measures of central tendency and of dispersion; measures of association.

Probability

Definitions and concepts of probability: calculation using addition and product rules; conditional probability and independence.
Probability distributions: discrete variates, including binomial, Poisson and hypergeometric distributions; continuous variates, including normal distribution; mean and variance.
Introduction to hypothesis tests and confidence intervals for means and correlation coefficients using the t distribution.

Textbooks

Hunt, R.A., Calculus with Analytic Geometry
Prescribed Calculator
Texas Instrument Advanced Scientific TI81

SM2100 Applied Statistics

Three hours per week for one semester
Assessment by examination and assignments

A first-year subject of the degree course in environmental health.

Subject description

Introduction to health statistics: morbiditv and mortality; vital statistics; standardisation, life tables; tylr concepts and basic formulas. Probability distributions: discrete, including binomial and Poisson; continuous, including normal. Sampling distributions of mean, variance and proportion.
Introduction to epidemiology: types of study; measures of risk and of association.

SM3400 Mathematical Methods

Three hours per week for one year
Assessment by examination and assignments
Prerequisite: SM1200 or SM1215

A second-year subject of the degree course in instrumentation and computer science.

Subject description

Linear algebra and vectors
Matrices and matrix algebra. Systems of linear equations: Gaussiam elimination; procedures for numerical solution by direct or iterative methods. (Jacobi and Gauss-Seidel), transformation matrices.
Real analysis
Partial differentiation, chain rule, approximations. Application to maximum and minimum problems constrained optimata and Lagrange multipliers. Change of variable. Multiple integrals. Applications of
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. Line, surface and volume integrals. Field theory.

Complex analysis


Random processes


Modern algebra with applications


Prescribed text:


SM3415 Mathematical Methods

- Three hours per week for one year
- Assessment by tests, examinations and assignments

Prerequisite: SM1200 or SM1215

A second-year subject of the degree course in instrumentation and computer science.

Subject description

- Linear algebra and vectors

- Real analysis

- 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. Line, surface and volume integrals. Field theory.

- Complex analysis

- Random processes

- Modern algebra with applications
SP121  Physical Science  
Three hours per week for one semester  
Assessment by assignments and examination  

A first-year subject of the degree course in environmental health.  

Subject description  
Matter  

Electricity and Magnetism: charge, Coulomb’s Law, electric field, potential difference, current, Ohms Law, E.M.F., resistance, capacitance, magnets and magnetic fields, magnetic effects of currents, D.C. meters, electromagnetic induction, Faraday’s Law, transformers.  

Acoustics: S.H.M., damped and forced vibrations, wave motion, energy in waves, standing waves, sound, beats, shock waves, intensity, sound levels, human ear, dBA scale, introduction to noise.  

SP135  Monitoring Instrumentation  
Three hours per week for one semester  

A first-year subject for students completing the Psychophysiology major in Applied Science.  

Subject description  
Introduction to Electricity. DC Voltage, current, resistance, batteries, voltmeters, ammeters. AC and power supplies, Cathode Ray Oscilloscope.  

Introductory Optics. Thin lenses, focal length, imaging, magnification, the eye, glasses. Use of ophthalmoscope.  

Biological Transducers. Strain gauge, Infrared transmission, microphone, loud speaker. Examples: measuring muscle strain, blood flow etc.  

SP207  Special Entry Physics  
Five hours per week for one semester  
Assessment by examination  

A first-year subject of the degree course in medical biophysics and instrumentation taken by students who have not reached Year 12 Physics standard.  

Subject description  
Nuclear physics: binding energy, nuclear forces, radioactivity, alpha, beta, gamma decay, nuclear reactions, radiation detectors.  


Optics: optical instruments, interference and diffraction, polarisation, optical communication.  

Thermal physics: temperature and heat, gas laws and thermodynamics.  

SP208  Special Entry Physics  
Five hours per week for one semester  
Assessment by examination  

A first-year subject of the degree course in computing and instrumentation taken by students who have not reached Year 12 Physics standard.  

Subject description  
Nuclear physics: binding energy, nuclear forces, radioactivity, alpha, beta, gamma decay, nuclear reactions, radiation detectors.  


Optics: optical instruments, interference and diffraction, polarisation, optical communication.  

Thermal physics: temperature and heat, gas laws and thermodynamics.  

SP220  Instrumental Science 2  
Two hours per week for semester two  

A first-year subject of the degree course in computer-aided chemistry and computer-aided biochemistry.  

Subject description  
Topics studied will include:  
- further DC circuits;  
- AC circuits;  
- further optics — lenses, interference, diffraction etc.  

SP221  Physics  
Three hours per week for one semester  
Assessment by practical work and examination  

A first-year subject of the degree course in environmental health.  

Subject description  
Radiation:  
- electromagnetic spectrum — introductory physics of microwaves, U.V. and electro-magnetic radiation;  
- atomic structure — H spectrum, H atom, X-rays, thermionic and photo-electric emission;  
- nuclear structure — binding energy, radioactivity, nuclear reaction and nuclear-radiation, tracer techniques, radiation measurements.  

Dangers of radiation.  

Optics and images: mirrors, lenses, optical instruments, light, intensity and luminous flux.  

Lasers: basic principles and application to measurement of flow rate and particle density.  

Transducers: mechanical and electrical devices with applications.  

SP222  Industry Based Learning  
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  Monitoring Technology  
Three hours per week for one semester  
Assessment by examination and assignments  

A first-year subject for students completing the Psychophysiology major in Applied Science.  

Subject description  
Wave Theory: Standing waves, transmission, Doppler shift, ultrasound. Amplification, filtering, differential/amplifying (black box concept only). The Electrode as a transducer: capacitance, resistance, impedance, biological signal properties.  

Mensuration: Wheatstone bridge, chart recorders, frequency counter.  

Other transducers: blood flow, pressure, temperature (differential for bio-feedback use), position, movement, timing.  

SP232  Introductory Psychophysiology  
Four hours per week for one semester  
Prerequisite, SCI08 Biology or equivalent  
Assessment by examination, assignments and laboratory assessment  

A first-year subject for students completing the Psychophysiology major.  

Subject description  
Excitable cells, origin of electrical signals.  

Basic measurement and instrumentation in monitoring physiological responses in psychology: electrodes, amplifiers, transducers, recorders, oscilloscopes, computers, calibration, interpretation.  


Autonomic nervous system: GSR, EGG, skin temperature; measurement of stress. The lie detector.  

Biofeedback: theory, techniques, applications.  

80
**SP320 Instrumental Science 3**

Three hours per week for one semester
Prerequisite, SP220
Assessment by examination and laboratory reports

A second-year subject of the degree course in computer-aided chemistry.

**Subject description**

Topics studied will include:
- basic analogue electronics using operational amplifiers and discrete devices;
- basic digital circuits — combinational logic, flip-flops and their uses.

**SP324 Biophysical Systems A**

Four hours per week for one semester
Prerequisite, SP1224
Assessment by examination, assignments and laboratory reports.

A second-year subject for students majoring in medical biophysics and instrumentation.

**Subject description**

Electrode processes: half cell potentials, charge transfer overpotential, diffusion overpotential, impedance, microelectrodes, recording arrangements.

Membrane phenomena: Fick’s laws, Nernst and Donnan equilibrium, osmosis, Goldman equation. Using flux ratio equation, ‘pore’ hypothesis, electrical properties, transport mechanisms.

The action potential: the voltage clamp and the Hodgkin Huxley equations, strength-duration curves, neuropathies.

Syrnaptic transmission: quantal nature of transmitter release, electrophysiological, electron microscopic and biochemical evidence, calcium activation, acetylcholine receptor excitation and inhibition in the central nervous system, pre/post synaptic inhibition, second messenger activation, ionic and tropic effects, classes of neurotransmitter, pathologies of synaptic transmission.

Autonomic nervous system: structure and function, sympathetic and parasympathetic divisions, adrenergic and cholinergic synapses, muscarinic, alpha and beta receptors and their blockade, purinergic nerves, co-transmission.

Functional anatomy of the CNS, somatosensory, auditory, visual and motor systems.

**SP325 Biophysical Systems B**

Four hours per week for one semester
Prerequisite, SP1224
Assessment by examination, assignments and laboratory reports.

A second-year subject for students majoring in medical biophysics and instrumentation.

**Subject description**

Muscle: ultrastructure, excitation-contraction coupling, sliding filament theory, length-tension relationships. Hill equation, metabolic energy, E-C coupling, smooth muscle, pathophysiology of muscle, electromyography.

The heart: cardiac cycle, mechanical and electrical events, Starling’s law and Noble’s model, mechanical properties of cardiac muscle.

Pulsatile pressure and flow in arteries, wave propagation in arteries, blood rheology, atherosclerosis, Starling’s hypothesis of the capillary interaction, in particular organs, Guyton’s model. Control of blood flow in the brain.

**SP331 Neurohumoral Bases of Physiopshiology**

Eight hours per week for one semester
Prerequisite, SP323
Assessment by examination and assignments

A second-year subject for students completing the physiophiology major.

**Subject description**


Neurophysiological recording techniques: basic instrumentation, EEG recording, electrode technology. Hormonal and pharmacological bases of normal body function including baroreflexes.

Olfactory and taste physiology.

Somatosensory physiology and recording techniques.

**SP333 Industry Based Learning**

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.

**SP401 Experimental Techniques**

Two hours per week for one semester
Assessment by assignments and examinations.

A second-year subject for students majoring in medical biophysics and instrumentation.

**Subject description**

Earthquake and shielding, reduction of noise and interference.

Electrical safety: Australian Standards for biomedical circuits.

Treatment of biophysical data: biological statistics and data presentation, use of personal computers in biomedical practice, utility packages physiological data acquisition and signal processing packages. Applications of mathematical models of physiological systems to experimental work, numerical methods in biophysics.

Nuclear studies: radiation safety, dosimetry, radiopharmaceuticals in clinical practice.

**SP420 Instrumental Science 4**

Three hours per week for four semester
Prerequisite, SP320
Assessment by examination and laboratory reports.

A second-year subject of the degree course in computer-aided chemistry.

**Subject description**

Topics studied will include:
- digital to analogue and analogue to digital converters;
- the organisation of a computer, especially input/output, hardware and software aspects of serial interfacing;
- hardware and software aspects of analogue interfacing.

**SP424 Clinical Monitoring A**

Four hours per week for one semester
Prerequisite, SP324 or SP325
Assessment by examination, assignments and laboratory reports.

A second-year subject for students majoring in medical biophysics and instrumentation.

**Subject description**

Cardiac monitoring and pathologies.

The ECG: genesis of myocardial field, lead systems, vectorcardiography. ECG changes in disease, effects of heart position, arrhythmias and conduction defects, pacemakers and defibrillators.

Monitoring pressure and flow: Swan-Ganz catheters, ultrasonic and electromagnetic flowmeters, non-invasive techniques, cardiac output by dye and thermal dilution, electrical impedance method, phonocardiography.


**SP425 Clinical Monitoring B**

Four hours per week for one semester
Prerequisite, SP324 or SP325
Assessment by examination, assignments and laboratory reports.

A second-year subject for students majoring in medical biophysics and instrumentation.

**Subject description**

Respiratory system: structure and function, lung volumes and dead space, diffusion, blood flow; ventilation perfusion ratio inequality; gas transport, Bohr and Haldane effect, acid-base status, respiratory mechanics, control of respiration.

Lung function testing and lung diseases, obstruction, restriction: flow-volume curves, diffusion capacity, compliance, body plethysmography, response to exercise, small airway assessment, ventilation perfusion ratio.
Renal vasculature: the juxtaglomerular apparatus, kidney function tests, countercurrent multiplication, control of kidney function, renal pathophysiology, the artificial kidney.

Monitoring the birth process: maternal, foetal and neo-natal monitoring; uterine activity, foetal heart rate, Apgar scoring; neo-natal circulatory and respiratory changes.

Anaesthesia: agents and their administration; monitoring; physiological effects of anaesthesia, mathematical modelling.

**SP431 Psychophysics of Perception**
Eight hours per week for one semester
Prerequisite, SP232, SP331
Assessment by examination and assignments

A second-year subject for students completing the Psychophysics major.

**Subject description**

Vision: the eye, peripheral mechanisms, central pathways and processing.

Auditory/Vestibular: the ear, mechanisms of sound/vibration transduction, signalling balance, central pathways and processing.

Somatosensory: reception mechanisms, peripheral and central pathways, pain control.

Motor responses: central and peripheral control of movement; integration of sensation with motor response; RT, MT, aspects related to skill learning, ergonomics; and psychophysics.

**SP501 Signals and Systems**
Four hours per week for one semester
Assessment by examination

A fourth-year subject of the degree course for students majoring in instrumentation.

**Subject description**

Signals in time and frequency domains: measurement and interpretation of spectra, applications of Fourier analysis.

Linear systems: time invariance, impulse response, system function, causality; system testing, phase and amplitude responses and time delays, filters.

Digital processing: signal sampling and reconstruction, digital spectral analysis, DFT and FFT, digital filters, linear prediction and bandwidth compression.

Noise: averages, signal estimation and detection.

Image processing: Fourier optics, holography and tomography.

**Information theory and codes.**

**SP509 Physics 5**
Two hours per week for one semester
Assessment by practical work and examination

A fourth-year subject of the degree course in medical biophysics and instrumentation.

**Subject description**

Solid state physics: tunnel diodes, PN photodiodes, PIN photodiodes, PN diodes to detect protons and alpha particles, PN diodes to detect gamma radiation, superconductivity, superconducting quantum interference devices.

**SP510 Scientific Instrumentation A**
Four hours per week for one semester
Prerequisite, SP410
Assessment by examination assignments and laboratory reports

A fourth-year subject of the degree courses for students majoring in instrumentation.

**Subject description**

A series of 3 hour experiments in a) networking computers and instruments together; and b) principles and applications of optical instruments. Experiments in networking computers and instruments together to achieve instrumentation functions: optical instrumentation and imagery.

**SP523 Industry Based Learning**
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.

**SP524 Neurosciences A**
Four hours per week for one semester
Prerequisites, SP324 and either SP424 or SP425
Assessment by examination, assignments and practical work.

A fourth-year subject of the degree course for students majoring in medical biophysics and instrumentation.

**Subject description**

Neurom anatomy: spinal cord organisation, histological features, brainstem 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, abx and differences thresholds, Weber function, just noticeable diffr. Fechner compression, signal detection, ROC curves.

Motor control: peripheral mechanisms, gamma loop, coactivation, stiffness regulation, servo mechanisms, motor cortex, motor potential, feedback to basal ganglia and cerebellum; spinal reflexes; closed loop operation.

**SP525 Applied Biophysics A**
Four hours per week for one semester
Prerequisites, SP315, SP385 and either SP424 or SP425
Assessment by examination and laboratory reports

A fourth-year subject for students majoring in medical biophysics and instrumentation.

**Subject description**

**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, acid-base and thermal control, modelling of peripheral neuromuscular control.

Multicompartment systems and methods of analysis, models of membrane systems.

Modelling of endocrine systems.

Volume conductor theory, application to EEG. Neurovolume conductors, modelling models of brain activity and magnetic activity. Introduction to neural net modelling.

**SP527 Neurophysiology of the normal brain**
Five hours per week for one semester
Prerequisite, SP431
Assessment by examination and assignments

A third-year subject for students completing the Psychophysics major.

**Subject description**

Analysis of brain function: EEG, brain scans — NMR, PET etc.

Brain laterality: split brain effects, anatomical, pharmacological electrophysiological differences.

Affective states: biology of normal function, hypothalamus, limbic system, temporal and frontal lobes.

Speech and language: Broca's area, Wernicke's area, auditory and visual processes, motor cortex, learning to speak, aphasias.

Memory: neuronal theories of consciousness, neuronal plasticity, distributed memory system. Consciousness: theories of consciousness, interaction with sleep states.

Sleep and dreaming: stages of sleep, desynchronisation of EEG activity, functional models of sleep, sleep monitoring, sleep disorders.
SP528  Higher Cortical Function
Five hours per week for one semester
Prerequisite, SP431
Assessment by examination and assignments

A third-year subject for students completing the Psychophysiology major.

Subject description
Advanced recording techniques: computer analysis, EEG, evoked potentials, P300, semantic incongruity, N100. Other cognitive potentials. Bereitschaftspotential
Psychophysics: signal detection theory, ROC curves, applications.

SP530  Scientific Instrumentation B
Four hours per week for one semester
Prerequisite, SP430
Assessment by examination, assignments and laboratory reports

A fourth-year subject for students majoring in instrumentation.

Subject description
An introduction to control theory: control, transfer functions, electrical and mechanical systems, open and closed loop systems, negative and positive feedback. Compensation in open-ended experiments on computer-based imaging.

Nuclear Instrumentation: semiconductor detectors, computer-based spectrometry, activation analysis and coincidence counting.

SP531  Biophysical Systems and Techniques
Four hours per week for one semester

An advanced subject of the biomedical instrumentation option of the graduate diploma of applied science and of the Masters course in biomedical instrumentation.

Subject description

Biophysical techniques: electron microscopy, electron and proton microbeam. Diffraction studies of biological and physical structures. NMR and ESR studies.

Physiological control mechanisms, mathematical models of physiological systems.

SP532  Clinical Monitoring Techniques
Four hours per week for one semester

An advanced subject of the biomedical instrumentation option of the graduate diploma of applied science and of the Masters course in biomedical instrumentation.

Subject description
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
Four hours per week for one semester

An advanced subject of the biomedical instrumentation option of the graduate diploma of applied science and of the Masters course in biomedical instrumentation.

Subject description

SP535  Project
Four hours per week for one semester

A compulsory subject of the biomedical instrumentation option of the graduate diploma of applied science.

Subject description
Tutorials in analogue and digital electronic application techniques.
The development, construction and commissioning of a biomedical instrumentation system.

SP537  Medical Imaging
Four hours per week for one semester

Assessment by assignments and tests

An advanced subject of the biomedical instrumentation option of the graduate diploma of applied science and of the Masters course in Biomedical Instrumentation.

Subject description
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 techniques 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.

SP541  Signal Processing
Four hours per week for one semester

Assessment by assignments

An advanced subject of the biomedical instrumentation option of the graduate diploma of applied science and of the Masters course in Biomedical Instrumentation.

Subject description
(1) Linear and non-linear transformations.
(2) Fourier series, mean square estimation, orthogonality, probability, stationary and non-stationary signals.
(3) Data smoothing, windows, averages, filters, digital filters, recursive filters, auto-correlation, cross-correlation.
(4) System estimation, spectral analysis, correlation and coherence, white noise methods.
(5) Digital processing review of DFT, FFT.
(6) Image processing: image acquisition, enhancement, restoration, reconstruction and segmentation.

SP542  Optical Instrumentation
Four hours per week for one semester

Assessment by assignments and examination

An advanced subject of the biomedical instrumentation option of the graduate diploma of applied science and of the Masters course in Biomedical Instrumentation.

Subject description
Incoherent and coherent light sources, types of lasers and their applications. Detectors of optical radiation, modulation of light. Interferometry, lens design, fibre optics, Fourier transforms and imagery.

SP544  Nuclear Instrumentation
Four hours per week for one semester

An advanced subject of the biomedical instrumentation option of the graduate diploma of applied science and of the Masters course in biomedical instrumentation.

Subject description
SP545 Instrument Programming and Interfacing
Four hours per week for one semester
Assessment by practical work, reports, assignments, examination

A subject of the biomedical instrumentation option of the graduate diploma of applied science.

Subject description
Interfacing peripheral devices
Interfacing techniques between computers and instruments. The Forth programming language. Handshaking multi-tasking, interrupts. Real time data handling.

General purpose instrumentation bus (IEEE 488)
Structure, functions of talkers, listeners and controllers, timing, electrical characteristics. Example of a programmable instrumentation system.

The PC bus
Specification and operation of the RC bus.

SP547 Instrument Electronics
Four hours per week for one semester
Assessment by examination and laboratory reports

A subject in the masters course in biomedical instrumentation.

Subject description
Electronics for biomedical instrumentation, including instrumentation amplifiers, isolation, noise suppression, microprocessors, etc. Use of a computer-based circuit design and simulation techniques.

SP551 Instrumentation Principles and Techniques
Four hours per week for one semester
Assessment by practical work, reports, assignments and examination

An introductory subject of the biomedical instrumentation option of the graduate diploma of applied science.

Subject description
Measurement principles
The role of measurement, the units of measurement, standards, systematic and random errors particularly as applied to the traceability of standards, limit of detection and resolution, sensitivity, noise, analogue and digital readout — discussion of the above principles.

Transducers
Precise DC measurement — techniques, measurements, problems. Floating and guarded measurement. Principles of transducer operation. Transducers — AC or DC, active or passive, activator or sensor. A selection from the above groupings to cover the broad range of transducers available.

The interfacing of transducers — signal processing applications, transmitting applications.

Instrumental practice
Theoretical and practical course based on:
(1) Instrument components and mechanisms, e.g. servomotors, stepper motors, galvanometers, electric components.
(2) Printed circuit board techniques, e.g. artwork, negative, manufacture, drilling, soldering.
(3) Prototyping techniques, e.g. wire wrap, bread board.

SP552 Introduction to Scientific Instrumentation
Four hours per week for one semester
Assessment by practical work, reports, assignments and examination

An introductory subject of the biomedical instrumentation option of the graduate diploma of applied science.

Subject description
Basic nuclear physics: basic nuclear properties, nomenclature, stable and unstable nuclides, radiations, interaction with matter. Table of isotopes, decay schemes.

Detectors: general survey, including Geiger, scintillation and solid state detectors.

Instrumentation: NIM system, pre-amplifiers, main amplifiers, discriminators, single channel analysers, counters, timers, ratemeters, sweeps, recorders, multi-channel analysers.

Safety: hazards, precautions, sealed and unsealed sources, monitoring.

Chemical/atomic Instrumentation
Atomic structure, atomic weight and atomic number, Avogadro's number, kinetic theory, solids, ionic lattices, molecules, molecular weights, dissociation, acids and bases, cells, redox, thermodynamics.

Optical Instrumentation
Waves and particles, refractive index, reflection, lens and mirrors, polarization, diffraction, interference, prisms and gratings, interferometers, sources of radiation, detectors.

SP553 Introduction to Instrumentation Electronics
Four hours per week for one semester
Assessment by practical work, reports and examination

An introductory subject of the biomedical instrumentation option of the graduate diploma of applied science for students with an inadequate background in electronics.

Subject description
DC circuits, Ohm's law, power dissipation, Kirchoff's laws, Thevenin's theorem, Norton's theorem; AC circuits, sine waves, amplitude, phase, phasor representation, complex number representation, capacitance, inductance, resistance, inductive reactance, capacitive reactance, impedance calculations for simple RLC circuits.

Amplifiers, input impedance, output impedance, loads, operational amplifiers, the ideal operational amplifier, the inverting configuration, the non-inverting amplifier, the differential amplifier.

Semiconductor devices and circuits, P and N type semiconductor, the PN junction, the NPN transistor, the JFET.

Binary numbers decimal binary conversion, binary addition, binary multiplication, hexadecimal numbers, 8421 BCD, alphanumeric codes, error detection, logic gates, Boolean algebra, Karnaugh maps, the RS flip-flop, monostable and astable devices, RS and D latches, edge triggering and master-slave flip-flops.

SP555 Introduction to Biophysical Systems
Four hours per week for one semester
Assessment by assignments, practical work and examination

An introductory subject of the biomedical instrumentation option of the graduate diploma of applied science and the Masters course in biomedical instrumentation for students with an inadequate background in the biological aspects of biophysics.

Subject description
Cell physiology, membranes and excitability, nerves and muscles.

Bioenergetics. Flow and pressure. Biological control systems.

SP563 Biophysics of Exercise
Four hours per week for one semester
Assessment by assignment and tests

An advanced subject of the biomedical instrumentation option of the graduate diploma of applied science.

Subject description

SP601 Stand Alone Instrumentation
Two hours per week for one semester
Assessment by reports

A final semester subject for students majoring in computing and instrumentation.

Subject description
The Forth language and the design of time critical turn key instrument systems. Implementing a program in Forth: incremental compilation, stack maintenance, multiple vocabularies, special features of the language. Optimised target compilation.
SP602 Special Project  
Two hours per week for one semester  
Assessment by reports  
A fourth-year subject for students majoring in medical biophysics and instrumentation.  

Subject description  
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 co-operative 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.

SP609 Physics 6  
Two hours per week for one semester  
Assessment by practical work and examination  
A fourth-year subject for students majoring in medical biophysics and instrumentation.  

Subject description  
Selected topics of special interest to students of biophysics and instrumental science. A selection will be made from the following areas: Spectroscopy, NMR, Mössbauer. Applications of superconductivity: Josephson junctions, particle accelerators. Nuclear power: developments in fission and fusion reactors, magnetic and inertial confinement. Tomography: X-ray, NMR, positron emission. Fibre optics: sensors, communication. Electromagnetic interference and shielding. Non linear dynamical systems.

SP610 Instrumentation Systems A  
Four hours per week for one semester  
Prerequisite, SP510  
Assessment by examination and laboratory reports  
A fourth-year subject for students majoring in scientific instrumentation. Major instrumentation project A.

SP623 Industry Based Learning  
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 on from SP523.

SP624 Neurosciences B  
Four hours per week for one semester  
Prerequisite, SP524  
Assessment by examination, assignments and laboratory reports  
A fourth-year subject for students majoring in medical biophysics and instrumentation.  

Subject description  
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 auditoryvestibular function, auditoryvestibular testing techniques, evoked potentials, cortex, brainstem, ENG, auditory prostheses. Chemical senses, olfaction and taste. 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, perimeter, spatial frequency.  

EEG: origin, recording, interpretation, analysis.  

SP625 Applied Biophysics B  
Four hours per week for one semester  
Prerequisite, SP501  
Assessment by examination, assignment and laboratory reports  
A fourth-year subject for students majoring in medical biophysics and instrumentation.  

Subject description  

SP626 Applied Neurosciences  
Two hours per week in one semester  
Prerequisite, SP624  
Assessment by assignments, examination and practical work  
A fourth-year subject for students majoring in biophysics and instrumental science.  

Subject description  
Advanced signal processing: EEG, brain magnetic fields. Neumetric analysis, P300, CNV, coherence analysis.  

SP630 Instrumentation Systems B  
Four hours per week in one semester  
Prerequisite, SP530  
Assessment by examination, assignments and laboratory reports  
A fourth-year subject for students majoring in scientific instrumentation.  

Lectures in control theory and other selected subjects of importance to instrumentation.

SP631 Neurophysiology of Mental Disorders  
Five hours per week for one semester  
Prerequisite, SP527  
Assessment by examination and assignment  
A third-year subject for students completing the Psychophysiology major.  

Subject description  
SP632 Psychophysiology Project
Five hours per week for one semester
Prerequisite, SP526 Assessment by report
A third-year subject for students completing the Psychophysiology major.

Subject description
This subject gives students the opportunity to apply techniques and skills introduced in the Psychophysiology and Psychology courses in an investigation into specific problems of interest. Students may select an appropriate topic from the third year of the course, which can be adequately supervised and reported on within the same time constraints. The selected project work will usually involve individual but may sometimes involve shared aspects. Students will be expected to produce a report on their project topic and to submit a final written report.

SP731 Technology Transfer
Four hours per week for one semester Assessment by assignments
A subject in the masters course in biomedical instrumentation.

Subject description
Aspects of developing innovative biomedical instrumentation systems from prototype to production: market analysis, financial sponsorship, case studies. Students will usually be individual but may sometimes involve shared aspects. Students will be expected to produce a report on their project topic and to submit a final written report.

SP732 Research Project
Four hours per week for three semesters Assessment by dissertation
A subject in the masters course in biomedical instrumentation.

Subject description
This subject gives the opportunity to apply subject matter studies in other course subjects. A combination of these. Students will usually be individual but may sometimes involve shared aspects. Students will be expected to produce a report on their project topic and to submit a final written report.

SP733 Research Project
Eight hours per week for one semester Assessment by dissertation
A subject in the masters course in biomedical instrumentation.

Subject description
This subject gives the opportunity to apply subject matter studies in other course subjects. A combination of these. Students will usually be individual but may sometimes involve shared aspects. Students will be expected to produce a report on their project topic and to submit a final written report.

SP1200 Physics
Five hours per week for two semesters Assessment by practical work, assignments and examination
A first-year subject taken by students majoring in medical biophysics and instrumentation.

Subject description
Motion and forces: relativistic kinematics and dynamics, rotational kinematics and dynamics, gravitation.
Electricity and Magnetism: electric fields, DC circuits, magnetic fields, electromagnetism, AC circuits.
Atomic Physics: photoelectric effect, Compton effect, atomic forces, radioactive alpha, beta, gamma decay, nuclear reactions, radiation detectors.

SP1209 Physics
Five hours per week for two semesters Assessment by practical work, assignments and examination
A first-year subject taken by students majoring in medical biophysics and instrumentation.

Subject description
Motion and forces: relativistic kinematics and dynamics, rotational kinematics and dynamics, gravitation.
Electricity and Magnetism: electric fields, DC circuits, magnetic fields, electromagnetism, AC circuits.
Atomic Physics: photoelectric effect, Compton effect, atomic forces, radioactive alpha, beta, gamma decay, nuclear reactions, radiation detectors.

SP1210 Introduction to Instrumentation
Four hours per week for semester one and two, by lectures, laboratory work and tutorials Assessment by examination, workshop reports and laboratory computer testing
A first-year subject for students majoring in instrumentation.

Subject description

Textbooks

SP1224 Introductory Biophysics
Two hours per week for two semesters Assessment by examination, assignments and laboratory reports
A first-year subject for students majoring in medical biophysics and instrumentation.

Subject description
Application of physics to clinical problems.
Biomechanics: anatomy of bones, joints, spinal cord, kinesiological measurement.
Control systems: homeostasis, feedback in biological systems, specific application to the endocrine and reproductive systems.
Bioenergetics: metabolic measurement, food and physical activity, gastro-intestinal function.

SP3400 Physics 2
Four hours per week for two semesters Assessment by examination
A second-year subject for students majoring in computing and instrumentation.

Subject description
Structure and properties of matter.
Classical mechanics: Newton's Laws, the two body problem, orbital mechanics, vibrations, normal modes, resonance, rigid body dynamics, angular momentum, inertial tensor, Euler's equations, Lagrangian formulation of classical mechanics, introduction to statistical mechanics.
Quantum mechanics: statistical interpretation, Schroedinger's equation, basic solutions, operators, eigenfunctions and eigenvalues, Uncertainty principle, radiation selection rules, many body quantum mechanics, Pauli exclusion principle, lasers and holography.


SP3409 Physics 2
Four hours per week for two semesters
Assessment by examination
A second-year subject for students majoring in medical biophysics and instrumentation.

Structure and properties of matter.

Classical mechanics: Newton's Laws, the two body problem, orbital mechanics, vibrations, normal modes, resonance, rigid body dynamics, angular momentum, inertial tensor, Euler's equations, Lagrangian formulation of classical mechanics, introduction to statistical mechanics.


Electromagnetism: A second-year subject for students majoring in medical biophysics and instrumentation.

Subject description
Four hours per week for two semesters
Prerequisite: SP1210
Assessment by examination, laboratory tests and laboratory reports
A second-year subject for students majoring in instrumentation.


An introduction to the junction transistor. Common source and drain amplifiers, Other semi-conductor devices.

Power supplies.

The operational amplifier and circuits based on it.

Properties and applications of lasers: sources and detection of optical radiation; electro, magneto and acoustic optical effects and their applications; fibre optic sensors, types and properties of optical fibres, intensity, phase and frequency modulation in optical fibre sensors.

SP3430 Interfacing and Nuclear Techniques
Four hours per week for two semesters
Prerequisite: SP1210
Assessment by examinations, laboratory reports and laboratory tests
A second-year subject for students majoring in instrumentation.

Subject description

An introduction to the use of a computer language for interfacing Program design, timing interrupts.

Analogue to digital and digital to analogue conversion. direct memory access.

Nuclear transducers: radiation safety, radiation detectors, pulse height analysis, spectrometry.

SP4190 Occupational Hygiene and Safety
Four hours per week for one semester
Assessment by examination and assignments
A final year subject of the degree course in environmental health.

Subject description
Environmental hazards


Health issues associated with transmission and distribution of electrical power and electrical appliances.

Toxicology


Routes of ingestion of toxic substances including heavy metals, benzenes, PCB, solvents, organic chemicals, silica, asbestos, allergens and pesticides.

Evaluation and control measures.

Safety technology


Chemical safety. Handling, chemical safety, hazard identification, storage and transport of hazardous and toxic chemicals.

SQ100 Programming in Ada
Six hours per week for two semesters
Instruction is by a combination of lectures, tutorials and laboratory sessions
A first-year subject of the degree course in computer science.

Subject description
Programming methodology and ADA: specifications; problem solving; top-down and bottom-up methods; sequence selection and iteration; data types; procedural abstraction; searching and sorting algorithms.

Advanced Programming: dynamic data structures; packages; abstract; data types; I/O models; exception handling.

Textbooks
To be advised.

SQ103 Software Practice 1
Four hours per week in semester one, followed by four hours per week in semester two
Instruction is by lecture and laboratory sessions
Assessment is by six assignments and examinations
A first-year subject of the degree course in computer science.

Subject description
This subject builds skills in team problem solving by studying the following topics: the business environment; organisational structures and systems; business communication; group dynamics; strategies for group problem solving; software project conduct and documentation; experience in small group projects.

Textbooks
To be advised.
SQ110 Introduction to Computer Problem Solving
Three hours per week for one semester
Instruction will be by a combination of lectures, tutorials and laboratory sessions
Assessment will be by practical assignments and a final examination

A first-year subject of the degree courses in mathematics and computer science and computing and instrumentation.

Subject aims
To introduce the concepts of structured design; to investigate all the control structures that may be used in structured design; to introduce students to the concept of spreadsheets.

Subject description
Structured design concepts and terminology, simple sequence control structure, IF THEN ELSE control structure, DO WHILE control structure, CASE control structure, DO UNTIL control structure, relating design and code, grouping data items, table searching, an introduction to spreadsheets.

Textbooks
To be advised.

SQ117 Introduction to Computer Systems
Three hours per week for one semester
Instruction will be by a combination of lectures, tutorials and laboratory sessions
Assessment will be by assignments and a final examination

A first-year subject of the degree courses in computer science, mathematics and computer science and computing and instrumentation.

Subject description

SQ205 Information Analysis
Four hours per week for one semester
Instruction will be by a combination of lectures, tutorials and laboratory exercises
Assessment will be by assignments, a mid-semester test and a final examination

A first-year subject of the degree courses in computer science, mathematics and computer science and computing and instrumentation.

Subject aims
To introduce modelling of the real world in terms of data and procedure as a necessary stage in the production of a software system. Information modelling is considered from the point of view of database design and formal specification using mathematical techniques.

Subject description
Introduction to database: data structures for database applications; relational databases and normalisation; introduction to database design; the query language SQL.
Formal specification: propositional and predicate calculus; set theory; functions; relations; use of mathematics to specify programs; the Z specification language.

SQ207 Computer Organisation
Three hours per week for one semester
Instruction is by lecture and laboratory sessions
Assessment is by assignment and examination

Subject aims
To introduce the main principles of computer architecture, computer organisation and assembly language programming.

Subject description
Introduction to combinatorial and sequential circuit design; basic architecture of a computer; CPU organisation; execution of machine instructions; how programs interact with the computer hardware; introduction to assembly language programming.

Textbooks
To be advised.

SQ210 Programming in C
Four hours per week for one semester
Instruction is by a combination of lectures and laboratory exercises
Assessment will be by practical assignments and a final examination

A first-year subject of the degree course in mathematics and computer science and computing and instrumentation.

Subject aims
To study the programming language C and the related software engineering practice through consideration of the specification, design and implementation of algorithms in C. This will involve examination of C data types and structures, control statements, functions and formatted I/O.

SQ214 Formal Methods
Three hours per week for one semester
Assessment is by mid-semester test, assignment and final examination
Instruction is by lectures and tutorials

Subject aims
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 SQ214, a student will be able to: apply the disk math taught in the course to system modelling; interpret and construct formal specifications using the specification language defined in the lectures and recommended readings (Z or VDM-SL).

Subject description
Introduction to Formal Methods; propositional calculus; proof and argument; set theory; predicate calculus; relations; functions; sequence; bags; formal specification languages — Z or VDM-SL; graphs; formal languages; finite state machines.

Textbooks
To be advised.

SQ300 Data Structures and Algorithms
Three hours per week for one semester
Prerequisites: SQ100 Programming in Ada
Instruction is by lecture and tutorials
Assessment is by assignments and examination

A second-year subject of the degree courses in computer science.

Subject description
Data Structures and Algorithms: this unit pursues the goal of good programming (correctness, flexibility, adaptability, portability, utility and clarity) through the concepts of modularity and abstract data types.

Syllabus: common data structures, associated algorithms and applications; stacks, queues, trees, binary search trees, balancing; heaps, sets, graphs; hash tables.

Textbooks
To be advised.

SQ300A Data Structures and Algorithms
Three hours per week for one semester
Instruction is by a combination of lectures and tutorials
Assessment is by assignments and examination

A second-year subject of the degree course in mathematics and computer science and computing and instrumentation.

Subject description
Data Structures and Algorithms: this unit pursues the goal of good programming (correctness, flexibility, adaptability, portability, utility and clarity) through the concepts of modularity and abstract data types.

Syllabus: common data structures, associated algorithms and applications; stacks, queues, trees, binary search trees, balancing; heaps, sets, graphs; hash tables. Sorting algorithms.
A second-year subject of the degree courses in computer science, mathematics and computer science, and computing and instrumentation.

**Subject aims**

To become proficient at the use of the UNIX operating system and its environment. To introduce the C programming language and its interface to the UNIX operating system.

**Subject description**

UNIX operating system: file management; special files; commands and filters; electronic mail; pipes; aliases; history; structure of the operating system; tools — lint, make, SCCS.

Shell Programming: the C shell; I/O redirection; pipes; history mechanism; alias substitution; file name expansion; shell variables; special characters; quoting; shell scripts; command line parameters; foreach; if; shift; switch and while constructions; goto; break and continue; expressions; use of shell variables; assignment; input and output; environment; differences between Bourne and C shell.

C Programming: language overview; data types; operators; expressions; control of flow; input/output; functions; pointers; arrays; structures and unions; standard C libraries; preprocessor commands.

A second-year subject of the degree course in computer science.

**Subject aims**

To study techniques and strategies for the management of medium to large scale software development projects. Students will exercise these skills by working on several medium scale group projects.

**Subject description**

Current topics include software development lifecycle; project planning; estimation and control; project progress measurement and evaluation; project communication; politics of projects; project and product risk analysis; cost benefit analysis; software quality assurance; software standards.

A second-year subject of the degree courses in mathematics and computer science and computing and instrumentation.

**Subject description**

A study of the software life cycle; project management; software engineering psychology; system analysis; system design; implementation; testing; software development environments; software maintenance; software quality assurance.

**Textbooks**

To be advised.

A second-year subject of the degree course in computer science, a third year subject of the degree course in mathematics and computer science, a fourth year elective of the degree course in computing and instrumentation.

**Subject description**

Database design concepts; relational, network, hierarchical and binary models. Database languages, environment and administration, distributed database systems, object oriented databases. Concurrency control methods.
SQ407 Data Communications  Three hours per week for one semester  
Instruction is by a combination of lectures and tutorial sessions  
Assessment is by assignments and a final examination  
A second-year subject of the degree course in computing and instrumentation, a final-year subject of the degree course in mathematics and computer science.  
Subject description  
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, internetworking, distributed computer systems, real area networks, public data networks, Telecom Australia data communication services; OSI — Open Systems Interconnection.  
Textbooks  
To be advised.  

SQ411 COBOL Programming  Three hours per week for one semester  
Instruction is by lecture and practical classes  
A final-year elective of the degree courses in computer science, mathematics and computer science and computing and instrumentation.  
Subject aims  
The aim is to introduce the COBOL language and its problem solution domain.  
Subject description  
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; Sort.  
Textbooks  
To be advised.  

SQ412 Systems Programming  Three hours per week for one semester  
Prerequisite: Nil  
Instruction is by lectures and laboratory sessions  
Assessment is by assignment and exam  
By the end of the unit, students should understand the following: low level 110, file system access and manipulation; time under UNIX; processes; accessing user information under UNIX; signals and interrupts; interprocesses communication and networking; I/O to terminals and device control.  
Subject description  
Low level I/O will cover file descriptor: open, close, read, write, and seek system calls. It will also cover error conditions and how they are handled under systems programming. File system access and manipulation will examine the UNIX file system, reading directories, finding out information about files from inodes, creating, changing and removing directories etc. Time under UNIX will look at a number of aspects of time under the UNIX operating system: Process control will examine creation of processes under UNIX, the overlaying of processes with programs and the synchronisation of processes. Accessing user information will examine the general area of asynchronous events under UNIX. Interprocess communication and networking will look at the facilities Berkeley UNIX offers for interprocess communication, including pipes and peer to peer communications using the socket mechanism. This is extended to communication between different computers. I/O to terminals and control examines the general area of controlling devices under UNIX with particular reference to terminal control.  
References  
To be advised.  

SQ417 Computer Architecture A  Three hours per week for one semester  
Instruction is by a combination of lectures and tutorial sessions  
Assessment is by assignments and examinations  
A second-year subject of the degree course in computing and instrumentation, a final-year subject of the degree course of computer science, a final-year elective of the degree course in mathematics and computer science.  
Subject description  
This unit introduces the concepts of computer architecture fundamentals, including CPU organisation, instruction, execution and microprocessing. More advanced architectures such as SIMD, MIMD, CISC and RISC are also studied.  
Textbooks  
To be advised.  

SQ419 Artificial Intelligence  Three hours per week for one semester  
Prerequisite: Nil  
Instruction is by a combination of lectures, laboratories and tutorials  
Assessment is by a combination of assignments and examination  
To give students an introduction to some of the basic concepts and tools of symbolic 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.  
Subject description  
- Problem solving and search: depth first, breadth first, beam searching, hill climbing, A*, minimax.  
- Knowledge representation: production systems, logic systems, inheritance, network structured objects/frames.  
- Expert systems as applied AI: inference and uncertainty, knowledge acquisition.  
- Artificial Neural Networks: backdrop, other architectures, applications.  
- Genetic algorithms: search, optimisation, classifier systems.  
- Natural language processing.  
- Machine vision.  
Prescribed text  
To be announced.  

SQ500 Concurrent Programming  Three hours per week for one semester  
Prerequisite: SQ300 Data Structures and Algorithms  
Instruction is by lecture and laboratory and tutorial sessions  
Assessment is by assignment and examination  
A final-year subject of the degree course in computer science and computing and instrumentation, a third-year elective of the degree course of mathematics and computer science.  
Subject description  
A study of the logical problems of concurrency; mutual exclusion; safety and liveness; mechanisms to control concurrency; semaphores; monitors; shared memory and message passing; the CSP model; concurrent programming in Ada; concurrency in embedded systems.  
References  
To be advised.  

SQ501 Functional Programming  Three hours per week for one semester  
Instruction is by a combination of lectures and laboratory sessions  
Assessment is by assignment and examination  
A final-year elective of the degree courses in computer science and computing and instrumentation, a third-year subject of the degree course of mathematics and computer science.  
Subject description  
This subject examines developments in functional programming, including programming methodology, theoretical foundations and language implementation. A modern functional language such as Miranda or Haskell will be used.
**SQ502 Unix Systems Programming**

Three hours per week for one semester

Prerequisites: Students are required to have passed SQ302 UNIX and C before attempting this subject.

Instruction is by a combination of lectures and laboratory work.

Assessment is by examination (70%) and assignment (30%).

A final-year elective of the degree courses in computer science and computing and instrumentation, a third-year elective of the degree course of mathematics and computer science.

**Subject description**

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 cut, stressing the use of the operating system to accomplish application objectives.

**Textbooks**

To be advised.

**SQ503 Software Practice 3**

Three hours per week in semester seven, followed by six hours per week in semester eight.

**Instruction is by lecture and tutorial work.**

Assessment is by assignments.

A final-year subject of the degree course in computer science.

**Subject description**

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.

**Textbooks**

To be advised.

**SQ504 Computer Graphics A**

Three hours per week for one semester.

Instruction is by a combination of lectures and tutorial sessions.

Assessment is by assignment and examination.

A final-year subject of the degree courses in computer science and computing and instrumentation, a third-year elective of the degree course in mathematics and computer science.

**Subject description**

Computer Graphics A: Hardware for computer graphics; basic 2-D and 3-D graphics drawing; transformations; Data structures for graphics; windowing and clipping.

**Textbooks**

To be advised.

**SQ505 Artificial Intelligence A**

Three hours per week for one semester.

Instruction is by a combination of lectures and tutorial sessions.

Assessment is by assignment and examination.

A final-year elective of the degree course in computer science, a third-year elective of the degree course in mathematics and computer science.

**Subject description**

Artificial Intelligence: a selection from the following topics: knowledge representation, natural language processing, problem solving and game playing; search; planning; goal manipulation; Rule-based reasoning; production systems and expert systems; Knowledge processing aspects of robotics; vision and other sensors; manipulation and locomotion, reasoning about space, object interactions, time. Machine learning and self-modifying systems.

**Textbooks**

To be advised.

**SQ506 Declarative Programming**

Three contact hours per week for one semester.

Prerequisite: Nil.

Instruction is by lectures and tutorials.

Assessment is by programming assignments and exam.

**Subject aims**

By the end of the unit, students should understand the salient features of functional and 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.

**SQ517 Computer Architecture B**

Three hours per week for one semester.

Instruction is by a combination of lectures and tutorial sessions.

Assessment is by assignment and examination.

A final-year elective of the degree courses in computer science and computing and instrumentation.

**Subject description**

Computer Architecture B: a study is made of 32-bit micro-computer based systems. It provides an in-depth examination of typical 32-bit processors and examines the factors in designing systems using such processors.

**Textbooks**

To be advised.

**SQ527 Computer Architecture**

Three hours per week for one semester.

Instruction is by assignment and final exam.

A final-year elective of the degree courses in computer science, mathematics and computer science.

**Subject aims**

To introduce computer architecture principles.

**Subject description**


**Textbooks**

To be advised.

**SQ528 Translator Engineering**

Three hours per week for one semester.

Instruction is by a combination of lectures and tutorial sessions.

Assessment is by assignment and examination.

A final-year elective of the degree courses in computer science, mathematics and computer science.

**Subject description**

Translator Engineering: an introduction to translation: introduction to formal language theory, finite automata, lexical analysis, and the parsing problem. Students design a compiler for a simple language.

**Textbooks**

To be advised.

**SQ539 Object Oriented Programming**

Three hours per week for one semester.

Instruction is by lectures and tutorials studying Software Engineering principles and goals using Object Oriented techniques.

Assessment is by assignments and examination.

A final-year elective of the degree courses in computer science, mathematics and computer science.

**Subject description**

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.

**Textbooks**

To be advised.
**SQ506 Computing in the Human Context**

Three hours per week for one semester
Instruction is by a combination of lecture and tutorial sessions
Assessment will be by assignments and examinations

A final-year subject of the degree course in computer science, a final-year elective of the degree courses in mathematics and computer science and computing and instrumentation.

**Subject description**

Computing in the Human Context: an exploration of social, ethical and organisational issues and their relationship with the computing professional.

**Textbooks**

To be advised.

**SQ608 Computer Graphics B**

Three hours per week for one semester
Instruction is by a combination of lecture and tutorial sessions
Assessment is by assignments and examination

A final-year elective of the degree courses in computer science, mathematics and computer science and computing and instrumentation.

**Subject description**

Computer Graphics B: basic 3-D graphics rendering; projections; colour; theory; lighting models; ray-tracing; radiosity; data representation; animation.

**Textbooks**

To be advised.

**SQ609 Artificial Intelligence B**

Three hours per week for one semester
Instruction is by a combination of lecture and tutorial sessions
Assessment is by assignment and examination

A final-year elective of the degree courses in computer science, mathematics and computer science and computing and instrumentation.

**Subject description**

A selection from: Connectionism and neural networks; knowledge representation; natural language processing; problem solving and game playing; search, planning, goal manipulation; rule-based reasoning; production systems and expert systems; knowledge processing aspects of robotics; vision and other sensors, manipulation and locomotion, reasoning about space, object interactions, time; machine learning and self-modifying systems.

**Textbooks**

To be advised.

**SQ613 Computer Science Team Project**

Three hours per week for one semester
Instruction is by lectures and practical work
Assessment is by assignments

A final-year subject of the degree courses in mathematics and computer science and computing and instrumentation.

**Subject description**

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.

**SQ617 Computer Architecture C**

Three hours per week for one semester
Instruction is by a combination of lecture and tutorial sessions
Assessment is by assignments and examination

A final-year elective of the degree courses in computer science and computing and instrumentation.

**Subject description**

Computer Architecture C: A study is made of parallel computer systems. It provides an in-depth examination of typical parallel computers and examines the factors in designing such systems.

**Textbooks**

To be advised.

**SQ618 Computer Graphics**

Three hours per week for one semester
Instruction is by lectures and laboratory sessions
Assessment is by assignment and final exam

To introduce computer graphics principles.

**Subject description**

What is computer graphics?: graphics hardware; point and line drawing; 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.

**Textbook**


**SQ619 Expert Systems**

Three hours per week for one semester
Instruction is by a combination of lecture and tutorial sessions
Assessment is by assignments and examination

A final-year elective of the degree courses in computer science, mathematics and computer science and computing and instrumentation.

**Subject description**

The unit covers the techniques and issues of knowledge, engineering and building expert systems.

**Textbooks**

To be advised.

**SQ700 Programming in C**

Four hours per week for one semester
Instruction will be by a combination of lectures and laboratory sessions
Assessment will be by two assignments and a final examination

A subject of the graduate diploma of applied science (computer science).

**Subject aims**

To formulate and design algorithmic solutions to a range of simple problems, including those with a commercial orientation; to edit, compile, debug, test and run C language programs; to design a program, using a top-down methodology, 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.

**Subject description**

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.

**SQ702 Systems Programming**

Four hours per week in one semester
Instruction will be by a combination of lectures and laboratory sessions
Assessment will be by two assignments and a final examination

A subject of the graduate diploma of applied science (computer science).

**Subject aims**

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.

**Subject description**

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.

**SQ703 Software Development Project**

Four hours per week for two semesters

Instruction will be by a combination of lectures, consultation and laboratory sessions

Assessment will be by two assignments, and a project report and presentation

A subject of the graduate diploma of applied science (computer science).

**Subject aims**

By the end of the unit, 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 four to six person group projects, which, although technically of only moderate complexity, requires students to exercise significant project management skills.

**Subject description**

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**

Four hours per week for one semester

Instruction will be by a combination of lectures, tutorials, and laboratory exercises.

Assessment will be by one assignment, tutorial and laboratory exercises, and a final examination

A subject of the graduate diploma of applied science (computer science).

**Subject description**

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.

**Subject description**

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.

**Textbooks**

To be advised.

**SQ710 Advanced C Programming**

Four hours per week in one semester

Instruction will be by a combination of lectures and laboratory sessions

Assessment will be by two assignments and a final examination

**Subject aims**

To introduce dynamic memory allocation in C; to introduce Abstract Data Types and to examine some of the common ADTs, eg. 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.

**Subject description**

Dynamic memory allocation in C; recursion; searching and sorting; introduction to ADTs; standard ADTs (list stack, queue, table, etc).

**Textbooks**

To be advised.

**SQ714 Systems Analysis and Software Engineering**

Four hours per week in one semester

Instruction will be by a combination of lectures and tutorials

Assessment will be by two assignments and a final examination

A subject of the graduate diploma of applied science (computer science).

**Subject aims**

To study the problems confronting the software engineer in the development of modern computer software.

**Subject description**

Software lifecycles: requirement analysis; software design; implementation and installation; assurance; documentation.

**Textbooks**

To be advised.

**SQ727 Communications**

Four hours per week for one semester

Instruction will be by a combination of lectures, tutorials and laboratory sessions

Assessment will be by assignments and a final examination

A subject of the graduate diploma of applied science (computer science).

**Subject aims**

To introduce the fundamental concepts and components involved in data communications; to develop an understanding of communication protocols and computer networks.

**Subject description**

Historical evolution of computer communications and standards organisations: basic communications theories and terminologies; the physical r Mesa transmission media, tans radiation standards; in link protocols; terminal based networks — statistical multiplexes; concentrators, front-end processors, terminal network protocols (Bisynch and HDLC); introduction to the ISO Basic Reference Model and seven layer model, comparison of proprietary network architectures; public data networks — characteristics, packet-switched data networks, circuit-switched data networks, ISDN, standards, overview of a computer Australia services (Austpax, 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.

**Textbooks**

To be advised.

**AB200 Knowledge Thought and Computers**

Three hours per week for one semester

An optional non-computing subject available to students of the Bachelor of Information Technology degree.

**Subject aims**

The subject aims 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 conception of ourselves and our relationship to the environment.

**Subject description**

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 Faculty of Arts.

**AB310 Behavioural Studies and Communication**

Two hours per week for one semester

A second-year subject of the degree course in environmental health.

**Subject description**

The course examines Australian society from the point of view of the self, the primary group, the formal organisation and the institution. It uses sociological concepts to examine the behaviour of people in society, and psychological concepts to examine personality and the way in which the individual initiates action or responds to others.

These concepts provide the theoretical basis for an understanding of the practical processes involved in industrial relations including negotiation, conciliation, handling conflict and hostility at an organisational level, etc.
AB513 Brain and Behaviour
Two hours per week for one semester
A fourth-year subject of the degree course in medical biophysics and instrumentation.
A study of the philosophical and ethical implications of advances in the neurosciences.
Topics include: a study of various theories about the nature of human consciousness, and about the relationship between mind, brain and behaviour.

AB2100 Behavioural Studies and Communication
Two hours per week for one semester
A first-year subject of the degree course in environmental health.
Subject description
The emphasis in this course will be on interpersonal communication/skills and stress management. Topics in communication will include: non-verbal and verbal communication, one-to-one communication skills, coping with conflict at an interpersonal level, personality influences in communication, the role of communication in the development of stress, and stress management. Topics in stress management will include: resilience, relaxation, nutrition and mental health.

AB2100 Business Studies — Behavioural Studies and Communication
Two hours per week for one semester
A first-year subject of the degree course in environmental health.

Subject description
The emphasis in this course will be on interpersonal communication/skills and stress management. Topics in communication will include: non-verbal and verbal communication, one-to-one communication skills, coping with conflict at an interpersonal level, personality influences in communication, the role of communication in the development of stress, and stress management. Topics in stress management will include: resilience, relaxation, nutrition and mental health.

BS141 Introductory Law
Two hours per week for one semester
A first-year subject of the degree course in environmental health.

Subject description
Delegated legislation: (a) relevance to environmental health officers, (b) advantages and disadvantages, (c) reviewing 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 cases, the role of law in determining negligence (consumer protection), 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.

BS428 Administration and Management
Two hours per week for one semester
A fourth-year subject of the degree course in environmental health.

Subject description
Overview of practices and regulatory controls to support the occupational framework of environmental health officers.

BS447 Administrative Law
Two hours per week for one semester
A fourth-year subject of the degree course in environmental health.

Subject description
To consider efficient internal administrative procedures to ensure liability for negligent advice.

Regulatory controls: impact statements, state environmental impact statements, planning effect statements, health impact statements. The role of the Ombudsman and Committees of Enquiry.
The Administrative Law Act and review by courts and tribunals of the statute process, the application of the rules of natural justice.

BS510 Business Studies — Accounting
Five hours per week for one semester
A first-year subject of the degree course in computing and instrumentation.

Subject description
Accounting
The business environment: financial statements (balance sheet and profit/loss); analysis and interpretation; cash management/cash budgeting; finance decisions.
Economics
Markets and efficient resource allocation: demand analysis; production and cost analysis; an introduction to profit and pricing.

BS513 Business Studies — Business Studies — Economics
Three hours per week for one semester
A first-year subject of the degree courses in computer science, mathematics and computer science.

Subject description
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.

Textbook

BS514 Business Studies — Economics
Three hours per week for one semester
A first-year subject of the degree courses in computer science, mathematics and computer science.

Subject description
Provides an introduction to the techniques of economics (a social science) used in analysing business behaviour and the business environment within which students can expect to be employed.
Considers the relevance to management decision making of the following topics: Markets and efficient resource allocation; production, expenditure, employment; aggregate demand and supply, equilibrium and disequilibrium; alternative economic schools of thought on macro-economic policy.
Other issues to be considered include performance criteria (such as growth, sustainability, efficiency and equity), trade, import competition, protection and foreign investment.

BS517 Business Studies
Two hours per week for one semester
A second and third year subject of the degree course in mathematics and computer science.

Subject description
The general objective of the unit is to provide students with an understanding of concepts and methods employed in management in decision making, planning and control.
BS617 Computers and the Law

Three hours per week for one semester
Assessment by segment tests or some combination of segment tests and assignments

An optional fourth-year subject for students majoring in computing.

Subject description

An introduction to the legal system will be followed by a discussion of selected aspects of industrial/intellectual property law, tort, contract and trade practices law relevant to the needs of future computer professionals.

BS619 Business and Management

Four hours per week for one semester

A fourth-year subject of the degree course in computer-aided chemistry and computer-aided biochemistry.

Subject description

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, budgetting.

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

Three hours per week for one semester
Assessment by tests and assignments

An optional fourth-year subject for students majoring in computing.

Subject description

The objectives of the subject are to enable students to:

(a) understand the nature and importance of human resources as an organisational asset;

(b) obtain a better understanding of themselves, their impact on other people and the way other people influence their own behaviour;

(c) explore the implications of both work groups and informal groups in organisations;

(d) consider the impact of alternative organisation designs on organisational effectiveness; and

(e) understand the role of managers and the impact of alternative managerial style on organisational effectiveness.

BS721 Business and Management

Four hours per week for one semester

A subject in the graduate diploma in industrial chemistry. See BS619 for details.

BS2530 Environmental Health Law

Four hours per week for one semester

A second-year subject of the degree course in environmental health.

Subject description

Legislation relevant to the environmental health officer in Local Government: the Health Act, enabling legal provisions, e.g. nuisance, infectious diseases, building, accommodation, incident 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.


Relevant judgements on the application/interpretation of the legislation will be studied.

BS2540 Legal Procedure and Evidence

Four hours per week for one semester

A second-year subject of the degree course in environmental health.

Subject description

The legal process of prosecution — choosing the appropriate court, who may prosecute, the rules 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, compellable witnesses, expert witnesses, judicial notice and other relevant evidentiary issues will be considered.

In the context of the mock trials, which will commence from the initial interview of the 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.

CE560 Environmental Engineering and Planning

Six hours per week for one semester

A fourth-year subject of the degree course in environmental health.

Subject description


Introduction to drainage system design. Open channel flow. Water quality standards, treatment processes for drinking water, swimming pools and spa baths.

Soil classification systems including field classification and some principles relating to ground water flow.


Introductions 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.

IT101 Computer Fundamentals

Four hours per week for one semester

A first-year subject of the Bachelor of Information Technology degree.

Subject aims

An understanding of the principles of operation of computer hardware and software.

To study the way in which information is represented in computers.

To introduce the skills required to use both micro and mainframe operating environments.

Subject description

History of computing: early computing devices, dawn of the modern computer, generations of computers.

Introduction to computer architecture: CPU architectures, main storage, machine language. Secondary storage: principles of operation of magnetic tapes, disks, mass storage devices, bubble memory, optical disks. Input/Output devices. Introduction to data communications.

Data representation: date versus information, representation of letters and alphanumeric data, integer arithmetic. Introduction to operating systems: data management, time sharing, batch and on-line systems, introduction to DOS and Windows.

Programming concepts: compilers, translators, and assemblers. Appropriate and inappropriate computer applications.

Programming environment: using micro and main operating systems; file management, utilities, editors, compilers, command procedures, introduction to JCL.
IT102 Introduction to Programming

Four hours per week for one semester

A first-year subject of the Bachelor of Information Technology degree.

**Subject aims**
To introduce students to programming in the language C, using modern structured programming techniques.

**Subject description**
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.

**Textbook**

IT103 Business Applications & Systems 1

Four hours per week for one semester

A first-year subject of the Bachelor of Information Technology degree.

**Subject aims**
The aims of this unit are to:
- 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.

**Subject description**

IT105 Behaviour and Communications in Organisations

Four hours per week for one semester

A first-year subject of the Bachelor of Information Technology degree.

**Subject aims**
To provide students with:
- an understanding of the nature and importance of communication interperson, skills and group development to organisations management;
- to develop students’ interpersonal skills and skills as team members;
- to allow students to experiment with computer and telecommunications 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.

**Subject description**
Communication perception, interviewing skills.

IT122 Mathematics

Four hours per week for one semester

An elective subject of the Bachelor of Information Technology degree.

**Subject description**
Methodology: the development of operations research, the scientific approach const and the applications.
Linear programming: the formulation of linear programming problems, graphical solution of two variable problems, the Simplex methods, sensitivity analysis, transportation, transshipment, assignment, the use of computer packages such as SAS/ORA.
Inventory control: inventory systems, economic order quantity, quantity discounts, safety stock under uncertainty.
Network models: problem formulation, shortest path problems, maximum flow problems, the critical path method and PERT, maximum spanning tree problems, relationships to linear programming and transportation.

IT201 Decision Analysis

Four hours per week for one semester

A first-year subject of the Bachelor of Information Technology degree.

**Subject aims**
To familiarise students with a range of statistical, financial and modelling methods commonly used in the decision support area. The applications of techniques to solve business problems and to present the results using software packages such as LOTUS, MINITAB, Harvard Presentation Graphics etc. is emphasised.

**Subject description**
An introduction to modelling concepts. Basic statistical ideas such as probability and the combination of probabilities, probability distributions and their applications, statistical measures (mean, variance), introductory time series analysis, linear regression, introduction to simulation.
Statistical applications through the use of sources of data, data collection and manipulation with packages such as MINITAB.
Financial analysis: the concept of interest, present value methods, discounted cash flow. Internal rates of return. Throughout the case analy, d graphical presentations by using packages such as LOTUS is emphasised.

IT202 COBOL programming

Four hours per week for one semester

A first-year subject of the Bachelor of Information Technology degree.

**Subject aims**
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.

**Subject description**
COBOL fundamentals: COBOL structure, syntax, examples, simple vocabulary (PERFORM, MOVE, ACCEPT, DISPLAY, etc.).
Reports: Layout, headings, page control, page numbering. Data validation: IF/ELSE, nested IFs, evaluate sign & class tests, range & limit tests, compound statements, 88 levels.
Tables: REDEFINE, review table concepts, 1dimension tables, 2-dimension tables, PERFORM VARYING, binary search, SEARCH, SEARCH ALL.
Multiple file processing: Merge, merge replaces master file update. Sorting processing: INSPECT, STRING, UNSTRING.
Sorts: Sort, merge, work file, key fields, SORT verb, input procedure, output procedure.
Sub-programs: Program design & development, modular design, cohesion, coupling.
IT203 Business Applications & Systems 1
Four hours per week for one semester
Prerequisite, IT103 Business Applications and Systems 1
A first-year subject of the Bachelor of Information Technology degree.

Subject aims
To train students to:
- develop a simple business application using a micro-computer 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.

Subject description
Operating system principles: introduction, operating system services, file systems, process scheduling, memory management, virtual memory, storage system scheduling, deadlocks, job and task management, protection.
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.

IT203 Business Applications & Systems 2
Four hours per week for one semester
Prerequisite, IT103 Business Applications and Systems 1
A first-year subject of the Bachelor of Information Technology degree.

Subject aims
To train students to:
- develop a simple business application using a micro-computer 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.

Subject description
Operating system principles: introduction, operating system services, file systems, process scheduling, memory management, virtual memory, storage system scheduling, deadlocks, job and task management, protection.
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.

IT204 Accounting 1
Four hours per week for one semester
A first-year subject of the Bachelor of Information Technology degree.

Subject aims
To enable students to initiate, monitor and control a simple accounting system for small business within its total environment by ensuring that students are able to:
(i) Recognise, derive and communicate relevant financial information for decision making.
(ii) Recognise those controls necessary to ensure accuracy of data and security of assets in both manual and computerised accounting environments.

Subject description
Introduction to Business Information Systems.
Accounting Systems and Accounting Reports.
The Data Collection and Recording System.
Balance Sheet Presentation.
Specialised Journals and Subsidiary Ledgers.
Posting Journals to Ledgers.
General Ledgers: Operation and Purpose.
Accounts Receivable.
Introduction to Cash Book Recording.
Bank Reconciliation Statements.
Final reports and Balance Day Adjustments.

IT222 Mathematics
Four hours per week for one semester
An elective subject of the Bachelor of Information Technology degree.

Subject description
Queueing theory, Markov chains and processes, matrix manipulations, variance reduction methods and simulation, Decision theory, decision theory analysis, multicriteria decision making.
Forecasting, scheduling, maintenance and replacement theory, advanced stock control and inventory.

IT301 Systems Software 1
Twenty-seven hours per week for three weeks
Prerequisite, successful completion of the segments one and two.
A first-year summer term subject of the Bachelor of Information Technology degree.

Subject aims
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 units.

Subject description
Data Base Management Systems 1
Twenty-seven hours per week for three weeks
A first-year summer term subject of the Bachelor of Information Technology degree.

Subject description
Learning from experience, managing conflict, management by process, eade, power and influence, organisational politics, organisational change; motivation; problem solving; decision making; dynamics within groups; team work and leadership; building business ethics and values; framing realities; current issues.

IT303 Data Base Management Systems 1
Twenty-seven hours per week for three weeks
A first-year summer term subject of the Bachelor of Information Technology degree.

Subject aims
To enable students to learn how a DBMS is used in the development of systems.

Subject description
Introduction: what is a data base, the need for the data base, Data Dictionaries.
Logical Design: data analysis, data modelling, normalization, design tools.
Physical Design: data analysis, data modelling, normalization, design tools.
Physical Data Organisation: hardware, data structures, access methods.
DBMS Models: relational, network, hierarchical.
Practical work involving the definition, loading and accessing of data bases will be done on one relational and one non-relational system.
Current DBMS's: a comparative study of the major Data Base Management Systems in current use. Particular emphasis will be placed on systems that the student will encounter in their Industry Based Learning segments.

IT322 Mathematics
An elective subject of the Bachelor of Information Technology degree.

Subject description
Queueing control concepts and applications to manufacture, Logistics, Systems and location problems. Vehicle scheduling and control, or relevant subjects from the mathematics major.
IT401 Industry Based Learning

Twenty weeks full-time project work in industry.
Prerequisite, satisfactory completion of the subjects of the first three segments
A second-year segment of the Bachelor of Information Technology degree.

Subject aims
To gain first hand experience of the operation of the information technology environment, the work of data processing departments and the workings of organisations.

To extend the learning of the preceding segments of the course, in particular to gain experience of programming, systems, and the information technology environment.

To issues which cannot be learned from within the industrial environment, such as user liaison and management issues.

Subject description
Students work under the supervision of both the Industrial Sponsor and the Student Manager.
Projects and Assignments and participation in the professional activities of sponsors data processing and information technology environments are assessed by Student Manager and Industry Supervisor.
Students are expected to gain experience in the following areas: Programming, Systems Design, User Liaison, and Security and to be closely involved with the application of at least two of the following: Data Base Communication, User Support, and Systems Software.

IT422 Mathematics

Four hours per week for one semester
Prerequisite, IT222 Mathematics

An elective subject of the Bachelor of Information Technology degree.

Subject description
Advanced forecasting, data acquisition through sample survey, Manufacturing and business applications of probability theory; portfolio problems, bidding problems, defective production, or relevant subjects from the mathematics major.

IT501 Systems and Information Analysis 1

Four hours per week for one semester
Prerequisites, IT303 Data Base Management Systems 1

A second-year subject of the Bachelor of Information Technology degree.

Subject aims
This unit provides students with the skills necessary to perform information analysis and data modelling for detailed applications as well as at the corporate level.
Students make extensive use of appropriate software tools to help them develop detailed requirements specifications.

By the end of the unit the students should be able to:
1. Prepare a requirements specification for a small application, to be used for preparation of a structured design specification.
2. Analyse and complete information requirements and hence contribute to the preparation of a data model for an organisation.
3. Select the systems analysis approach appropriate to a particular situation from a range of modelling techniques and tools.

Subject description
Systems requirements, Data and Models.
Data Analysis — user views of data; Data Dictionaries.
Structured Systems Analysis — Data Flow Diagrams; structured design software; transforms.
Corporate Information Systems — Corporate Data Modelling; Data Administration; Levels; Planning, control, operational; scope; corporate, divisional, local.

IT502 Systems Software 2

Four hours per week for one semester
Prerequisite, IT401 Systems Software

An optional second-year subject of the Bachelor of Information Technology degree.

Subject aims
To make an in-depth study of a mainframe operating system such as MVS or VM. The architecture of the mainframe as well as the assembler language is studied so as to examine the inter-relationship between systems software and the computer's architecture. The role of the systems programmer as distinct from the applications programmer is considered.

Subject description
Assembler programming; introductory concepts, instruction formats, decimal instructions, data transfer and sequence control, edit inst, binary data and instructions, address modification and arrays, bit and byte sequences, input/output macros, subroutines and linkages.

Systems programming: Testing and debugging with assembler languages, style, documentation of systems software, program determination (dump reading), systems utilities, file systems (VSAM, AMS), system generation, system maintenance, recovery and termination management, security.

Computer architecture: CPU and ALU principles of operation, addressing mechanisms, storage boundaries, operation and interfacing of input/output devices.

IT503 Data Base Management Systems 2

Four hours per week for one semester
Prerequisite, IT303 Data Base Management Systems 1

A second-year subject of the Bachelor of Information Technology degree.

Subject aims
To build upon the concepts and techniques learned in IT303. Logical Design concepts expanded by a formal study of relational theory and normalisation, enable students to understand developments in the field. Implementation and physical design skills are enhanced by an examination of the factors affecting performance.

Subject description

IT504 Data Communications 1

Four hours per week for one semester
Prerequisite, IT422 Mathematics

A second-year subject of the Bachelor of Information Technology degree.

Subject aims
To introduce the fundamental concepts and components involved in data communications and to develop an understanding of communication protocols and computer networks. To familiarise students with various technologies used in the electronic office.

Subject description

IT509 Software Engineering 1

Four hours per week for one semester
Prerequisite, IT503 Data Base Management Systems 1

A second-year subject of the Bachelor of Information Technology degree.

Subject aims
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.
This subject complements IT501 Systems and Information Analysis 1 by concentrating on the latter stage of the software life cycle, particularly design. Students develop management a design documentation and experience working as a member of a software project team.

Subject description
The software life cycle: An introduction to the concepts of requirements definition, software specification, software design, programming practice, testing and debugging, maintenance and issues arising around managing the life cycle.
IT601 Systems and Information Analysis 2
Four hours per week for one semester
Prerequisite, IT501 Systems and Information Analysis 1
An optional third year subject of the Bachelor of Information Technology degree.

Objectives
This unit will build on the technical knowledge gained in earlier units and provide 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.

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 system design, operation and control procedures suitable for different systems development approaches;
- describe the methodologies in use in organisations and to determine the 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.

Subject description
Information Systems Theory — information needs of management, impact of information systems on strategic corporate plans.

Traditional Life Cycle development.

Fact finding.

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.

Prototyping — 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.

IT602 Systems Software 3
Four hours per week for one semester
Prerequisite, IT602 Introduction to Programming
An optional subject of the Bachelor of Information Technology degree.

Subject aims and description
Introduction to the UNIX operating system, UNIX system interface and standard C libraries, Low level I/O function calls, the stat structure and stat function calls, Process control within UNIX, Signals, interprocess communication, UNIX time and user information. An overview of special Shell programming basics, environment, and the difference between a shell script and a Korn shell.

Textbook

IT603 Data Base Management Systems 3
Four hours per week for one semester
An optional third year subject of the Bachelor of Information Technology degree.

Subject description
This unit completes the study of database management systems of units DBMS 1 & 2. The topics studied in this unit are:
- database recovery
- database integrity
- concurrency
- database security
- distributed databases
- special purpose database machines.

IT609 Software Engineering 2
Four hours per week for one semester
Prerequisite, Software Engineering 1
A third year subject of the Bachelor of Information Technology degree.

Subject aims
This unit aims to develop in more detail some of the basic notions of software life cycle as studied in IT509 Software Engineering 1.

Faculty of Applied Science
Subject description
Students will attend a series of seminars, ranging from a half day to a several week sequence, covering selected topics such as: information technology planning, research, methods, user liaison strategies, computers and the law, security, controls and audit, technology and innovation, technology and society, current issues in systems management.

IT903 Software Engineering Project
Eight hours per week for two semesters.
Instruction will be by team and individual consultation, as required.
Assessment will be by deliverable items (software test plan, software design, fully tested source code) and an individual project report.
A unit in the Research/Project cluster of the Master of Information Technology.

Subject aims
To develop a significantly complex realistic real-time system; to experience the whole systems development lifecycle.

Subject description
The system will be developed by a team of several students. Development of the system (to be developed in Ada or C++) will include requirements elicitation; systems analysis; development of acceptance criteria; preparation of a user manual; development of a project plan; estimation of cost; systems design (design objectives, requirements tracing, completion criteria, software architecture); system implementation (coding, unit testing, system testing).

Textbooks
To be advised.

IT904 The Software Process
Four hours per week for one semester.
Instruction will be by a combination of lectures and seminars.
Assessment will be by essays and a final examination.
A unit in the Software Engineering cluster of the Master of Information Technology.

Subject aims
To study the paradigm: independent process-related activities necessary to the successful engineering of large-scale software systems.

Subject description
Software standards; schedule and cost estimation; risk management; software quality assurance, software metrics; software configuration management; software process assessment.

Textbooks
To be advised.

IT906 Human-Computer Interaction (HCI)
Four hours per week for one semester.
Instruction will be by a combination of lectures, seminars and laboratory sessions.
Assessment will be by two assignments and a final examination.
A unit of the Human-Computer Interaction cluster of the Master of Information Technology.

Subject aims
To appreciate the need for, and the role and characteristics of, human-computer interaction.

Subject description
Introduction — points of view, scope and objectives of HCI, metamodels of HCI, HCI technology — human-machine fit and adaptation, the user interface workability and its components, input/output devices, interface objects, dialogue styles, genre, architecture, enhanced/hybrid 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 behavioural sciences, data collection methods, data analysis methods; HCI application: organisational impact; HCI future developments.

Textbooks
To be advised.

IT909 Foundations of Intelligent Systems
Four hours per week for one semester.
Instruction will be by a combination of lectures, tutorials and laboratory sessions.
Assessment will be by assignments and a final examination.
A unit of the Intelligent Systems Engineering cluster of the Master of Information Technology.

Subject aims
To investigate knowledge and its representation within a computer.

Subject description
Basic concepts: knowledge and scepticism, intention and belief, behavourism, scientific explanation, causality, the mind-body problem; logic: propositional logic, predicate logic, fuzzy logic, multi-valued logic, temporal logic, epistemic logic, procedural reasoning systems; implementation and design issues: search and control, knowledge representation schemes, vision, natural language processing, learning.

Textbooks
To be advised.

IT913 Automated Systems Development Project
Eight hours per week for two semesters.
Instruction will be by team and individual consultation, as required.
Assessment will be by deliverable items (requirements and specification documents, system and user manuals, the working system itself, and an evaluation of its effectiveness in satisfying the requirements).
A unit in the Research/Project cluster of the Master of Information Technology.

Subject aims
To gain experience of the automated systems development process; to develop an information system.

Subject description
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.

Textbooks
To be advised.

IT914 Systems Analysis
Four hours per week for one semester.
Instruction will be by a combination of lectures and tutorials.
Assessment will be by individual and team assignments, and a final examination.
A unit in the Software Engineering cluster of the Master of Information Technology.

Subject aims
To study existing practice and contemporary developments in strategic systems planning, systems analysis methodologies, computer-assisted software engineering support for analysis, and contemporary issues in systems analysis.

Subject description
Strategic systems planning — systems paradigms, ‘hard’ and ‘soft’ systems approaches, hybrid approaches, preparation of the strategic plan, implementing the strategy; systems analysis methodologies — structured analysis, object-oriented analysis, analysis for real-time and embedded systems; analysis for knowledge-based systems; Computer-aided Software Engineering (CASE) analysis — what is CASE?, the capabilities of existing CASE, the future of CASE, experience with CASE environments; issues — a selection from topics such as reuse and adaptation of requirements, requirements through reverse engineering and re-engineering, requirements metrics, establishing traceability to requirements.

Textbooks
To be advised.
IT916 Programming the User Interface

Four hours per week for one semester
Instruction will be by a combination of lectures, seminars, and laboratory sessions
Assessment will be by two assignments and a final examination

A unit of the Human-Computer Interaction cluster of the Master of Information Technology.

Subject aims
To introduce the concepts and techniques relevant to programming the user interface.

Subject description
Concepts — independence (application, device, user); programming systems — menu, command-based systems, data input, giving information back to the user, screen manipulation techniques, using colour, systems a environments, Windows and UIMS, help systems, handling and avoiding errors; tools — UNIX PC and Macintosh platforms, function libraries, car purpose languages, interactive editors, application specific user programming languages, user interface management systems.

Textbooks
To be advised.

IT919 Intelligent Systems Applications

Four hours per week for one semester
Instruction will be by a combination of lectures, tutorials, and laboratory sessions
Assessment will be by assignments and a final examination

A unit of the Intelligent Systems Engineering cluster of the Master of Information Technology.

Subject aims
To discuss the position of expert systems in the world of artificial intelligence, and the development strategy of expert systems; to recognise and analyse commercial problems to which expert systems may generate a solution; to discuss the nature of expertise and problems and strategies of knowledge acquisition, including methods of automatic and semi-automatic knowledge acquisition.

Subject description
Expert systems — problem solving strategies, human computer interaction, extensibility; knowledge acquisition — nature of expertise, handcrafted knowledge transfer, automatic and semi-automatic knowledge acquisition; expert system design; selection area of application, expert systems in the current position of expert systems in the world scene.

Textbooks
To be advised.

IT924 Software Design

Four hours per week for one semester
Instruction will be by a combination of lectures and tutorials
Assessment will be by individual essay, team design assignment, and a final examination

A unit in the Software Engineering cluster of the Master of Information Technology.

Subject aims
To study issues in software design, with an emphasis on methods and languages for expressing design and an emphasis also on design evaluation.

Subject description
Role, classification and basic principles of design methods; design using formal methods, function-oriented design; object-oriented design; application domains and design paradigms; information systems design; real-time systems design; user-interface design; design evaluation.

Textbooks
To be advised.

IT926 Interactive Systems Development

Four hours per week for one semester
Instruction will be by a combination of lectures, seminars, and laboratory sessions
Assessment will be by two assignments and a final examination

A unit of the Human-Computer Interaction (HCI) cluster of the Master of Information Technology.

Subject aims
To introduce students to the concepts and methodologies relevant to the systematic analysis and design of interactive technology.

Subject description
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 (dependency, reusability); interaction libraries, dialogue control structure models; evaluation techniques — empirical evaluation, predictive modelling; user interface management systems; user guidance integrated into user interfaces.

Textbooks
To be advised.

IT929 Adaptive Intelligent Systems

Four hours per week for one semester
Instruction will be by a combination of lectures, tutorials, and laboratory sessions
Assessment will be by assignments and a final examination

A unit of the Intelligent Systems Engineering cluster of the Master of Information Technology.

Subject aims
To provide an appreciation of the general concerns and approaches in research into the development of machine learning systems; to investigate various topics and methodologies from both the symbolic and connectionist paradigms; to give students practical experience with artificial neural network development; to investigate hybrid systems as a means of overcoming some of the limitations of expert system technology.

Subject description
A general framework — why develop learning systems? Categories of learning, the physical symbol system hypothesis; a symbolic stream consisting of such topics as classification and conceptual clustering, generalisation and discrimination, learning about control and metaknowledge, chunking, discovery; a connectionist (neural network) stream consisting of such topics as back propagation, competitive learning, counter propagation, ‘behaviourally’ derived units, Boltzmann machines; genetic algorithms and classifier systems; hybrid systems — interactions between neural nets and expert systems, deriving rules from neural nets, integrated systems.

Textbooks
To be advised.

IT934 Software Implementation and Maintenance

Four hours per week for one semester
Instruction will be by a combination of lectures and tutorials
Assessment will be by individual essay, individual programming assignment, team maintenance exercise, and a final examination

A unit in the Software Engineering cluster of the Master of Information Technology.

Subject aims
To study contemporary developments in programming, validation, verification, and maintenance of software.

Subject description
Data abstraction; object-oriented programming; models of concurrent programming; real-time programming; programming distributed systems; software reuse; testing; validation and verification; maintaining software systems; management of maintenance.

Textbooks
To be advised.
IT954 Information Systems Requirements
Four hours per week for one semester
Instruction will be by a combination of lectures, tutorials and seminars
Assessment will be by an individual project and a final examination

A unit in the Automated Systems Development cluster of the Master of Information Technology.

Subject aims
To develop an appreciation of the information systems requirements of organisations; to introduce a range of approaches to requirements analysis and specification; to demonstrate the role of Computer-Aided Software Engineering (CASE) software in analysis, planning and specification.

Subject description
Organisations and information technology; types of systems; information systems strategies; analysis methods; reverse engineering; design recovery; systems planning; specification techniques; automated support for requirements analysis.

Textbooks
To be advised.

IT964 Resources for Information Systems Development
Four hours per week for one semester
Instruction will be by a combination of lectures, tutorials and seminars
Assessment will be by an individual project and a final examination

A unit in the Automated Systems Development cluster of the Master of Information Technology.

Subject aims
To develop an appreciation of the human and organisational aspects of information systems development; to introduce techniques for the effective utilisation and management of information technology resources.

Subject description
Trends in Information Technology; impact of information technology on people and organisations; management of the Information Systems function; estimation methods for information systems development: evaluating the effectiveness of information systems.

Textbooks
To be advised.

IT974 Systems Strategies
Four hours per week for one semester
Instruction will be by a combination of lectures, tutorials and seminars
Assessment will be by an individual project and a final examination

A unit in the Automated Systems Development cluster of the Master of Information Technology.

Subject aims
To develop awareness of a range of approaches to meeting the information systems requirements of organisations; to study the influence of automated development methods on the systems development process.

Subject description
Architecture of information systems: standard solutions; packages and templates; application re-use; evolutionary development of information systems; reverse engineering; system integration.

Textbooks
To be advised.

IT984 Techniques
Four hours per week for one semester
Instruction will be by a combination of lectures, tutorials and seminars
Assessment will be by an individual project and a final examination

A unit in the Automated Systems Development cluster of the Master of Information Technology.

Subject aims
To introduce methods for designing information systems; to express designs in forms suitable for automated development; to be able to forecast the performance of an information system.

Subject description
The software design process; design techniques for information systems; performance forecasting; Computer Aided Software Engineering (CASE) tools; system implementation; system maintenance.

Textbooks
To be advised.

IT993 Research Project
Eight hours per week for two semesters
Instruction will be by guided research
Assessment will be 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 unit in the Research/Project cluster of the Master of Information Technology.

Subject aims
To give students the opportunity to pursue in greater depth than in a cluster project a topic of interest; to allow students to fully experience the design and development of a major research project.

Subject description
The topic for the project will be selected by the student after consultation with either the Computer Science department or the Information Systems department or both. 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.

Textbooks
To be advised.

IT996 HCI Project
Ten hours per week for one semester
Instruction will be by guided research
Assessment is expected 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 unit of the Human-Computer Interaction (HCI) cluster of the Master of Information Technology.

Subject aims
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.

Subject description
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 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.

Textbooks
To be advised.
IT999  (ISE) Project

Four hours per week for one semester
Instruction will be by guided research
Assessment will be by a written report, the extent of which will be determined by the nature of the project

A unit of the Intelligent Systems Engineering (ISE) cluster of the Master of Information Technology.

Subject aims
To give students the opportunity to pursue in detail a topic of interest; to give students experience in the design and development of research; to integrate material dealt with in the taught components of the cluster.

Subject description
Generally the project shall be undertaken on an individual basis, and will be goal directed. The project should require research into a specific area (eg. the use of fuzzy knowledge acquisition tools, learning in particular domains, etc.) The project may have either a theoretical (review) or practical (implementation) nature, but in either case will require 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.

Textbooks
To be advised.

ME249  Environmental Engineering

Four hours per week for one semester
A second-year subject of the degree course in environmental health.

Subject description
Part A: Mechanical engineering plant
Principles and standards to be met by heating, ventilating, lighting, air-conditioning, refrigeration, steam and high pressure hot water plant - tests on boiler plants such as the Ringleman, CO, CO and NO tests. 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.

MP107  Engineering Drawing

Two hours per week for one semester
A first-year subject of the degree course in environmental health.

Subject description
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.
### Academic staff ................................................................................. 106
### Centres .......................................................................................... 106
### Courses offered ............................................................................. 107

### Bachelor of Arts
- General Information ...................................................................... 107
- Career Opportunities ..................................................................... 107
- Eligibility ......................................................................................... 107
- Applications .................................................................................... 107
- Deferred entry ............................................................................... 108
- Exemptions ...................................................................................... 108
- Course requirements ..................................................................... 109
- Major strands .................................................................................. 109
- Amendment to enrolment .............................................................. 109

### General Information
- Leave of absence ........................................................................... 110
- Withdrawal ....................................................................................... 110
- Subject selection ........................................................................... 110
- Assessment ....................................................................................... 110
- Scholarships and Prizes ................................................................ 110
- Eastern Campus at Lilydale ............................................................ 111

### Disciplines in the Faculty of Arts .................................................... 111

### Undergraduate courses

#### Bachelor of Arts
- course descriptions
  - Asian Studies (Interdisciplinary) ............................................... 111
  - Australian Studies (Interdisciplinary) ......................................... 111
  - Economics ...................................................................................... 112
  - Italian ........................................................................................... 113
  - Japanese ........................................................................................ 113
  - Korean ........................................................................................... 113
  - Literature ......................................................................................... 113
  - Media ............................................................................................. 113
  - Philosophy and Cultural Inquiry ............................................... 114
  - Political Studies ............................................................................ 114
  - Psychology ...................................................................................... 114
  - Psychology and Psychophysiology ........................................... 114
  - Sociology ......................................................................................... 115
  - Vietnamese ..................................................................................... 115

#### Combined degrees
- Bachelor of Business/Bachelor of Arts (Japanese) ......................... 116
- Bachelor of Business/Bachelor of Arts (Italian) ........................... 116
- Bachelor of Business/Bachelor of Arts (Korean) ........................... 116
- Bachelor of Business/Bachelor of Arts (Vietnamese) .................... 116
- Bachelor of Arts (Honours) .......................................................... 117

### Postgraduate courses

#### Graduate Diploma in Applied Psychology ................................ 117
Graduate Diploma in Equal Opportunity Administration .................. 118
Graduate Diploma in Japanese ......................................................... 118
Graduate Diploma in Japanese for Professionals ............................ 119
Graduate Diploma in Urban Research and Policy ................................ 119
Master of Arts (by research) ........................................................... 119
Master of Arts in Counselling Psychology ...................................... 119
Master of Arts in Japanese ................................................................. 120
Masters of Arts in Urban Research and Policy ................................. 120
Professional Doctorate in Psychology ............................................. 120
Doctor of Philosophy ........................................................................ 120

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**Swinburne Higher Education Division**

**Information** ..................................................................................... 19
Faculty of Arts

Dean
Professor L.A. Kilmartin, BA(Q’ld), MA(ANU), PhD(LaT)

Associate Dean
FX. Walsh, BA(Melb), BEd(Mon)

Sub-Deans
Students: G. Nichols, BA(Mon)
Research: Associate Professor T.G. Castleman, BA(Hons)(Ind), PhD(Mon)
Assistant Registrar (Arts)
T. Kilsby, BA(LaT)
Administrative Officer
G. Quirk
Laboratory Manager
A. Rice

Academic staff

DISCIPLINES

Asian Languages and Cultures
Chair
A. Skoutarides, BA(Hons), PhD(Mon)

Senior Lecturers
N. Fukushima, MA(Mon)
T. Machida, Med(LaT)

Lecturers
S. Kim, MA(Mon), DipEd(Mon)
R. Loveband, BA, Grad Dip Japanese(SIT)
T. Mizuno, BA(Tokuya), Grad Dip App Jap(Mon)
R. Park, (T, Kikuchi), MA(ANU)
R. Warmington, BA(Hons), DipEd(Mon), Grad Dip Japanese(SIT)

Italian Language and Culture
Chair
L.A. Hougaz, MA(Melb), DipEd(Melb)

Lecturers
D. Fairservice, MA(WA), PhD(Edin), DipEd(MCAE)
M.M. Masini, BA(Hons)(Melb), DipEd(LaT)

Media, Literature and Film
Chair
Associate Professor T. Barr, BEd(LaT), MA(SIT)

Senior Lecturers
TP. Ryan, BA(Mon), BEd(LaT)
H. Molnar, Dip Bus Studs, BA(Media)(RMIT), MA(UW-Madison)

Lecturers
JJ. Arnold, BA(Melb), DipEd(Melb), MACE
J. Barbour
J. Goodall, BA, DipEd(Qld), Grad Dip Art(AppF&T)(SIT)
A. Hakeem, MA(Dacca and Cantab)
K. Sands, MA(Mon)
D. Tolts, BA(Hons)(LaT), PhD(Melb)
K. Vigo, BA(Melb)

Philosophy and Cultural Inquiry
Chair
M. Harney, MA, DipEd(Melb), PhD(ANU), Grad Dip Art(AppF&T)(SIT)

Senior Lecturers
H. Kanegieser, BA(Melb), MED(Mon)
R.L. Love, BSc(Qld), CHPS(Cantab), MA, PhD(Melb)

Lecturers
AE. Gare, BA(Hons)(WA), PhD(Murdo)
P.J. Healy, MA, PhD(PennState)

Political Studies
Chair
D.Y. Mayer, BA, LL.B(Melb), MA(Mon), Grad Dip Ed(Haw)

Senior Lecturers
S. Lakha, BSc(Hons)(Hull), Grad Dip Urb Studs(London), PhD(Mon)
K.J. Rowley, BA(Hons)(Melb)
FX. Walsh, BA(Melb), BEd(Mon)

Lecturers
P.J. Love, MA(LaT), PhD(ANU)
G.C.J. Moneen, BA(Mon), Dip Soc Stud(Melb)
Grad Dip Ed(Haw)
J. Schmid, MA(Melb)
P. Taneja, BCom(AGra), MA(JNU), PhD(Griffith)

Psychology
Head
Associate Professor K.J. Heskin, BA(Hons)(Queens), MA(Dub), PhD(Dunelm), C Psychol, AFBPsS, MAPsS

Principal Lecturers
JP. McLennan, MA(ANU), PhD(Mon), Grad Dip Ed(Haw), MAPsS

Senior Lecturers
G.W. Bates, BCom, BA(Hons), MA(ClinPsych), PhD(Melb), MAPsS, MABMA
R.H. Cook, BSc(Hons)(Melb), MEd(Mon), MAPsS
G.H. Gotts, MSc(Calg), MAPsS
AD. Knowles, BA(Hons)(Melb), MEd(Mon), PhD(Mon), MAPsS
J.F. Wangeman, MA, BCom, BEd(Melb), MAPsS

Lecturers
P. Caputi, BA(Hons), Grad Dip Math(W’gong)
BM. Findlay, BA, BSc(Hons), MSc(Melb), MAPsS
V. Power, BA, Grad Dip App Psych(SIT), MAPsS
P. Reddy, MA(Melb), MAPsS
M.C. van Geloven, Drs(Univ. of A’dam)

Sociology
Chair
K. Betts, BA(Hons), PhD(Mon)

Associate Professors
TW. Burke, BEd(Hons)(Mon), M SocSc(Birm), MEd(Mon)
TG. Castleman, BA(Hons)(Ind), PhD(Mon)

Senior Lecturers
G. Nichols, BA(Mon)
J. Mulvaney, BA(Hons), Dip Ed, PhD(Mon)
A. Seitz, Dip Retail Bus Admin(Munich), BA(Hons)(Mon)

Lecturers
M. Gilding, BA(Hons)(ANU), PhD(Macquarie)
D. Hayward, BA, Grad Dip Urb Soc (SIT), PhD(Mon)

Centres
Faculty of Arts academic staff are associated with the following:
Centre for Industrial Democracy
Centre for Psychological Services
Centre for Urban and Social Research
Centre for Housing and Planning
Centre for Women’s Studies
(See pages 37 to 41 for details.)
Arts courses offered

NO50 Bachelor of Arts
NO52 Bachelor of Arts (Honours)
A058 Bachelor of Business/Bachelor of Arts (Italian)
A057 Bachelor of Business/Bachelor of Arts (Japanese)
A059 Bachelor of Business/Bachelor of Arts (Korean)
A0 Graduate Diploma in Business/Bachelor of Arts
NO84 Graduate Diploma in Applied Psychology
NO86 Graduate Diploma in Equal Opportunity Administration
NO83 Graduate Diploma in Japanese
NO87 Graduate Diploma in Japanese for Professionals
NO82 Graduate Diploma in Urban Research and Policy
NO90 Master of Arts (by research)
NO91 Master of Arts in Counselling Psychology
NO92 Master of Arts in Japanese
NO93 Master of Arts in Urban Research and Policy
NO01 Doctor of Philosophy
NO02 Professional Doctorate in Psychology

Bachelor of Arts — general information

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

Part-time
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, synthesize 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.

Eligibility
Applicants in the following categories will be considered for admission to the Bachelor of Arts degree course.

VCE (Group 2 subjects)
Applicants will be considered by the Undergraduate Selection Committee which will arrive at a subjective evaluation of each candidate’s likelihood of completing the course. The Undergraduate Selection Committee will take into account an applicant’s educational background. A faculty quota for this type of entry will be applied.

Applicants who have completed a VCE(TOP), including a pass in English, will be considered for selection on the basis of a computed Anderson-type score supplemented by any written student reports from the technical or TAFE college concerned. A faculty quota for this type of entry will be applied.

Mature-age entry
Persons 21 years and over, and who may lack formal educational qualifications may apply. Applications will be considered by the Undergraduate Selection Committee which will arrive at a subjective evaluation of each applicant’s likelihood of completing the course. The Undergraduate Selection Committee will take into account an applicant’s stated educational background, employment background, together with the written reasons for wishing to undertake the Swinburne BA. A faculty quota for this type of entry will be applied.

Special entry
Persons under 21 years who have completed studies deemed by the University to be the equivalent of Year 12 may apply. Applications will be considered by the Undergraduate Selection Committee which will arrive at a subjective evaluation of each applicant’s likelihood of completing the course. The Undergraduate Selection Committee will take into account an applicant’s stated educational background together with the written reasons for wishing to undertake the Swinburne BA. A faculty quota for this type of entry will be applied.

Application procedure

Full-time first year — to Victorian Tertiary Admissions Centre (VTAC)
Part-time all years — to Swinburne
Full-time later years — to VTAC

Full-time study
Applications for a full-time place in the Bachelor of Arts course must be made through the Victorian Tertiary Admissions Centre, 40 Park Street, South Melbourne 3205.

Prospective students should ascertain the relevant closing dates for applications in September or early October of the year preceding that in which they would like to commence studies.

Part-time study
Applications for a part-time place in the Bachelor of Arts course must be made directly to the Admissions Officer, Swinburne University of Technology, PO Box 218, Hawthorn 3122, on the University’s application form. The application form is available from the Admissions Office, or from the Arts Faculty Office. When completing the application form, applicants should:

(i) provide full information and documentary evidence of previous study undertaken;
(ii) outline reasons for wanting to undertake the course;
(iii) indicate the subject areas likely to be of interest at this stage.

The transfer of students from other faculties or from other institutions, shall be at the discretion of the Sub-Dean (Students) and shall be contingent upon the availability of places and upon the applicant having a satisfactory study record.
Single subject study
It is possible to study a subject offered by the Arts Faculty without enrolling in the BA degree.

An application form is required for this, and is available from the Arts Faculty Office.

Such subjects may be credited subsequently towards a Swinburne degree or diploma if approved by the Arts Faculty Board. A substantial tuition fee is payable.

Entry for all eligibility categories is competitive. Applicants may be asked to attend an interview in connection with their application.

Deferred entry
Students who have been offered a place in the Bachelor of Arts course for the first time may apply to defer their entry to the course for up to one year. Applications should be made in writing to the Registrar as soon as the offer of a place is received.

When an application is approved, the student concerned will be notified in writing by the Assistant Registrar. Deferments will be valid for a maximum period of one year and only for entry to the course for which the offer was made.

Deferment is not granted to students who have been offered a place in postgraduate studies.

Exemptions
Students with certain recognised tertiary qualifications may be granted exemptions after applying to the Arts Faculty Board. In special cases, exemptions from named full-year andor semester subjects are allowed, but unspecified exemptions may also be granted which provide for a reduction in the total number of subjects to be studied. Students who have been granted four or more exemptions must take all remaining subjects within the Faculty of Arts.

Students who think they may be eligible should apply for exemptions when they first enrol, presenting documentary evidence of prior qualifications. Applications should be made by completing the Exemptions form available from the Faculty of Arts Office (BA915) or the Student Administration Office and lodging it with the Assistant Registrar (Arts).

The exemptions policy of the Faculty of Arts is as follows:

1. Preamble
The Arts Faculty Board, after considering applications from students enrolled in the Faculty of Arts, may grant exemptions in relation to the award of the Swinburne Bachelor of Arts degree.

Notwithstanding any exemptions granted, students must complete a full third year of study in each of two (2) majors approved by the Arts Faculty Board plus any additional subjects necessary to satisfy requirements for the Swinburne Bachelor of Arts degree.

Applications for exemptions will normally be of two kinds: those based upon incomplete qualifications and those based upon completed qualifications.

The exemptions granted will be of two kinds: named and general. Named exemptions will only be granted following recommendations from the appropriate subject leaders which the applicant has satisfied equivalent requirements for a pass in the named Swinburne subject(s).

General exemptions may be used towards satisfaction of the requirement that twenty semester subjects or equivalent are needed for a BA degree. They cannot be used as parts of a major sequence. For Arts-related studies (2.1) general exemptions require the recommendation of the appropriate Dean.

2. Applications on the basis of incomplete qualifications
Applicants possessing incomplete qualifications normally fall into two categories: those with passes in Arts-related studies (see para. 2.1) and those with passes in non-Arts related studies (see para. 2.2). Students may apply for exemptions under one category or the other, but not both.

2.1 Arts-related studies
Named or general exemptions may be granted by the Arts Faculty Board for subjects successfully completed elsewhere which are comparable with those comprising the Swinburne Bachelor of Arts degree. Exemptions will only be granted following recommendations from the appropriate subject coordinators. The maximum value of exemptions possible of this type will be 14 semester subjects or equivalent.

Exemptions will not normally be awarded for subjects passed more than ten (10) years prior to the date of the applicant’s admission to the Faculty of Arts.

2.2 Non-Arts related studies
The Arts Faculty Board may grant a general exemption to the value of four (4) semester subjects or equivalent to applicants who have successfully completed one (1) year or more of full-time study (or equivalent) at degree level in courses unrelated to an Arts degree.

An applicant may seek to have included within the four (4) semester subjects or equivalent of general exemption credit for named exemptions from specific subjects taught by the Arts Faculty, provided that the studies on which the exemption claim is based were completed less than ten (10) years prior to the date of the applicant’s admission to the Faculty of Arts.

Such named exemptions will only be granted following recommendations from the appropriate subject coordinators that the applicant has satisfied equivalent requirements for a pass in the named Swinburne subject(s).

3. Applicants with completed qualifications
It is possible for an applicant to be granted exemptions in respect of only one completed qualification to a maximum value of six (6) semester subjects or equivalent towards the award of Swinburne Bachelor of Arts degree.

Such exemptions may be granted irrespective of the date of award and whether or not the completed qualification was taken in an Arts-related field.

The following are the entitlements for exemptions for applicants with completed qualifications:

<table>
<thead>
<tr>
<th>Category</th>
<th>Completed Qualification</th>
<th>Semester subjects or equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Bachelors degree of at least three (3) years full-time tertiary study (or equivalent).</td>
<td>6</td>
</tr>
<tr>
<td>(b)</td>
<td>Diploma of at least three (3) years full-time tertiary study (or equivalent).</td>
<td>6</td>
</tr>
<tr>
<td>(c)</td>
<td>Associate diploma of 2 years full-time tertiary study (or equivalent).</td>
<td>4</td>
</tr>
<tr>
<td>(d)</td>
<td>Graduate qualifications of at least one (1) year full-time tertiary study (or equivalent).</td>
<td>2</td>
</tr>
</tbody>
</table>

The Arts Faculty Board may consider applications based on qualifications not listed above and award exemptions as it deems appropriate.

Within the total unit value for exemptions granted on the basis of completed qualifications, an applicant may apply for exemptions from non-Arts related subjects taught by the Faculty of Arts, provided that the studies on which the exemption claim is based were completed less than ten (10) years prior to the date of the applicant’s admission to the Faculty of Arts.

Such named exemptions will only be granted following recommendations from the appropriate subject coordinators that the applicant has satisfied equivalent requirements for a pass in the named Swinburne subject(s).
Faculty of Arts

4. General
   Application for Exemption Forms are available from the Arts Faculty Office (BA915).
   It is the responsibility of the applicant to complete the Application for Exemption Form and attach it following
   information:
   (i) original transcripts (or notorised statement) showing results for those subjects in respect of which exemption is sought;
   (ii) information concerning the content of the subjects passed, e.g., handbook copy, course outlines or syllabuses, etc.
   Verified translations should accompany documents in languages other than English.
   Applications received which do not provide appropriate documentation will not be processed.

5. Subjects undertaken outside the Faculty in relation to exemptions
   Students who have been granted four or more exemptions must take all remaining subjects within the Faculty of Arts.
   Students with less than four exemptions may take some subjects outside the Faculty but the total of these subjects plus exemptions shall not exceed four.

6. Implementation
   All applications for exemptions are considered by the Exemptions Sub-committee. The Exemptions Sub-committee comprises the Chairman of the Arts Faculty Board, (or nominee) and the Assistant Registrar (Arts).
   Applications which are covered by the policy are presented to the Arts Faculty Board as ‘routine’ applications with a recommendation from the Exemptions Sub-committee for approval. Those which are not covered by the Faculty Board are presented to the Exemptions Sub-committee for the Arts Faculty Board’s consideration.

Terminology
   ‘Course’ — refers to the total of selected subjects in a complete diploma or degree.
   ‘Subject area’ — refers to the category under which specific studies are grouped (e.g., psychology, literature).
   ‘Semester subject’ — refers to a single half-year unit of study.
   ‘Full-year subject’ — refers to a subject which extends over two semesters in one academic year.
   ‘Major’ — within one subject area, a full-year of study at stages two and three.
   Students 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 in this handbook.

Studies constituting major strands
   In economics, 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, media studies, literature, philosophy and cultural inquiry and political studies, majors may be constructed with one or two semester subjects at stage one.
   In special cases a sequence of studies may be selected from two related subject areas to constitute a major.

Full-time students
   (a) A full-time student is usually required to enrol in eight semester subjects at stage one and six semester subjects at stages two and three. In special circumstances, permission may be granted to vary this requirement on application to the Sub-Dean (Students), Faculty of Arts.
   (b) In each year of study full-time students are expected to gain passes in at least six semester subjects in stage one, and at least four in each of stages two end three.

Part-time students
   (a) A part-time student is usually required to enrol in four semester subjects in one year. Permission may be granted to vary this requirement on application to the Sub-Dean (Students), Faculty of Arts.
   (b) A part-time student will be considered to have made satisfactory progress if he or she has achieved passes in three semester subjects in a given year.

Progress review
   A student who has failed to meet the foregoing requirements may be re-enrolled, with or without conditions, only after discussion with the Progress Review Committee.
   A student who has been recommended for exclusion from the course may appeal in writing to the Convener of the Progress Review Committee for special consideration.
   A student who feels aggrieved by the decision of the Progress Review Committee may appeal to the Dean of the Faculty.

Change of enrolment status
   Students may change their enrolment status from part-time to full-time, or vice versa, at the beginning of a semester. Applications should be made to the Sub-Dean (Students), Faculty of Arts.

Amendment to enrolment
   Students may amend their subject selection by completing an Amendment to Enrolment form which must then be approved by the Sub-Dean (Students), Faculty of Arts. Students will not be permitted to add or change subjects after the second week of classes. The Sub-Dean (Students) may permit late enrolment in exceptional circumstances.
   To withdraw from a subject or subjects students must lodge a completed Amendment to Enrolment form by the date specified for each semester, or a fail result will be recorded. For a subject which concludes at the end of the first semester — not later than 31 March 1993 For a subject which concludes
at the end of the second semester — not later than 31 August 1993. (For further details see under the section headed ‘Enrolment regulations’ pages 22 to 25.)

Leave of absence from all study

Bachelor of Arts

Students who wish to apply for leave of absence from the Bachelor of Arts degree course should complete an Amendment to Enrolment form and submit it to the Assistant Registrar (Arts). The application should clearly indicate the reasons for the request and the length of time for which leave is sought. For subjects which conclude at the end of first semester the form should be lodged not later than 31 March 1993. For subjects which conclude at the end of second semester — not later than 31 August 1993. Failure to make formal application before the specified date(s) will result in a fail being recorded for those subjects in which the student is enrolled, unless special permission to cancel the enrolment without penalty of fail has been given by the Sub-Dean (Students), Faculty of Arts.

Leave of absence of more than two consecutive semesters will not be approved.

A student who feels aggrieved by the decision concerning a request for leave of absence may appeal to the Dean of the Faculty.

Graduate Diploma

Usually, leave of absence is granted to graduate diploma students only if one semester of their course has been completed.

Withdrawal from all study

Students wishing to withdraw from all study must lodge a completed Amendment to Enrolment form at the Faculty of Arts Office (BA915), or the Student Administration Office, and return their identity cards. (For further details see under the section headed ‘Enrolment regulations’.)

Reading guides

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

Preliminary reading — introductory material which students are expected to read before the subject classes commence.

Textbooks — material essential to the subject, but students are advised not to purchase any textbooks 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.

Subject selection

The onus is on individual students (assisted by course advisers when enrolling) to have completed by the end of their stage three studies, a course which will entitle them to the award of a degree of Bachelor of Arts.

Faculty of Arts subject details are listed, at the end of this section in alpha numeric order. Provided that course requirements are observed, and provided that places in classes are available, subjects may be selected from the full range. Some subjects are offered at one Stage only and for that reason cannot form part of a major, e.g. AJ102 Introduction to Japan — A Cultural Overview.

Subjects taught by departments in other faculties and tertiary institutions may be taken only up to a maximum of four (4) semester subjects or equivalent. These subjects must have the approval of the Sub-Dean (Students) and the head of the department or the chair of the discipline within which the subject is offered.

In special and exceptional circumstances, the Arts Faculty Board may grant approval for more than four semester subjects to be taken outside the Faculty.

The Board may also make an exception in the case of languages and will consider applications from students who wish to take a major in a language other than English at another institution.

(For the purpose of this regulation the subjects SM278 and SM378, Design and Measurement 2A and 3A, and Economics are regarded as subjects within the Faculty of Arts.)

When attending to enrol, students are issued with detailed instructions to assist in planning a suitable course. All students are required to complete enrolment forms (indicating their subject selection for both semesters) and once approved, may not amend their enrolment without the approval of the Sub-Dean (Students), Faculty of Arts.

A student may not enrol for the third time in a subject which she or he has failed twice (N or NA result).

Subject corequisites (double major students)

Corequisites for subjects (both semester subjects and full-year subjects) are indicated in the details for the particular subject. These corequisite subjects must either be completed before students take subjects from stage three, or else studied concurrently with the stage three subject. Any divergence from this requirement must have the approval of the subject convenor concerned and the Sub-Dean (Students), Faculty of Arts.

Subject prerequisites

Prerequisites for subjects (both semester subjects and full-year subjects) are indicated in the details for the particular subject. These prerequisites must be completed before students may take subjects from stages two and three. Any divergence from this requirement must have the approval of the subject convenor concerned and the Sub-Dean (Students), Faculty of Arts.

Time allocations per week

Each semester subject runs for thirteen weeks. Stage one and stage two subjects involve approximately three hours per week of class attendance and stage three subjects, three to four hours per week of class attendance. More class time is usually required for those subject areas which incorporate laboratory or workshop requirements, for example, Italian, Japanese, Korean, psychology and sociology.

Places in class

Students must ratify their places in a subject by attending class in the first week of the semester or contacting the convenor of the subject before the end of the first week. Otherwise, the place may be made available to another student.

The names of the conveners are on the timetable and there is a list at the Faculty Office. Attendance at classes for which a student has not enrolled does not constitute a ground for later enrolment in that subject.

Submission of assignments

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

Assessment

The details of the methods of assessment for each subject are issued by the lecturers in charge. Usually, a combination of progressive assessment and examinations is employed.

Scholarships and Prizes

Study in Japan Scholarship

Awarded to assist students who are either postgraduate or Stage 3 level, to study in Japan. Applications close in June. Value: may include return air fare to Japan and tuition fees.
The student who has completed with overall distinction a fourth APS Awarded by the Australian Psychological Society to the Prizes These are awarded in the fields of social science, mathematics and civil engineering. 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.

**Eastern Campus**
Edinburgh Road, Lilydale 3140
The Faculty of Arts offers a BA degree program at the Eastern Campus. Students enrolled here may take majors in psychology, media studies, sociology, philosophy and cultural inquiry, and political studies. Currently Eastern Campus students who wish to study a language (Japanese, Korean, Italian) and/or literature must secure a place on the Hawthorn campus and be prepared to travel between campuses. One or more of these subjects may be offered on the Eastern Campus in 1993.

Classes are offered to full-time and part-time students in the day only on the Eastern Campus.

Enquiries regarding the Bachelor of Arts program at the Eastern Campus can be directed to the Arts/Business Administrative Officer (728 7132), the Arts Program Director — Eastern Campus (728 7133), or the Swinburne Publicity and Information Unit (819 8444).

**Disciplines in the Faculty of Arts**
Within the Faculty of Arts there are six disciplines, and one department, each responsible for different course studies in specific subject areas. They are:

- **Asian Languages and Cultures**
  - Japanese
  - Korean
  - Vietnamese

- **Italian Language and Culture**
  - Italian

- **Media, Literature and Film**
  - Literature
  - Media Studies

- **Philosophy and Cultural Inquiry**

- **Political Studies**

- **Sociology**

- **Department of Psychology**

UNLESS STATED OTHERWISE ALL SUBJECTS ARE SEMESTER SUBJECTS.

**Undergraduate courses**

**Bachelor of Arts — course descriptions**

**Interdisciplinary Majors**
The Faculty of Arts offers two interdisciplinary majors, in Asian Studies and Australian Studies.

**Asian Studies**
Asian Studies incorporates subjects from Political Studies and Asian Languages and Cultures. The major focuses on contemporary-Ash, with emphasis on 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**

<table>
<thead>
<tr>
<th>Code</th>
<th>Stage 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>AK102</td>
<td>Introduction to Japan — A Cultural Overview</td>
</tr>
<tr>
<td>AK103</td>
<td>Background to Korean Society</td>
</tr>
<tr>
<td>AP104</td>
<td>Australia and Southeast Asia</td>
</tr>
<tr>
<td>AP111</td>
<td>Modern China</td>
</tr>
<tr>
<td>AP113</td>
<td>Asia: Politics and Development</td>
</tr>
</tbody>
</table>

**Stage 2**

<table>
<thead>
<tr>
<th>Code</th>
<th>Stage 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>AK202</td>
<td>Contemporary Korean Society</td>
</tr>
<tr>
<td>AK207</td>
<td>Modern Korea</td>
</tr>
<tr>
<td>AP204</td>
<td>Europe, Capitalism and the Third World</td>
</tr>
<tr>
<td>AP206</td>
<td>Modern Japan</td>
</tr>
</tbody>
</table>

**Stage 3**

<table>
<thead>
<tr>
<th>Code</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP304</td>
<td>Japan in Asia</td>
</tr>
<tr>
<td>AP311</td>
<td>Politics of China A</td>
</tr>
<tr>
<td>AP312</td>
<td>Problems of Contemporary Southeast Asia</td>
</tr>
<tr>
<td>AP313</td>
<td>India: Uneven Development</td>
</tr>
</tbody>
</table>

**Australian Studies**

As an interdisciplinary major, Australian Studies allows students to explore the contours of modern Australia by taking a combination of three compulsory and choosing three optional semester subjects 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. For example, students who wish to take AL302 Australian Literature — 19th Century and AL303 Australian Literature — 20th Century for their Australian Studies major must have completed AL202 Contemporary Australian writing. Similar conditions apply to subjects offered by other disciplines.

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**

<table>
<thead>
<tr>
<th>Code</th>
<th>Stage 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL112</td>
<td>Australian Identities (compulsory)</td>
</tr>
<tr>
<td>AP100</td>
<td>Australian Politics</td>
</tr>
</tbody>
</table>

**Stage 1**

<table>
<thead>
<tr>
<th>Code</th>
<th>Stage 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL202</td>
<td>Contemporary Australian Writing</td>
</tr>
<tr>
<td>AM207</td>
<td>Cultural Representation in Australia</td>
</tr>
<tr>
<td>AH206</td>
<td>Society, Culture and Resources</td>
</tr>
<tr>
<td>AS200</td>
<td>Social-Change</td>
</tr>
<tr>
<td>AS204</td>
<td>Models of Sociological Analysis</td>
</tr>
</tbody>
</table>
Stage 1

AP314 Work in Australia (compulsory)
AL302 Australian Literature — 19th Century
AL303 Australian Literature — 20th Century
AM306 Cinema Studies
AH306 Practical Ethics
AH307 Australian Science and Society
AP306 Seminar in Political Studies
AS304 Sociology of Minorities
AS307 Sociology and Social Policy

ASIAN LANGUAGES AND CULTURES

Japanese

With the deepening of relations between Australia and Japan on many levels, 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 is 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 Introduction to Japan — A Cultural Overview, 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 second semester concurrently with AJ104, Japanese 1B and AJ106, Advanced Japanese 1B;

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

AP204, Modern Japan, offered by the Social and Political Studies Department 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. Students with native proficiency in a language taught at Swinburne will not normally be eligible to enrol in that language.

Subjects offered

Code

Stage 1

AJ102 Introduction to Japan — A Cultural Overview
AJ103 Japanese 1A
AJ104 Japanese 1B
AJ1105 Advanced Japanese 1A
AJ1106 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

AJ301 Japanese 3B
AJ1302 Work Experience in Japan (only available to BBus/BA (Japanese) students)
AJ1303 Japanese 3C
AJ1304 Japanese 3D
AJ305 Advanced Japanese 3C (not offered in 1993)
AJ1306 Advanced Japanese 3D (not offered in 1993)

Korean

The course offers the opportunity to study the systematic language training in Korean, and to read and 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, AK303, AK304, and AK301 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 AK102 — Background to Contemporary Korean Society, which is offered in Semester 2. This course 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.

If a student requests exemption from any part of a Korean subject no credit will be granted unless the student has previously completed studies which are part of a degree program studied at a recognised institution.

Subjects offered

Stage 1

AK103 Korean 1
AK104 Korean 2
AK106 Background to Contemporary Korean Society

Stage 2

AK203 Korean 2A
AK204 Korean 2B
AK205 Contemporary Korean Society
AK206 Modern Korea

Stage 3

AK303 Korean 3C
AK304 Korean 3D
AK301 Korean 3B

Vietnamese

In 1993 the Faculty of Arts will offer stage one and stage two subjects of a major sequence in Vietnamese. The course 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 AV305 at stage three. Normally AV303 and AV304 are taken prior to or concurrently with AV305. Students related to Vietnamese studies may also be offered, and students are advised to check with the Faculty 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

Code

Stage 1

AV103 Vietnamese 1A
AV104 Vietnamese 1B

Stage 2

AV203 Vietnamese 2A
AV204 Vietnamese 2B

Stage 3

AV303 Vietnamese 3A
AV304 Vietnamese 3B
AV305 Vietnamese 3C

Stage 3 subjects will not be offered in 1993.

Note: Students whose stage two results are credit or above in either the Beginners or the Advanced streams may choose to study the equivalent of AJ303, AJ304, AJ305 at an approved tertiary institution in Japan. A scholarship scheme has been established to enable students to undertake this alternative.
ITALIAN LANGUAGE AND CULTURE

Italian

This course is designed to acquaint students with Italian, an important commercial, community and cultural language. The broad aim is to enable students to communicate with Italians, on both linguistic and cultural levels. The major study in Italian therefore strongly emphasizes 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 or two streams offered; a beginner's 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 prior to, or concurrently with AA311.

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 prior to, or concurrently with AA311.

Students undertaking a major in Italian are also strongly advised to enrol for AA102 Understanding Italy and AA205 The European Community.

The following subjects related to Italian studies are also offered:

- AA208 Twentieth Century European Literature and Thought
- AA308 Italian Business Practice.

It should be noted that the Italian major is sequential in nature. Therefore students must complete both subjects in stage one Italian before enrolling in the stage two subjects and these, in turn, must be completed before enrolling in the stage three subjects.

Students should note that in first year, semester two, AA107 and AA110 are each worth two semester subjects toward their degree subject total and that AA311 is a full-year subject (equivalent value 1 semester subject).

An Honours program in Italian is available and M.A. and Ph.D. programs by research and thesis in Italian are currently being offered. A double degree Bachelor of Business/Bachelor of Arts (Italian) is also available.

Subjects offered

<table>
<thead>
<tr>
<th>Code</th>
<th>Stage</th>
<th>Subjects offered</th>
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</thead>
<tbody>
<tr>
<td>AA102</td>
<td>stage 1</td>
<td>Understanding Italy</td>
</tr>
<tr>
<td>AA106</td>
<td>Advanced Italian 1A or AA109 Italian 1X</td>
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</tr>
<tr>
<td>AA107</td>
<td>Advanced Italian 1B or AA110 Italian 1Y</td>
<td></td>
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<tr>
<td>AA205</td>
<td>The European Community</td>
<td></td>
</tr>
<tr>
<td>AA206</td>
<td>Advanced Italian 2A or AA209 Italian 2X</td>
<td></td>
</tr>
<tr>
<td>AA207</td>
<td>Advanced Italian 2B or AA210 Italian 2Y</td>
<td></td>
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<tr>
<td>AA208</td>
<td>Twentieth Century European Literature and Thought</td>
<td></td>
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<tr>
<td>AA306</td>
<td>Advanced Italian 3A or AA309 Italian 3X</td>
<td></td>
</tr>
<tr>
<td>AA307</td>
<td>Advanced Italian 3B or AA310 Italian 3Y</td>
<td></td>
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<tr>
<td>AA308</td>
<td>Italian Business Practice</td>
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<tr>
<td>AA311</td>
<td>Modern Italy</td>
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</tbody>
</table>

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 we live in.

A literature major consists of either Nineteenth or Twentieth Century literature at stage one, followed by a combination of any two of Contemporary Australian Writing, Renaissance Literature, and Reading, Writing and Criticism at stage two, and three of the following stage three subjects, Nineteenth Century Australian Literature, Twentieth Century Australian Literature, Cross-Cultural Perspectives and Literature of the United States.

Subjects offered

<table>
<thead>
<tr>
<th>Code</th>
<th>Stage</th>
<th>Subjects offered</th>
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</thead>
<tbody>
<tr>
<td>AL100</td>
<td>Stage 1</td>
<td>Twentieth Century Literature</td>
</tr>
<tr>
<td>AL101</td>
<td>Nineteenth Century Literature</td>
<td></td>
</tr>
<tr>
<td>AL202</td>
<td>Contemporary Australian Writing</td>
<td></td>
</tr>
<tr>
<td>AL203</td>
<td>Renaissance Literature</td>
<td></td>
</tr>
<tr>
<td>AL204</td>
<td>Reading, Writing and Criticism</td>
<td></td>
</tr>
<tr>
<td>AL302</td>
<td>Australian Literature — 19th Century</td>
<td></td>
</tr>
<tr>
<td>AL303</td>
<td>Australian Literature — 20th Century</td>
<td></td>
</tr>
<tr>
<td>AL304</td>
<td>Cross-cultural Perspectives</td>
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<tr>
<td>AL305</td>
<td>Literature of the United States</td>
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</tbody>
</table>

Media Studies

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

The course is arranged in two streams. The first stream, introduced by AM102, is concerned with textual analysis, cultural studies and critical theory, focusing mainly on film and TV. After completing AM102, students taking this stream may choose to select two semester subjects from AM203, AM205, AM206 and AM207. They may then choose three from AM300, AM302, AM303, AM306 and AM309. The second stream, introduced by AM103, concentrates on the media as a social institution, covering media ownership and regulation, the history of broadcasting and the role of telecommunications in contemporary society. After completing AM102, students taking this stream may choose two semester units from AM202, AM205, AM206 and AM207. They may then choose three from AM302, AM303, AM306, AM307 and AM309.

Whilst planning of streams is desirable, students need only complete one stage one subject, either AM102 or AM103, as a prerequisite for stage two.

Students wishing to select later year subjects from both streams should specialise in one, rather than specialising in one, or both for stage 1 prerequisites (AM102 and AM103). The hands-on production subjects are available to students in both streams.

Enrolment into AM306, which is applicable to both streams, is based on selection from applicants at the end of first semester.

Subjects offered

<table>
<thead>
<tr>
<th>Code</th>
<th>Stage</th>
<th>Subjects offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM102</td>
<td>Stage 1</td>
<td>Media &amp; Meanings: An Introduction</td>
</tr>
<tr>
<td>AM103</td>
<td>Broadcast Media: Issues &amp; Accountability</td>
<td></td>
</tr>
<tr>
<td>AM202</td>
<td>The Fifth Estate: New Media</td>
<td></td>
</tr>
<tr>
<td>AM203</td>
<td>Gender &amp; Culture</td>
<td></td>
</tr>
<tr>
<td>AM205</td>
<td>Special Issues in Media</td>
<td></td>
</tr>
<tr>
<td>AM206</td>
<td>Making News: The Theory &amp; Practice of Journalism</td>
<td></td>
</tr>
<tr>
<td>AM207</td>
<td>Cultural Representation in Australia</td>
<td></td>
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</tbody>
</table>

Faculty of Arts
Political studies is concentrated into two principal areas. Australian and Asian. The subjects offered set the political and historical dimensions of the societies studied in the broad economic and social contexts.

Students may choose from a variety of subjects, but there are three themes around which they may decide to concentrate their studies. They are:

(a) the politics of modern industrial society with an emphasis on Australian politics and society e.g. AP100, AP101, AP112, AP200, AP201, AP207, AP303, AP308, and AP314.

(b) social and political change in Asia e.g. AP104, AP111, AP204, AP206, AP304, AP307, AP311 and AP312.

(c) political economy of capitalist development with examples from Third World and industrialised societies e.g. AP113, AP202 and AP313.

The political studies area allows a critical and evaluative view of the whole structure of our society in the late twentieth century. By focusing on Australian society and, at the same time, providing a variety of perspectives on Asia, the subject area defines our position in our own society more sharply and conveys some understanding of our relationships with Asian neighbours.

Students may take single semester subjects, a major, or a double major in political studies. A major consists of at least one semester subject at stage one, at least two semester subjects at stage two and three semester subjects at stage three.

A double major consists of at least two semester subjects at stage one, at least four semester subjects at stage two and six semester subjects at stage three.

In stage one students may enrol in one or more of the six semester subjects at stage one, two, three semester subjects at stage two, three semester subjects at stage three.

Students are advised to examine carefully the prerequisites for Stage two and three subjects before planning their courses.

Subjects offered

<table>
<thead>
<tr>
<th>Code</th>
<th>Stage</th>
<th>Subjects offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>AH100</td>
<td>Stage One</td>
<td>Introduction to Philosophy</td>
</tr>
<tr>
<td>AH101</td>
<td>History of Ideas</td>
<td></td>
</tr>
<tr>
<td>AH102</td>
<td>Theories of the Universe</td>
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<tr>
<td>AH103</td>
<td>Critical Thinking</td>
<td></td>
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<tr>
<td>AH201</td>
<td>Mind Language and Thought</td>
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</tr>
<tr>
<td>AH202</td>
<td>Nature and Human Nature</td>
<td></td>
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<tr>
<td>AH203</td>
<td>Philosophy of Culture</td>
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<tr>
<td>AH204</td>
<td>Social Philosophy, Politics and Ethics</td>
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<tr>
<td>AH205</td>
<td>Nature and Human Nature</td>
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<tr>
<td>AH206</td>
<td>Society Culture and Resources</td>
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<td>AH207</td>
<td>Critical Thinking</td>
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<td>AH301</td>
<td>Rationality</td>
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<td>AH306</td>
<td>Practical Ethics</td>
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<tr>
<td>AH307</td>
<td>Australian Science and Society</td>
<td></td>
</tr>
<tr>
<td>AH308</td>
<td>Special Studies of Science</td>
<td></td>
</tr>
<tr>
<td>AH309</td>
<td>Special Topics in Philosophy</td>
<td></td>
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<tr>
<td>AH310</td>
<td>Approaches to Culture</td>
<td></td>
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<tr>
<td>AH311</td>
<td>Environmental Philosophy</td>
<td></td>
</tr>
<tr>
<td>AH312</td>
<td>Natural Philosophy and the Sciences</td>
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<tr>
<td>AH313</td>
<td>Knowledge, Science and Reality</td>
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</tbody>
</table>

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 APY100 Psychology 100 and APY101 Psychology 101. Each of these subjects comprises practical work and 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 pre requisite 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** and all other subjects in psychology are worth one semester subject.

A co-major in psychology and psychophysiology is taught jointly by the Departments of Psychology and Physics. Places on this program are strictly limited and entry to the program is either via the Faculty of Arts leading to the award of a Bachelor degree or via the Faculty of Applied Science 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 or more closely with psychologists. In order to be regarded as a professionally-trained psychologist in Australia it is becoming increasingly necessary to be eligible for membership of the Australian Psychological Society (APsS). The minimum academic requirement for associate membership of the APsS is completion of an accredited four-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 and, to become eligible for associate membership of the APsS, graduates must then complete an approved fourth-year course. (A list of approved courses is published in each volume of the APsS journal Australian Psychologist.) 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 Department holds a fifth and sixth year full-time coursework program leading to the award of a Master of Arts degree in Counselling Psychology. In 1993, subject to approval and accreditation, the Department will introduce a Doctor of Psychology degree in Counselling Psychology by coursework and thesis, available for full-time study by selected students.

The Department 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**

**Code**

**AY100** Psychology 100

**AY110** Psychology 101

**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 **AY313** Cognition and Human Performance)

**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)

**Co-Major in Psychology and Psychophysiology**

Students accepted into the co-major through the Faculty of Arts 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**, and **SM278**, and in third year, **AY312**, **AY319**, **AY320**, and **SM378**.

The major in psychophysiology is taught by the Faculty of Applied Science. Students should consult the Faculty of Applied Science section of the handbook for details of the psychophysiology subjects constituting this major.

**SOCIOLGY**

The sociology course is designed to provide an understanding of the social world in which we live and work. It deals with the individual's place in society and the social processes and institutions which shape individual and group behaviour and attitudes. Developing an understanding of these issues is not only intellectually rewarding but also important in a career sense. The conceptual and research skills acquired through the study of sociology are important in such employment areas as personnel management, social research, policy analysis and industrial relations.

In stage one Sociology, basic concepts of sociology are explained by reference to the sociological analysis of contemporary Australian society. This is a full-year 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, and must include **AS204** Models of Sociological Analysis as one of these.

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

For those students intending to pursue a career in research and policy analysis the Graduate Diploma in Urban Research and Policy is offered.

Sociology also offers a Graduate Diploma in Equal Opportunity Administration. Details for both of these Diplomas can be found in the section on Post-graduate Courses.

Sociology also accepts suitably qualified applicants for the degree of Master of Arts and PhD in Sociology by research and major thesis.
Subjects offered

Code

Stage 1
AS100 sociology 1A
AS101 Sociology 1B

Stage 2
AS200 Social Change
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
AS304 Sociology of Minorities
AS306 Methodology of Social Research
AS307 Social Research and Policy
AS308 Migration and Ethnicity

Faculty of Business

Studies in economics are available to Arts students:

Economics

Economics is offered as a major in the Bachelor of Arts course. Arts students intending to take an economics major must discuss their overall study program with a course adviser in the Faculty of Arts to ensure that their study plans will satisfy the requirements for a degree. The Department of Economics offers a wide range of subjects in order to qualify for the award of two degrees. Details of the Business specialisations available for combination with Economics are as detailed in the Faculty of Business section on pages 158-161.

The subjects offered within the Arts Faculty are as follows:

A058 Double Degree Bachelor of Business/Bachelor of Arts (Italian)

The double degree Bachelor of Business/Bachelor of Arts (Italian) is of four years’ (32 units) duration and is designed to complete the compulsory requirements for any of the Business degree streams together with the full range of the available Italian subjects in order to qualify for the award of two degrees.

Details of Business specializations available for combination with Italian are as detailed in the Faculty of Business section on pages 158-161.

The subjects offered within the Arts Faculty are as follows:

Beginner’s stream
AA109 Italian 1X
AA110 Italian 1Y
AA120 Italian 2X
AA121 Italian 2Y
AA209 Italian 3X
AA310 Italian 3Y

Advanced stream
AA106 Advanced Italian 1A
AA107 Advanced Italian 1B
AA206 Advanced Italian 2A
AA207 Advanced Italian 2B
AA306 Advanced Italian 3A
AA307 Advanced Italian 3B

Both streams
AA102 Understanding Italy
AA205 The European Community
AA206 20th Century European Thought
AA306 Italian Business Practice
AA311 Modern Italy

The elective subject(s) may be taken from either the Faculty of Arts or Business.

A059 Double Degree Bachelor of Business/Bachelor of Arts (Korean)

The double degree Bachelor of Business/Bachelor of Arts (Korean) is of four years’ (32 units) duration and is designed to complete the compulsory requirements for any of the Business degree streams together with the full range of the available Korean subjects in order to qualify for the award of two degrees.

Details of Business specializations available for combination with Korean are as detailed in the Faculty of Business section on pages 158-161.

The subjects offered within the Arts Faculty are as follows:

AK103 Korean 1A
AK104 Korean 1B
AK205 Korean 2A
AK206 Korean 2B
AK303 Korean 3A
AK304 Korean 3B
AK305 Background to Contemporary Korean Society
AK306 Contemporary Korean Society
AK309 Modern Korea

The elective subject(s) may be taken from either the Faculty of Arts or Business.

Double Degree Bachelor of Business/Bachelor of Arts (Vietnamese)

This course will be offered in 1993 subject to accreditation. The double degree Bachelor of Business/Bachelor of Arts (Vietnamese) is of four years’ (32 units) duration and is designed to enable students to complete the compulsory requirements for any of the Business degree streams together with the full range of the available Vietnamese subjects in order to qualify for the award of two degrees.

Details of the Business specialisations available for combination with Vietnamese are as detailed in the Faculty of Business section on pages 158-161.

The subjects offered with the Faculty of Arts are as follows:

AV103 Vietnamese 1A
AV104 Vietnamese 1B
AV203 Vietnamese 2A
AV204 Vietnamese 2B
AV303 Vietnamese 3A
AV304 Vietnamese 3B
AV305 Vietnamese 3C

The elective subject(s) may be taken from either the Faculty of Arts or Business.

A057 Double Degree Bachelor of Business/Bachelor of Arts (Japanese)

The double degree Bachelor of Business/Bachelor of Arts (Japanese) is of four years’ (32 units) duration and is designed to enable students to complete the compulsory requirements for any of the Business degree streams together with the full range of the available Japanese subjects in order to qualify for the award of two degrees.

Details of the subjects available for combination with Japanese are as detailed in the Faculty of Business section on pages 158-161.

Beginner’s stream
AJ103 Japanese 1A
AJ104 Japanese 1B
AJ120 Japanese 2A
AJ121 Japanese 2B
AJ301 Japanese 3B
AJ303 Japanese 3C
AJ304 Japanese 3D

Advanced stream
AA105 Advanced Japanese 1A
AA106 Advanced Japanese 1B
AA120 Advanced Japanese 2A
AA121 Advanced Japanese 2B
AA130 Advanced Japanese 3A
AA130 Advanced Japanese 3B

Both streams
AA102 Introduction to Japan
AA120 Communication in Japanese
AP204 Modern Japan
AK301 Japanese 3B
AJ102 Work Experience in Japan (elective)

The elective subject(s) may be taken from either the Faculty of Arts or Business.
Bachelor of Arts (Honours)
The Faculty of Arts offers a BA honours degree to selected students. This is a fourth year, research-oriented course open to students who have completed the requirements for a three year BA degree. The course will require one year of full-time study or two years of part-time study. Students will be required to complete both coursework and thesis requirements in one of four strands depending on the subjects in which they majored.

Cultural Studies: For students who have majored in Literature, Media Studies, Philosophy and Cultural Inquiry, or Political Studies.

Languages: For students who have majored in Italian, Japanese or Korean.

Psychology: For students who have majored in Psychology.

Social Sciences: For students who have majored in Media Studies, Political Studies or Sociology.

To be accepted for the honours degree, students must have completed all subjects necessary for a three year BA 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 consult the Honours Program Coordinator (available from the Arts Faculty Office) and submit it by a date in November to be advised.

To achieve a BA(Hons) 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 subject, 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%
- Third Class Honours (H3)

Staff responsible for the Honours Program:

Convenor, Cultural Studies Strand, Dr. Arran Gare
Convenor, Languages Strand, Dr. Alina Skoutarides
Convenor, Psychology Strand, Dr. Glen Bates
Convenor, Social Science Strand, Mr. Kelvin Rowley

Postgraduate courses

NO84 Graduate Diploma in Applied Psychology

The course is offered as a one year full-time or two years 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:

(a) to enable students to understand and apply the principles of social science which underlie the discipline of psychology;
(b) to enable students to acquire knowledge of the principles of social and behavioural science research design and analysis;

(c) to enable students to extend skills in formulating research problems, gathering and analysing data, interpreting and communicating research findings;
(d) to enable students to acquire advanced knowledge in selected topic areas within psychology and applied psychology, building upon and extending basic undergraduate preparation;
(e) 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;
(f) to prepare students for entry level work as psychologists-in-training under supervision in occupational fields such as applied social research, the human services, and human resources.

Entrance requirements

Application for the Graduate Diploma is made on the Institute's standard graduate studies application form. Applicants with good undergraduate grades in psychology are interviewed by the Graduate Diploma Program Co-ordinator. The Co-ordinator 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:
1. (a) be qualified for the award of a degree at an Australian university or college of advanced education; and
(b) have completed a three-year major sequence of studies in psychology in a course, or courses, approved by the Australian Psychological Society, or have equivalent overseas qualifications.

In those cases where an applicant meets the requirement of (a) above, but does not meet the requirement of (b), 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 9 subjects which vary in their unit weighting. This weighting reflects the work requirements of each subject in the program. Students must complete 8 of these subjects. This course structuring ensures that all students develop basic competencies in research and analysis and an understanding of the ethical, moral, legal and social responsibilities of psychologists engaged in social and applied research and professional practice.

There is considerable scope for students to exercise their preferences for particular topics in choosing amongst options within subjects.

The subjects offered and their unit values are as follows:

"Course Units"

- AY400 Applied Social Psychology 3
- AY411 Research Design and Analysis 2
- AY412 Research Project and Thesis 4
- AY414 Computer Use in Psychology 6
- AY426 Assessing Persons and the Environment 2
- AY422 Ethics and Professional Issues 3
- AY423 Special Applications; (Placement) OR 2
- AY425 Personality and Social Development 2

The course can be completed in one year of full-time study extending across two semesters. In first semester students will be involved in 12 hours of class contact time per week. In second semester students will be involved in 5 hours of weekly class contact time and will also be consulting regul-
narily with an academic supervisor about data analysis for the research project and the writing of the thesis. Typically, time will also be spent undertaking a work placement during the second semester.

The course can also be completed in two years of part-time study, devoting over four semesters. Part-time students usually have weekly class contact hours as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

Students will also be involved in weekly consultation with an academic supervisor about data analysis for the research project and the writing of the thesis.

Typically, time will also be spent undertaking a work placement during the final semester.

NO86 Graduate Diploma in Equal Opportunity Administration

This graduate diploma is offered as a one year full-time or two years' part-time course. It has been designed to meet the training and education needs associated with legislative and social initiatives in equal opportunity and affirmative action.

The objectives of the course are:

(a) to develop an understanding of the principles and operation of equal opportunity through exploration of key issues and practical experiences;

(b) to increase understanding of organisations, including their systems and operations;

(c) to provide participants with analysis of case studies and to assist with the development and implementation of similar initiatives within organisations which they choose to study;

(d) to provide a range of skills that are necessary for successful equal opportunity program administration: researching, information gathering, change agent skills, facilitating skills, developing personnel systems, networking, decision-making, report writing and communication skills;

(e) to increase the confidence and competence of equal opportunity practitioners;

(f) to contribute to improvements in the quality of equal opportunity initiatives in the state.

Admission requirements

Applicants should hold a degree or diploma from an approved tertiary institution, but others having particularly relevant experience or qualifications will be encouraged to apply and will be considered for entry.

Applicants' experience in the following areas will be taken into account in selection of participants:

- Work with groups with special needs
- Personnel management
- Industrial relations
- Unions
- Equal Opportunity programs or related fields

Personal interviews may be conducted to ensure that the final selection of participants is based on individual merit.

Course structure

The course consists of four compulsory semester subjects. The subjects are as follows:

- AE400 Principles of Equal Opportunity and the State
- AE401 Data Usage and Evaluation
- AE402 Equal Opportunity and the Workplace
- AE403 Equal Opportunity Implementation

NO83 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. Specific training is focused on reading, aural comprehension and speaking.

The course has been planned so that students who have completed an undergraduate program in can further their knowledge of the Japanese language and reach a stage where they have linguistic competence to deal with a wide variety of topics in the written and spoken language. Development of competence in grammar, particularly the understanding of long and complex sentence structures, and the acquisition of a wider vocabulary range, including a large number of characters, is essential. Students become familiar with a wide variety of journalistic and written styles found in newspapers. Training in precise 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:

(a) general problems and trends as they are analysed by Japanese writers within the framework of the society as a whole; and
(b) the validity of assertions and generalisations which are made by Japanese, as well as by foreign writers.

Entrance requirements

Application for the Graduate Diploma is made on the Arts Faculty application form available from the Faculty of Arts office.

Applicants must have a degree with a major in Japanese language, or equivalent, from a recognised university, college or institute. All applicants are assessed by a selection committee and in certain cases may be required to complete appropriate units 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 and each 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 Japanese society and culture, and on business and politics are offered in alternative years. Reading materials are available from the course co-ordinators. In all subjects students are required to complete one research project and two tests per semester.

The subjects offered at present are:

- A1400 Japanese Society A
- A1401 Japanese Society B
- A1402 Japanese Culture A
- A1403 Japanese Culture B
- A1404 Japanese Business and Industry A
- A1405 Japanese Business and Industry B
- A1406 Japanese Politics A
- A1407 Japanese Politics B

Preliminary reading


References

NO87 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

Application for the Graduate Diploma in Japanese for Professionals is made on the Faculty of Arts application form available from the Faculty of Arts office.

Applicants must have a degree, and be employed, or have prospects of 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.

Course structure

The course entails two years of part-time study.

Language Component: six hours per week over four semesters.

Year 1

The language component in Year 1 is basic aural comprehension and reading/writing, which provide students with the basic knowledge of the mechanics of the language.

Sem. 1  AJ420
Sem. 2  AJ421

Year 2

The language component at the second year level is divided into a 'core' segment of advance grammar taken together by all students, and a segment in which the language pertinent to the students' professional needs is studied through reading and conversation.

Sem. 1  AJ422
Sem. 2  AJ433

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.

NO85 Graduate Diploma in Urban Research & Policy

This course is designed to supplement students' general education by providing them 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:

(a) the analysis of Australian urban development and the social and economic problems that derive from this development;

(b) the formation and characteristics of national, state, and metropolitan policies affecting the urban environment;

(c) the use of techniques and skills relevant to urban research and planning, policy formulation and evaluation.

Entrance requirements

Application for the Graduate Diploma in Urban Research & Policy is made on the Faculty of Arts application form.

Applicants must hold a degree or diploma from an approved tertiary institution, including major studies in at least one of

NO90 Master of Arts (by research)

The degree of Master (by research and thesis) may be undertaken within the Faculty. Applications for masters candidature may be made by persons whose first degree or diploma has been completed at a sufficiently meritorious standard or whose background and experience is considered suitable. In the first instance, enquirers should be directed to the Head or Chair of the appropriate discipline.

Course objectives

Graduates of the course will be able to:

(a) assess the current level of psychosocial functioning of individuals, groups, couples and families and formulate appropriate helping interventions;

(b) provide counselling help to individuals, groups, couples and families experiencing difficulties connected with relationships, education, careers, work, marriage, parenting, crises, and life-transitions;

(c) evaluate and monitor the quality of helping services provided by a counselling services unit;

(d) provide consulting help to individuals, organisations and community groups in relation to psychosocial development and adaptation.

Entrance requirements

There is an intake of 20 students into the course every two years. The next intake will be for the 1994 academic year. In the event of course vacancies occurring, it may be possible for individual students to be admitted to the program before a scheduled intake. Application for the course is made on the form available from the Psychology Department. 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 or college of advanced education, and (b) have
completed a four-year sequence of studies in psychology in
a course, or courses, approved by the Australian Psycho-
logical Society’s Course Development and Accreditation
Committee (as published in the Society’s Bulletin) OR hold
overseas qualifications recognised as equivalent for the
purpose of Associate Membership by the Australian Psycho-
logical Society’s Membership Committee.

**Satisfactory Progress**
Students’ progress will be monitored by the Department’s
Graduate Studies Committee. A student who is given an N
or NA grade for a unit 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 practical work
(25%); an empirical research project (25%).

The overall structure of the course will be as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Semester</th>
<th>Course Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>AY500 Human Services Research and Evaluation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AY501 Development and Adaptation</td>
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<tr>
<td></td>
<td></td>
<td>AY502 Psychological Assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AY503 Research Colloquium</td>
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<tr>
<td>2</td>
<td>1</td>
<td>AY504 Counselling Theory and Skills</td>
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<tr>
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<td>AY505 Counselling Psychology A: Psychology of Work, Health Psychology</td>
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<td>AY507 Counselling Psychology B: Psychology of the Family, Educational Counselling</td>
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<td>AY600 Professional. Ethical &amp; Legal Issues</td>
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<td>AY601 Group Counselling Skills</td>
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<td>AY602 Supervised Practicum — Internship A</td>
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<td>AY603 Aspects of Professional Practice</td>
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<td>AY604 Supervised Practicum — Internship B</td>
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<td>AY605 Submission of research project report</td>
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Three of the coursework units 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, Educational Counselling.

Five of the coursework units comprise professional skill
development training:

- Human Services Research and Evaluation
- Psychological Assessment
- Counselling Theory and Skills
- Counselling Applications
- Group Counselling Skills

There is a coursework unit examining Professional and Ethical
Issues.
AA106  Advanced Italian 1A
Semester subject
Six hours per week
Prerequisite: VCE, Italian or approved equivalent
Assessment is partly continuous, partly by examination

Subject aims and description
The program has been planned in order to develop students’ conversation skills and proficiency in writing standard Italian. Through a detailed critical analysis of contemporary literature, students will improve their competence in grammar, vocabulary and idioms.

Textbooks

References

AA107  Advanced Italian 1B
Semester subject — equivalent value 2 semester subjects
Six hours per week
Prerequisite: AA106 or AA109
Assessment is partly continuous, partly by examination

Subject aims and description
The program has been planned in order to develop students’ conversation skills and proficiency in writing standard Italian. Through a detailed critical analysis 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
Semester subject
Six hours per week
Prerequisite, nil
Assessment is partly continuous, partly by examination

Subject aims and description
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

AA110  Italian 1Y
Semester subject — equivalent value 2 semester subjects
Six hours per week
Prerequisite, AA109 or approved equivalent
Assessment is partly continuous, partly by examination

Subject aims and description
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. The aim of the course is to extend the work begun in semester one.

AA205  The European Community
Semester subject
Three hours per week, evening only
Prerequisite, any stage one BA subject
Assessment is continuous

Subject aims and description
The course will identify the key factors which determined European politics from 1945 and will analyse the social, political and economic changes in post-war Europe. It will include the effects of the completion of the European Market 1993 with a particular emphasis on Italy as a Member of the European Community.

Textbooks
Lane, P. Europe Since 1945. Thames Hudson, 1985

AA206  Advanced Italian 2A
Semester subject
Six hours per week
Prerequisite, AA107 or approved equivalent
Assessment is partly continuous, partly by examination

Subject aims and description
The course aims to consolidate students’ advanced Italian language knowledge 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.

Textbooks
A novel to be advised.

AA207  Advanced Italian 2B
Semester subject
Six hours per week
Prerequisite, AA206 or approved equivalent
Assessment is partly continuous, partly by examination

Subject aims and description
The course aims to consolidate students’ advanced Italian language knowledge 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.

The aim of the course is to consolidate and extend the work begun in semester one.

AA208  20th Century European Literature
Semester subject
Three hours per week
Prerequisites, any two stage two BA subjects
Assessment is continuous

Subject aims, and description
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 20th century European literature and through this to gain an understanding of some of the main intellectual currents in western culture.

Preliminary reading

Textbooks
A novel to be advised.
AA209 Italian 2X
Semester subject
Six hours per week
Prerequisite, AA10 or approved equivalent
Assessment is partly continuous, partly by examination

Subject aims and description
The main objective of this subject is to extend the knowledge of the Italian language through gaining linguistic competence that will enable students to deal with a wide range of topics in the written and spoken language.

Through a detailed critical analysis of contemporary literature, students will be able to develop further their competence in grammar, vocabulary and idioms.

Textbooks
Garzanti, M. Nuovo Dizionario Inglese-Italiano, Italiano-INGLESE. Milano: Garzanti, 1984

References
McCormick, G.A. Basic Italian Grammar. 2nd edn, Melbourne: Longman Cheshire, 1974

AA210 Italian 2Y
Semester subject
Six hours per week
Prerequisite, AA209 or approved equivalent
Assessment is partly continuous, partly by examination

Subject aims and description
The main objective of this subject is to extend the knowledge of the Italian language through gaining linguistic competence that will enable students to deal with a wide range of topics in the written and spoken language.

Through a detailed critical analysis of contemporary literature, students will be able to develop further their competence in grammar, vocabulary and idioms.

The aim of the course is to consolidate and extend the work begun in semester one.

AA300 Italian 3A
Full year subject — equivalent value 2 semester subjects
Six hours per week
Prerequisite, AA200 or approved equivalent
Assessment is partly continuous, partly by examination

Subject aims and description
The main objectives of Italian 3A are:
To consolidate the student’s language skills and to develop these further through a study of appropriate literature and allied grammar; to develop their oral skills through conversation and discussion in Italian; to develop in the student an understanding of contemporary Italy through the study of Italian history which covers the period from the rise of Fascism to present day Italy, which is complemented by contemporary documents on present day Italy and appropriate films and other media.

Textbooks
A novel to be advised.

AA302 Italian 3C
Full year subject — equivalent value 1 semester subject
Two hours per week
Assessment is continuous

Subject aims and description
This 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.

AA306 Advanced Italian 3A
Semester subject
Three hours per week
Prerequisite, AA207 or approved equivalent
Assessment is continuous

Subject aims and description
The course aims to maintain and consolidate students’ high level of proficiency in Italian through the study of narrative works, in conjunction with Italian films related to the novels studied.

Key texts/references
Novels to be advised.

AA307 Advanced Italian 3B
Semester subject
Three hours per week
Prerequisite, AA306 or approved equivalent
Assessment is continuous

Subject aims and description
The course is intended to give students the opportunity to choose an area of study, or texts not previously studied. Students will discuss their proposed topics with the subject convenor and will be supervised on an individual basis.

Textbooks
Students will be advised individually, according to their chosen area of study.

AA308 Italian Business Practice
Semester subject
Three hours per week
Prerequisite, AA210 or approved equivalent
Assessment is partly continuous, partly by examination

Subject aims and description
This subject is designed to make students familiar with international trade and the contemporary Italian business environment, and to give students the essential skills and knowledge to do business with Italian entities. Topics will include elements of management, Italian 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.

References
There is no single prescribed text for this subject. Contemporary business journals and newspapers together with extracts and teaching cases from selected texts will be used. The following dictionary will prove a useful resource:

AA309 Italian 3X
Semester subject
Six hours per week
Prerequisite, AA210 or approved equivalent
Assessment is partly continuous, partly by examination

Subject aims and description
The main objectives of Italian 3X are to consolidate the students’ language skills and to develop further through a study of appropriate literature and allied grammar, to develop their oral skills through conversation and discussion in Italian; to develop in the student an understanding of contemporary Italy through the study of Italian history which covers the period from the rise of Fascism to present day Italy, which is complemented by contemporary documents on present day Italy and appropriate films and other media.

Textbooks
A novel to be advised.
Subject aims and description
The main objectives of Italian 3Y are to consolidate the students' language skills and to develop these further through a study of appropriate literary and allied grammar; to develop their oral skills through conversation and discussion in Italian; to develop in the student an understanding of contemporary Italy through the study of Italian history which covers the period from the rise of Fascism to present day Italy, which is complemented by contemporary documents on present day Italy and appropriate films and other media.

The aim of the course is to consolidate students' advanced Italian language proficiency and extend the work begun in semester 1.

Subject aims and description
The subject is designed to make students aware of some of the main areas of Italy's achievements and to develop in students some of the main areas of Italy's achievements and to 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, which is complemented by contemporary documents on present day Italy and appropriate films and other media.

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 AA311.

Subject aims and description
This subject explores the development of principles and the basic concepts relating to equal opportunity and discrimination. The role of legislation in achieving equal opportunity outcomes and the existing statutory requirements in Australia are examined.

Other issues covered include:
Basic concepts used to understand equal opportunity such as discrimination, target groups, race, gender, ethnicity, disability, harassment, labour market segmentation.
The role of government in international and local contexts.
The legal framework and the operation of laws governing equal opportunity.

Subject aims and description
This subject provides participants with training in skills needed to analyse and evaluate staffing policies and equal opportunity administration. In instruction in basic data collection and presentation, the following topics will be covered:
Accessing existing data sources, determining new data sources within the organization, organizing a data base, qualitative and quantitative research methods, data analysis, issues of confidentiality and ethics, monitoring techniques and models of evaluation.

Subject aims and description
The skills and knowledge gained in this subject will help participants to understand workplace dynamics and cooperate as effective equal opportunity administrators. It will also raise issues of workplace organization as they affect employees in general and target groups in particular.

The special needs of target groups and the effects of organizational change on various groups within the organization.

Subject aims and description
This subject has a strong practical orientation and is designed to assist participants to formulate and implement an affirmative action program in their place of employment. (For those who are not currently employed, placements with organizations will be sought.) This subject is done at the end of a student's course and draws on the concepts and skills learned in subjects studied earlier. Emphasis is placed on developing policies and procedures which will enhance equal opportunity within a particular organization. Participants will undertake individual implementation projects under the supervision of staff which will be complemented by discussions of the issues involved in implementation programs.

Subject aims and description
This subject is an introduction to the problems and methods of philosophy. An examination of the ideas of some of the great philosophers of the past. Some basic principles of language and conceptual analysis; the application of such principles to specific problem areas such as: knowledge and perception, truth and falsity, human nature, moral judgements, organisation of society, God and religious belief.

Preliminary reading

Textbooks
Please consult with lecturer before buying textbooks.

References
AH102 Theories of the Universe
Semester subject
Three hours per week
Prerequisite, nil
Assessment is continuous

Subject aims and description
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. Topics include: ancient societies, religion and science, concepts of the universe, theories and hypotheses.

Preliminary reading

Textbook

References

AH103 Critical Thinking
Semester subject
Three hours per week
Prerequisite, nil
Assessment is by examination and class exercises

Subject aims and description
The aim of this course is to help students to think critically. The skills they develop will be of use in academic and everyday contexts and in the construction of strong arguments in support of their own claims. A variety of practical skills is taught. For example, how to: distinguish claims from evidence; assess claims on the basis of the evidence presented; identify fallacies in arguments; organise material in logically coherent patterns; evaluate sections of claims made and to respond to them in a sustained and objective manner. Such skills are basic to the effective completion of academic assignments.

Textbooks
Please consult with lecturer before buying textbook.

References

AH201 Mind, Language and Thought
Not offered in 1993
Semester subject
Three hours per week
Prerequisite, one of AH100, AH101, AH102, AH103 or approved equivalent
Assessment is continuous

Subject aims and description
This subject explores theories of the relationship between mind, cognition, language and culture. Themes studied will be chosen from the following list: mind; brain and cognition; language; meaning and truth; language as representation and as metaphor; signs, language and culture.

Preliminary reading
Lakoff, G. and Johnson, M. Metaphors We Live By. Chicago: University of Chicago Press, 1980

Textbooks
Please consult with your lecturer before buying textbooks.

References

AH203 Nature and Human Nature
Semester subject
Three hours per week
Prerequisite, one of AH100, AH101, AH102, AH103 or approved equivalent
Assessment is continuous

Subject aims and description
The purpose of this course is to examine the ways in which biological theories of behaviour and heredity have influenced social thought. The interrelationships between theories of human nature are explored in terms of the birth of the new science of psychology at the end of the nineteenth century. Themes to be explored include: the ‘mis-measure of man’; the origins of the natural nature controversy; the rise of the concept of culture in social science; the origins of industrial psychology; biology and scientific utopias; the concept of the savage; and the perfectibility of man; scientific theories of race and their impact; the image of the black Australian in European anthropology; Sigmund Freud, his life and times.

Textbooks

Reference

AH204 Philosophy of Culture
Semester subject
Three hours per week
Prerequisite, one of AH100, AH101, AH102, AH103 or approved equivalent
Assessment is continuous

Subject aims and description
This course is designed to provide students with the historical, philosophical and theoretical 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, hermeneutical, post-structuralist and symbolic interactionist approaches to culture, and the conflicts between the proponents of these different approaches.

References

AH205 Social Philosophy, Politics and Ethics
Semester subject
Three hours per week
Prerequisites, One of AH100, AH101, AH102, AH103 or approved equivalent
Assessment is continuous and by examination

Subject aims and description
Transformations of the world political and economic order, the global environmental crisis, fundamental changes of social values and, more specifically, the decline of Australia within the international order, call for an examination and rethinking of our conception of society and our beliefs about how society should be ordered and how people should live. Taking the state of the world and its problems as a point of departure, this course offers an historical examination of the political and ethical thought of Western culture, from Plato to the present, showing the relationship between people’s understanding of their place in the cosmos, their conceptions of society, and their political and ethical ideals. In this way the origins, achievements and limitations of modern Western culture are revealed, and new directions in social, political and ethical philosophy are opened for consideration.

References

Not available to students who have previously passed AH200 Moral and Political Philosophy.
AH206 Society, Culture, and Resources

Semester subject
Three hours per week
Prerequisite, one of AH100, AH101, AH102, AH103 or approved equivalent
Assessment is continuous

Subject aims and description
Resources, people, survival, and development: within the general framework of social history this course emphasises the interaction between technology and social change from ancient to modern times. Politics, economics, religion, values, traditions, social structures, education, relations with neighbours, knowledge and skills, are forces which combine to influence the course of human development. Also discussed are the dilemmas of industrial societies, including problems of pollution and environment control.

Preliminary reading

Textbook
Mumford, L. The City in History. Pelican. 1990

References

* Not available to students who have previously passed AH202 Technology and Society.

AH301 Rationality

Semester subject
Three hours per week
Prerequisites, two of AH200, AH201, AH202, AH203, AH204, AH205, AH206 or approved equivalents
Assessment is continuous

Subject aims and description
This subject explores several contemporary challenges posed by the problem of rationality and proposals as to how best to attain it: the problem of rational justification of beliefs and actions; the relationship between rationality and scientific inquiry; the links between human happiness and rationality; western rationality and the rationality of other cultures; rationality and the realisation of human potential.

Textbook
Please consult with the lecturer before buying textbooks.

References

AH306 Practical Ethics

Semester subject
Three hours per week
Prerequisites, two of AH200, AH201, AH202, AH203, AH204, AH205, AH206 or approved equivalents
Assessment is continuous

Subject aims and description
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.

Textbook

AH307 Australian Science and Society

Semester subject
Three hours per week
Prerequisites, two of AH200, AH201, AH202, AH203, AH204, AH205, AH206 or approved equivalents
Assessment is continuous

Subject aims and description
This subject will bring perspectives from the history, philosophy and social studies of science to bear on the current state 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 artificial intelligence. The subject will draw on current issues in Australian science and technology, science policy and the public image of science.

References

*AH308 Social Studies of Science

(Not offered in 1993)

Semester subject
Three hours per week
Prerequisites, two of AH200, AH201, AH202, AH203, AH204, AH205, AH206 or an approved equivalent
Assessment is continuous

Subject aims and description
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.

References

* Not available to students who have previously passed AH302 Social Studies of Science A.

AH309 Special Topics in Philosophy

(Not offered in 1993)

Semester subject
Three hours per week
Prerequisites, two of AH200, AH201, AH202, AH203, AH204, AH205, AH206 or approved equivalents
Assessment is continuous

Subject aims and description
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
Semester subject
Three hours per week
Prerequisites, two of AH200, AH201, AH202, AH203, AH204, AH205, AH206, or approved equivalents
Assessment is continuous

Subject aims and description
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 contradictions methodologies of the natural and human sciences; different models that are proposed for the purpose of understanding cultural phenomena; the interconnections between disciplines and the problematic nature of discipline boundaries.

Textbook
Consult with the lecturer before buying textbook.

References

*AH311 Environmental Philosophy (Not offered in 1993)
Semester subject
Three hours per week
Prerequisites, two of AH200, AH201, AH202, AH203, AH204, AH205, AH206 or approved equivalents
Assessment is continuous

Subject aims and description
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 existing forms of policy are critically examined and the new approaches to economic policy formation designed to take into account energetic and ecological processes and to provide the basis for an environmentally sustainable society are investigated.

References

Not available to students who have previously passed AH309 Special Topics in Philosophy

*AH312 Natural Philosophy and the Sciences
Semester subject
Three hours per week
Prerequisites, two of AH200, AH201, AH202, AH203, AH204, AH205, AH206, or approved equivalent
Assessment is continuous

Subject aims and description
Science in the twentieth century is in the midst of one of the most radical of the history of humanity. The transformation in our culture revolution has been hidden until recently by logical positivism and the development of new theories of knowledge adequate to the history and practice of science are examined. It is shown how these developments in the theory of knowledge have revealed the foundations of science in the philosophy of nature, that is, the quest to characterise the nature of physical existence. The 'new physics', the 'new biology' and those social sciences being developed in accordance with advances in the natural sciences are shown to be not merely additions to knowledge, but part of a transformation in our basic conception of physical existence, of what is, and what is to be human. These transformations are part of the process through which humans are creating and transforming themselves and their relationship to the rest of nature.

References
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 (Not offered in 1993)
Semester subject
Three hours per week
Prerequisites, two of AH200, AH201, AH202, AH203, AH204, AH205, AH206 or approved equivalents
Assessment is continuous

Subject aims and description
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.

Preliminary reading

Textbook
Kaneegiesser, H. Knowledge and Science. South Melbourne: Macmillan, 1977

References

Not available to students who have previously passed AH305 Philosophy of Science B

AJ102 Introduction to Japan — A Cultural Overview
Semester subject
Three hours per week
Prerequisite, nil
Assessment is continuous

Subject aims and description
This subject introduces historical and cultural topics of direct relevance to the development of Japanese language and society. References in English are used.

Textbook

References
AJ103 Japanese 1A
Semester subject
Six hours per week
Prerequisite, nil
Assessment is continuous
Subject aims and description
This subject is designed to introduce students to the Japanese language, and to develop their listening, speaking, reading, writing, conversation, and comprehension skills. It is highly recommended that students enrolled in this subject also enrol for A1102 which is offered in second semester.

Textbooks

AJ104 Japanese 1B
Semester subject — equivalent value 2 semester subjects
Six hours per week
Prerequisite, A1103 or approved equivalent
Assessment is continuous
This subject is a continuation of AJ103.

AJ105 Advanced Japanese 1A
Semester subject
Six hours per week
Prerequisite, VCE Japanese or approved equivalent
Assessment is continuous
Subject aims and description
This subject consolidates students' knowledge of basic grammar and extends the range of grammar patterns acquired in basic Japanese and vocabulary acquired at VCE level. It also provides training in aural comprehension skills appropriate to post-VCE competency level.

Textbooks

AJ106 Advanced Japanese 1B
Semester subject
Six hours per week
Prerequisite, AJ105 Advanced Japanese 1A or approved equivalent.
Subject aims and description
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.
**AJ204 Japanese 2B**
Semester subject  
Six hours per week  
Prerequisite: AJ203 or approved equivalent  
Assessment is continuous  
This subject is a continuation of AJ203.

**Textbooks**

**AJ205 Advanced Japanese 2A**
Semester subject  
Six hours per week  
Prerequisite: AJ106 Advanced Japanese 1B or an approved equivalent  
Assessment is continuous  
Subject aims and description
This subject extends the range of language patterns, grammar and writing. It provides further training in oral and aural skills.

**Textbooks**

**AJ206 Advanced Japanese 2B**
Semester subject  
Six hours per week  
Prerequisite: AJ205 Advanced Japanese 2A or approved equivalent  
Assessment is continuous  
Subject aims and description
This subject introduces students to unabridged non-fiction reading material. It provides further training in oral and aural skills. It accelerates students' acquisition of Japanese characters and provides training in writing of different styles of text.

**Textbooks**

**AJ301 Japanese 3B**
Full year subject — equivalent value 1 semester subject  
Two hours per week  
Prerequisite: AJ204, AJ206 or approved equivalent  
Assessment is continuous  
Subject aims and description
This subject consists of a two-hour class which deals with a number of issues on contemporary Japan. In Japanese. Students read a variety of unabridged newspaper articles which are complemented by additional language exercises.

**Textbooks**
Dictionaries as for AJ103/AJ104

**AJ302 Work Experience in Japan**
Prerequisites: Minimum 3 years of double degree BusinessArts (Japanese) including satisfactory completion of stage 3 of the Japanese major.  
Assessment: Composition of the oral component; Report (2,500-3,000 words). Assessment on pass/fail basis.  
This elective subject is only available to students undertaking the double degree BusinessArts (Japanese) course.

**Subject aims and description**
The objective of this elective subject is to provide students with a 6 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.

**Subject aims and description**
This subject aims to extend the students' use of spoken and written Japanese. The reading component includes some literature and a variety of contemporary non-fiction material. The aural component is concentrated on simplified radio news broadcasts. The conversation component extends the range of situational dialogues and allows individualised conversational practice on a wide variety of topics.

**Textbooks**
Fukushima, N. Japan and Australia. Melbourne: Swinburne Press, 1992  

**AJ303 Japanese 3C**
Semester subject  
Six hours per week  
Prerequisite: AJ204 or approved equivalent  
Assessment is continuous  
Subject aims and description
This subject continues systematically to extend the students' use of spoken and written Japanese. The reading component includes some literature and a variety of contemporary non-fiction material. The aural component is concentrated on simplified radio news broadcasts. The conversation component extends the range of situational dialogues and allows individualised conversational practice on a wide variety of topics.

**Textbooks**
Fukushima, N. Japan and Australia. Melbourne: Swinburne Press, 1992  

**AJ304 Japanese 3D**
Semester subject  
Six hours per week  
Prerequisite: AJ303 or approved equivalent  
Assessment is continuous  
Subject aims and description
This subject continues the 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  

**AJ305 Advanced Japanese 3C**
(Not offered in 1993)  
Semester subject  
Six hours per week  
Prerequisite: AJ206 or approved equivalent  
Assessment is continuous  
Subject aims and description
This subject continues to develop skills in spoken and written Japanese with particular attention to communication styles appropriate to different situations.
Textbooks

AJ306 Advanced Japanese 3D
(Not offered in 1993)
Semester subject
Six hours per week
Prerequisite: AJ305 or approved equivalent
Assessment is continuous

Subject aims and description
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 or texts of reports in Japanese and oral class presentation. Students will spend approximately 66 hours per semester in class, and the remaining 18 hours conducting fieldwork among the Japanese community in Melbourne. Classwork will be utilised for reading or reference material, lectures by specialists in the particular research area (Japanese) and discussion debates of the field work findings (in Japanese).

Textbooks
A selection of newspaper and journal articles.

AJ400 Japanese Society A

Subject aims and description
This subject provides an introduction to problems which exist in Japanese society. The topics cover family problems, old age and social security, social problems relating to crime, suicide, gangster organisations, youth violence, dietary life and common diseases; female inequality, and theories on Japanese society. The program is based mainly on newspaper articles but some media broadcasts are included and specialised lectures lead seminars on various topics.
Students have the opportunity to deliver individual oral reports to improve their spoken Japanese.

AJ401 Japanese Society B

Subject aims and description
Students extend their reading of topics introduced in Japanese Society A and also develop their conversational skills in this subject.

AJ402 Japanese Culture A

Subject aims and description
In this subject topics of aspects of modern Japanese culture studied, for example, Koreans in Japan, and repatriates from China, education, corruption, Japanese language, media, arts, sport, Japanese abroad and international understanding.

AJ403 Japanese Culture B

Subject aims and description
This subject allows students to extend their reading of topics introduced in Japanese Culture A and to develop their conversational skills.

AJ404 Japanese Business and Industry A

Subject aims and description
This subject covers topics related to business, for example, employment and working conditions, advanced technology, structure of industry, trade friction, automobile industry, Japan and world trade, energy and industry.

Most of the material on which the program is based is selected from newspapers but some media broadcasts are also included. Emphasis is on the acquisition of vocabulary, characters and some practice in translation and precise writing.

Students have the opportunity to deliver individual oral reports to improve their spoken Japanese.

AJ405 Japanese Business and Industry B

Subject aims and description
Additional reading which extends the topics introduced in Japanese Business A is covered. Here the emphasis is placed on the comprehension and active use of grammar structures. Students also develop their conversational skills in this subject.

AJ406 Japanese Politics A

Subject aims and description
In this subject students are introduced to various aspects of the Japanese political system through the reading of newspaper articles supplemented by some media broadcasts. Topics include political parties and elections, Japan-Australian relations, text book controversy, defence, anti-nuclear movements, special government interference, politicians travelling abroad, environmental protection and refugee policy.

AJ407 Japanese Politics B

Subject aims and description
This subject covers reading and conversation which extends to topics introduced in Japanese Politics A.

AJ420 Subject aims and description
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 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 and write a research essay for assessment of the culture and history component.

Textbooks

A list of references for the culture and history component is available from the course co-ordinator.

AJ421 Subject aims and description
This subject is taken in the second semester of the first year. All students will continue their study of basic Japanese grammar, reading, speaking and writing. The language component is assessed by regular tests and assignments. The non-language component is assessed by a seminar paper and an essay.

Textbooks

A list of references for the contemporary Japanese society is available from the course co-ordinator.
Subject aims and description

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 the Japanese economy and business. Assessment is based on tests and assignments for the language component and on a seminar paper and essay for the background studies component.

Textbooks


Machida, T. Reading and Kanji for GDP(2), Melbourne: Swinburne Press, 1990

A list of references for the communication in Japanese component is available from the course co-ordinator.

Subject aims and description

This subject is the continuation of AJ422 with similar content and assessment for both the language and background components. The background component introduces students to Japanese patterns of interpersonal communication.

Textbooks


Machida, T. Reading and Kanji for GDP(2), Melbourne: Swinburne Press, 1990

A list of references for the communication in Japanese component is available from the course co-ordinator.

Subject aims and description

This subject provides an introduction to pre-modern Korea of particular relevance to the understanding of modern Korea society. The course 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. The course will use English language reference material.

References

Bartz, Patricia, M. South Korea, Oxford: Clarendon, 1972

Clark, CA. Religions of Old Korea. Seoul, 1961


Reprint, 1969

Lee, Ki-bak, A New History of Korea, Seoul: Ithicokil Press, 1984


(Note: The above sources will be supplemented by a variety of specialist journal articles.)

Subject aims and description

The objective of the course will be to introduce students to the Korean language and to give them a secure command of its basic structures. This will entail instruction in language patterns, grammar, reading, writing, aural comprehension and socio-linguistics. A wide range of audio-visual materials will be used, including language slides, cassette tapes, realia, and video-cassettes. Audio cassettes of the course material will be available to students for purchase or loan.

Students undertaking a major in Korean are also strongly advised to enrol for AK102 Background to Contemporary Korean Society, which is offered in Semester 2.

Subject aims and description

The objective of the course will be to introduce students to the Korean language and to give them a secure command of its basic structures. This will entail instruction in language patterns, grammar, reading, writing, aural comprehension and socio-linguistics. A wide range of audio-visual materials will be used, including language slides, cassette tapes, realia, and video-cassettes. Audio cassettes of the course material will be available to students for purchase or loan.

Students undertaking a major in Korean are also strongly advised to enrol for AK102 Background to Contemporary Korean Society, which is offered in Semester 2.

Subject aims and description

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 course will deal 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.

References


(Note: The above sources will be supplemented by a variety of specialist journal articles.)

Subject aims and description

This subject will include topics such as the Japanese colonial period (1910-45), a brief history of the Republic of Korea (1945-present) and the Democratic People's Republic of Korea (1948-present), Korean political practices and values, and the formulation and execution of RE commercial policy. Scope will be allowed for comparative work on Korean and Japanese political and economic institutions, while special emphasis will be given to implications for Australia-Korea relations.

References


Cummings, Bruce. The Origins of the Korean War: Liberation and the
Subject aims and description

The object of the course will be to extend the students' command of modern Korean. This will entail further instruction in language patterns, grammar, reading, writing, aural comprehension with increasing emphasis on media Korean and on socio-linguistics. A wide range of audiovisual materials will be used, including language slides, cassette tapes, realia, and video-cassettes. Audit cassettes of course material will be available to students for purchase or loan. It is highly recommended that students enrolled in this subject also enrol in AK202 and AK203.

Textbooks

Shin, G.H. and Buzo, A.F. Learning Korean: New Directions 3 and 4

AK206 Korean 2B

Second semester subject
Six hours per week — day-time
Prerequisite, AK205

Subject aims and description

The object of the course will be to extend the students' command of modern Korean. This will entail further instruction in language patterns, grammar, reading, writing, aural comprehension with increasing emphasis on media Korean and on socio-linguistics. A wide range of audiovisual materials will be used, including language slides, cassette tapes, realia, and video-cassettes. Audit cassettes of course material will be available to students for purchase or loan. It is highly recommended that students enrolled in this subject also enrol in AK202 and AK203.

Textbooks

Shin, G.H. and Buzo, A.F. Learning Korean: New Directions 3 and 4
Buzo, A.F. Modern Korean Literature Reading Passages. Monash and Swinburne, 1992

AK301 Korean 3B

Full year subject — equivalent value 1
Semester subject
Two hours per week
Prerequisite. AK206, or equivalent
Assessment is continuous

Subject aims and description

This subject consists of a two-hour class which deals with a number of contemporary issues in Korean. Materials are drawn from a variety of contemporary sources, and presented in such a way as to permit complementary language exercise.

Textbook

Kim, S. (ed) Reading from the Korean Press

AK303 Korean 3C

Semester subject
Six hours per week
Prerequisites, AK205 and AK206, or equivalent
Assessment is continuous

Subject aims and description

This subject continues to extend students’ command of modern Korean in a variety of spoken and written contexts. The language will be 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


AK304 Korean 3D

Semester subject
Six hours per week
Prerequisites, AK205 and AK206, or equivalent
Assessment is continuous

Subject aims and description

This subject continues to extend students' command of modern Korean in a variety of spoken and written contexts. The language will be 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


AL100 Twentieth Century Literature

Semester subject
Three hours per week
Prerequisite, nil
Assessment is continuous

Subject aims and description

This subject explores the impact of twentieth century innovation and experimentation in the arts on the dominant forms of literary representation and interpretation. The implications of contemporary thought about language will be considered, particularly in relation to the emergence of new critical methods. These have challenged assumptions about what literature is, its relationship to society, and how it should be interpreted and valued.

References


AL101 Nineteenth Century Literature

Semester subject
Three hours per week
Prerequisite, nil
Assessment is continuous

Subject aims and description

This subject surveys Romantic and post-Romantic writers of the nineteenth and early twentieth century, emphasising the artist's awareness of, and increasing divorce from, social concern. The course includes English and European fiction and poetry.

Preliminary reading

As for AL100

AL202 Contemporary Australian Writing

Semester subject
Three hours per week
Prerequisites: AL100 or AL101 or approved equivalent, and AP112 for students majoring in Australian Studies
Assessment is continuous

Subject aims and description

This 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.

Reference


AL203 Renaissance Literature

Semester subject
Three hours per week
Prerequisites: AL100 or AL101 or approved equivalent
Assessment is continuous

Subject aims and description

This 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.

Reference

AL204 Reading, Writing and Criticism
Semester subject
Three hours per week
Prerequisites: AL100 or AL101, or approved equivalent
Assessment is by essay, folio and participation in seminars and workshops

Subject aims and description
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

AL302 Australian Literature — 19th Century
Semester subject
Three hours per week
Prerequisites: two stage two literature subjects or approved equivalents
Assessment: essay, class paper and class contribution

Subject aims and description
This subject introduces an exploration of the novel and the short story in Australia during the 19th century up to the time of Federation. Poetry during the 19th century and a comparison of a filmic text of the novel. Students will make an oral presentation reviewing text that is not set for study, and keep a journal to record their class discussions. Classes will be discussion-based.

Preliminary reading

AL303 Australian Literature — 20th Century
Semester subject
Three hours per week
Prerequisites: two stage two literature subjects or approved equivalents
Assessment: essay, class paper and examination; class contribution

Subject aims and description
From Federation to the present day. There will be a study of poetry, fiction, short stories and a play. Comparisons will be invited between filmic and written texts. 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.

Preliminary reading
As for AL302

AL304 Cross-cultural Perspectives
Semester subject
Three hours per week
Prerequisites: two stage two literature subjects or approved equivalents
Assessment: essay, class paper, examination, class contribution

Subject aims and description
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.

AL305 Literature of the United States
Semester subject
Three hours per week
Prerequisites: two stage two literature subjects or approved equivalents
Assessment: essay, class paper, examination, class contribution
This subject may not be taken by students who have completed either AL300 or AL301.

Subject aims and description
This subject combines 19th and 20th century literary traditions. The 19th century concentrates on seminal literary movements and authors, with particular emphasis placed on significant connections between literary works and the contemporary intellectual climate and social ethos. In the 20th century the emphasis is on developments and continuities of earlier movements and initiatives, as well as important changes marking the emergence of 'modern' literature.

Preliminary reading

AM102 Media and Meanings: An Introduction
Three hours per week
Assessment is continuous

Subject aims and description
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 many and varied responses, 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.

References
Bonney W., Commercial Media, Melbourne: MacMillan, 1983
Chadwick, P. Media: Cawing up Australia’s Media, South Melbourne: MacMillan, 1989
Williams, R. Television, Technology and Cultural Form, London: Fontana, 1974
AM202 The Fifth Estate: New Media
Semester subject
Three hours per week
Prerequisites: AM102 or AM103, and AP112 for students majoring in Australian Studies
Assessment is continuous

Subject aims and description
This subject examines the convergence of broadcasting and telecommunications in the context of political, social and ethical concerns associated with new media. New media technologies, such as cable and pay television, teletext and videotext, video-cassette recorders, domestic and direct broadcast satellites, and video disc are discussed in the context of changes to traditional broadcasting systems. Notions such as technological determinism, media plurality, 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.

References
Barr, T. Challenges and Change, Melbourne: Oxford University Press, 1987

AM203 Popular Culture
Semester subject
Three hours per week
Prerequisites: AM102 or AM103
Assessment is continuous

Subject aims and description
This subject will introduce students to the current trends and debates in contemporary culture and cultural analysis. It will investigate the diversity of images, meanings and practices which comprise popular culture. Through analysis and discussion, attention will be drawn to processes of change and adaptation in the popular culture of the 1990s. The subject will also consider the commercial imperatives shaping popular culture and its multiple relations to political processes and to power relations. Major reference points in the subject will include post-modernism, feminism and analyses of late capitalism. Of particular importance will be the consideration of cultural meanings and practices in the current Australian context. Topics here include: youth culture, pub culture, weddings, the beach, soap opera, women's magazines and sport.

References
Fiske, J. Reading the Popular; Boston, London: Unwin Hyman, 1989

AM205 Special Issues in the Media
Semester subject
Three hours per week
Prerequisites, AM102 or AM103
Assessment is continuous

Subject aims and description
This subject will examine the major shifts in the media in the last 15 years. The subject will comprise an analysis of media practices, and employment. Students will be encouraged to develop a variety of skills in the exploration of issues pertaining to women. These include both theoretical analysis in particular the study of representations of women in media texts, and the examination of critical theory and research exploring issues in representation, reception and employment. Two particular concerns here include the special needs and problems of women as audience, and media users, and the structures and conditions under which they work in the media, especially given the current legislation regarding equal opportunity.

References
Bonski, A. et al. (eds) Don’t Shoot Darling: Women’s Independent Filmmaking in Australia, Richmond Greenhouse, 1987

AM206 Making News — The Theory and Practice of Journalism
Semester subject
Four hours per week
Prerequisites, AM102 or AM103 and any stage two media studies subject or equivalent
Assessment is continuous

Subject aims and description
This subject takes both a theoretical and practical approach to the study of the media in Australia. It is divided into two areas of study: (i) a theoretical and critical view of the function and nature of the press in Australia (two hours per week); and (ii) practical lessons in news writing (two hours per week).

The first area of study offers an historical overview of the changing role of the press and examines the socio-political, ideological and economic influences which have shaped the modern newspaper industry in Australia. Newspaper traditions in other countries — such as the United States, the Soviet Union, Europe and South East Asia — will be compared and different newspapers in Australia will be examined for their similarities and differences. Key issues include the freedom of the press, the concentration of newspaper ownership, the power of the press, the structures of news organisations, ethics, news values, bias, media accountability, defamations, privacy, and advertising.

The second area of study will focus on practical news writing and production skills. Students will be encouraged to write and submit stories for publication in community newspapers. Students will also learn basic computer word processing and desktop publishing skills.

References
Tiften, R. The News from South East Asia: the Sociology of News-making, Institute of Southeast Asian Studies, Singapore, 1978

AM207 Cultural Representation in Australia
Semester subject
Three hours per week
Prerequisites, AM102 or AM103, and AP112 for students majoring in Australian Studies
Assessment is continuous

Subject aims and description
This subject explores the processes of construction and representation of cultural identities in the classroom. The first half of the subject will consider the way in which cultural identities are represented in film and television. The latter part of the subject will examine the representation of Australian cultural and historical identities and their role in the classroom.

References

Not available to students who have previously passed AM204 Media and Australian Society
AM300 Cinema Studies
Semester subject
Four hours per week
Prerequisites, AM102 and any two stage media studies subjects or equivalent
Assessment is continuous

Subject aims and description
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 modules for the 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, and is focused upon the manner in which cinema is systematically and their function in relation to the humanistic 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 in the works examined (as well as into the methods of examination), for various works and their presentation, for the usefulness 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.

References
Grant, B.K. (ed.) Film Genre Reader. University of Texas Press, 1986

AM302 Radio Production and Criticism A
Semester subject
Four hours per week
Prerequisites, AM102 or AM103 and any two stage media studies subjects or equivalent
Assessment is continuous

Subject aims and description
This subject offers the opportunity to make, and critically assess, broadcast quality radio programmes. Practical skills covered include recording techniques, interviewing, scripting, narrating and editing. There are many approaches to a theoretical investigation of radio. You can start with the skills used in criticism of literature and film. But the course also explores what is special about radio - how speaking differs from writing, and how listening differs from reading. And it also examines the way we understand information that we receive via the ear - as distinct from information we read or see.

Critical work will focus on Melbourne radio, from a mix of commercial, public and government stations. And these will be discussed in their historical and contemporary contexts.

Material that is “airworthy” is submitted for use on community radio stations.

Textbook
Swinburne Radio Production Notes

References
Crisell, A. Understanding Radio. London: Methuen, 1986
Hicks, M. Radio on Radio. Swinburne, 1985 (Audio Tapes)
Johnston, L. The Unseen Mouse. London: Routledge, 1988
Ong, W. Orality and Literacy. London: Methuen, 1982

AM303 Radio Production and Criticism B
Semester subject
Four hours per week
Prerequisites, AM102 or AM103 and AM302, and any two stage two media studies subjects or equivalent
Assessment is continuous

Subject aims and description
This subject entails learning more radio production skills and learning more about radio forms. Students write a piece of radio criticism for radio, make a montage of radio sounds, and work in groups to produce a feature documentary.

The mile of radio in our culture is considered from two perspectives. Firstly, how do the structural features of the medium affect the creation of its material or “cultural products”? And secondly, how is meaning created within radio? What are the “preferred meanings” in what we hear? Students carry out original radio criticism using Melbourne radio broadcasts as texts.

Textbook
Swinburne Radio Production Notes

References
As for AM302

AM306 Professional Attachment Program
15 days
Equivalent value - 1 semester subject
Prerequisites, 5 media studies subjects
Assessment is continuous

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.

AM307 Information Society: Promises and Policies
Semester subject
Three hours per week
Prerequisites, AM102, AM103 and two stage two media studies subject or equivalent
Assessment is continuous

Subject aims and description
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 will be lost by the 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 television. Considerable emphasis is placed on the methodology of investigation, analysis of reports and viewpoint inquiries, and the presentation of data and information.

References
Reinecke, I. Connecting You... Bridging the Communications Gap. Ringwood: Penguin Books, 1985
*AM309 Community Press: Process and Production
Semester subject
Four hours per week
Prerequisites, AM102 or AM103, AM206 and one other stage two media studies subject or equivalent
Assessment is continuous

Subject aims and description
This subject examines a range of publications which serve specific community or special interest information needs in both a theoretical and practical way. The four-hour classes are divided into two areas of study: (i) the tradition of community press Australia, including suburban and regional newspapers, and the impact of new technology on the evolution of publications such as newsletters and special interest magazines, (two hours per week); and (ii) production of newsletters and community interest magazines. Students will also develop basic desktop publishing skills using the Page Maker desktop publishing package.

The second area of study will focus on practical exercises in the production of newsletters and community interest magazines. Students will also develop basic desktop publishing skills using the Page Maker desktop publishing package.

References

Faculty of Arts

AP104 Australia and South-East Asia
Semester subject
Three hours per week
Prerequisite, nil
Assessment is by classwork and essays

Subject aims and description
Australia's involvement with her neighbours in south-east Asia since 1945 is examined against the background of the crisis within and the disputes , the countries of the region. Topics considered include studies of communist parties, munitions, political violence, authoritarian and military rule, and Australia's relationships with south-east Asia.

Reading guides are distributed.

AP111 Modern China (This subject cannot be taken by students who have passed AP205 History of Modern China)
Semester subject
Three hours per week
Prerequisite, nil
Assessment is by classwork and essays

Subject aims and description
This subject will focus on developing some understanding of Modern China. The following themes will be investigated: peasant rebellion and land reform, Sino-Western relationships, reform and modernisation, institutional change, education and ideology. Issues and problems centering on these themes will be critically examined and discussed through the use of a variety of materials including documents, memoirs, biographies and path-breaking works of modern Sinologists. To an extent, it will then be possible to identify and appreciate some of the distinctive features of contemporary China.

Textbooks

AP112 Australian Identities
Semester subject
Three hours per week
Prerequisite, nil
Assessment is by essays and tutorial participation

Subject aims and description
This is the first in a new sequence of Australian Studies subjects. This subject examines four ways in which people identify themselves as Australian. How do different ideas of what it means to be Australian have developed as new political groups, their basis of power, and their bearing on ethnic identity to see how families in moulding ethnic identity. This is followed by a study of how people have defined themselves in terms of the work they do and then looks at the way cultural heritages have shaped ethnic identity. The subject concludes with a discussion of the social movements that have grown out of these collective identities.

Preliminary reading

AP113 Asia: Politics and Development
Semester subject
Three hours per week
Prerequisite, nil
Assessment is by essays and tutorial participation

Subject aims and description
This subject examines the causes of contemporary Asia. The aim is to understand what is happening in this region which is of immense importance to Australia. The emergence of regional superpowers, growth in high-tech industries, political instability and continuing poverty are continuing characteristics of contemporary Asia. How did these occur? Topics include: politics of aid, commercialisation of agriculture, the environment, industrialisation and labour and the role of the state.

References

AP100 Australian Politics
Semester subject
Three hours per week
Prerequisite, nil
Assessment is by classwork and essays

Subject aims and description
This subject is an introduction to Australian politics. To begin with the subject covers the basic framework of government and the electoral system. The following topics are included: the role of parties, the electoral system, the constitutional basis, federalism and the Westminster system, parliament, cabinet and the role of pressure groups, their basis of power, and in society at large, and their bearing on ethnic identity.

Preliminary reading

AP101 Foundations of Modern Politics
Semester subject
Three hours per week
Prerequisite, nil
Assessment is by classwork and essays

Subject aims and description
This course 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 origins of the conflict in post-war European settlement, and follows the developments of US-Soviet relations from the Truman-Stalin to the Reagan-Gorbachev era. 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, Vietnam and Afghanistan wars.

Textbooks
2. References
**AP200 Advanced Australian Politics**

Not offered 1993

Three hours per week

Prerequisite, any stage one political studies subject or approved equivalent. A background in Australian Politics and/or social and political theory is desirable. Assessment is continuous.

**Subject aims and description**

In this subject an analysis of power is attempted in Australia. There are four main sections:

Section 1

The Condition of the People. This section surveys distribution of wealth, distribution of income, aspects of poverty, and social mobility.

Section 2

The Will of the People. This section analyses the social policy of the Whitlam Government 1972-75, and the electorate’s response.

Section 3

The Consciousness of the People. This section looks at theories of hegemony and class consciousness in Australia.

Section 4

The Rule of the People? This section considers the question: who rules?

Reading guides are distributed.

**AP201 Political Sociology**

Semester subject

Three hours per week

Prerequisite, any stage one political studies subject or an approved equivalent

Assessment is continuous

**Subject aims and description**

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.

**Preliminary reading**


**AP202 Europe, Capitalism and The Third World**

Semester subject

Three hours per week

Prerequisite, any stage one political studies subject or an approved equivalent

Assessment is by essays and tutorial participation

**Subject aims and description**

This subject relates the shaping of today’s Third World to the emergence of capitalism in Western Europe. It examines the forces which shaped the world into the unequal societies which are characteristic of this century, and which 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.

**Preliminary reading**


**Textbook**

Wolf, E. *Europe and the People Without History*. Berkeley: University of California, 1982

**AP204 Modern Japan**

Semester subject

Three hours per week

Prerequisite, any stage one political studies subject or an approved equivalent

Assessment is by class work and essays

**Subject aims and description**

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, and the defeat and re-emergence of the social configuration of Japanese society.

The will shed light on what are claimed to be the characteristics of Japanese society which distinguish contemporary Japan from other industrialised societies, especially in politics, education, business operations, and employer-employee relations.

**Preliminary reading**


**AP206 Politics of China A**

(This subject cannot be taken by students who have passed AP305 Comparative Politics: China A or AP309 Chinese Politics A)

Semester subject

Three hours per week

Prerequisites, one stage one political studies subject.

AP111 Modern China is highly recommended. Assessment is continuous

**Subject aims and description**

In 1949 the Chinese Communist Party came to power after the defeat of the Nationalists. This theme of new China through an analysis of the political system, and the development of capitalism, will be the major task which wealth and power were shared.

Textbooks


**AP207 Modern Australia**

Semester subject

Three hours per week

Prerequisite, any stage one political studies subject or approved equivalent

Assessment is by essays and tutorial participation

**Subject aims and description**

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 first 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.

**Preliminary reading**


**AP300 Public Policy in Australia**

Not offered 1993

Semester subject

Three hours per week

Prerequisites, AP100 or equivalent, two stage two political studies subjects

Assessment is continuous

**Subject aims and description**

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 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 Labor Government.

The ideology of the Hawke Government is considered and contrasted with that of the previous Fraser Government as well as former Labor governments. The role of Hawke as Prime Minister is looked at in particular, his consensus approach to the formation of economic policy.

The role of the bureaucracy is discussed and the adequacy of the structural reforms embarked upon by the Labor Government are evaluated. Of central concern are the changes to the process and institutions and the prices and incomes policy.

There are lectures and workshops with students able to specialise in an area of Government policy and are asked to submit a policy case study at the end of the semester.

References

Subject aims and description
This subject introduces students to the political history of the Soviet Union from 1924 to the Gorbachev era. It looks at the decision to collectivise agriculture and embark on a crash programme of industrialisation in the late 1920s as the key for understanding Stalin's rise to power and the establishment of his dictatorship. The political economy of the Stalinist system in the 1940s and 1950s is examined with the aim of providing a framework for understanding the changes to the political economy of the Soviet Union as a communist state.

References

Subject aims and description
A study of Japan's involvement in south-east and east Asia since 1962. Students will be expected to investigate Japan's relationship with one state and to contribute to discussions of the implications and consequences of Japan's policies in the region.

Subject aims and description
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 1993 the subject will be devoted to the study of voting behaviour in Australia.

Subject aims and description
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. On the basis of some appreciation of the issues and problems in domestic politics, topics include China's relations with other socialist countries, Maoist foreign policy, an examination of the value of cultural and technological exchanges with developed nations and Sino-Australian relations. Emphasis is also placed on China's present 'open door' policies.

References

Subject aims and description
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.

References

Subject aims and description
The course highlights the uneven character of development in India, relating it to the economic-political structure of Indian society. It explains why one country with an extensive and 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' and class formation, land reform, agrarian relations, peasant conflict, industrialization, women in the labour force, caste and social status, and population and family planning.

References
Lakha, S. Capitalism and Class in Colonial India: The Case of Ahmedabad. New Delhi: Sterling, 1988

Subject aims and description
Three hours per week
Prerequisites, two stage two political studies subjects. AP111 Modern China and/or AP206 Politics of China A are highly recommended. Students who have not passed either of these subjects are advised to consult with the Convener of the subject before enrolling.

Assessment is continuous

Subject aims and description
Three hours per week
Prerequisites, two stage two political studies subjects.

Assessment is continuous

Subject aims and description
Three hours per week
Prerequisites, two stage two political studies subjects.

Assessment is continuous

Subject aims and description
Three hours per week
Prerequisites, two stage two political studies subjects.

Assessment is continuous
AP314 Work in Australia  
Semester subject  
Three hours per week  
Prerequisites, any two stage two political studies subjects, or equivalent. AP207 is recommended, but not compulsory  
Assessment is by essays and tutorial participation

Subject aims and description  
This subject explores the social organisation of work in Australia since 1945. It begins with a survey of different approaches to the study of work. It goes on to examine the circumstances in which Australians have v... since the Second World War and looks at some contemporary policy issues arising from those changes. It gives particular attention to the processes which have led to structural 'inequalities' on the grounds of gender, ethnicity and age. The subject concludes with a series of research and writing workshops where students prepare individual essays on topics suggested by material covered during the semester.

Preliminary reading  

AS100 Sociology 1A  
Semester subject  
Three and a half hours per week daytime or Three hours per week evening  
Prerequisite, nil, but note that AS100 and AS101 are normally taken in the one year  
Assessment consists of essays and examination

Subject aims and description  
This subject is concerned with the social construction of human behaviour and society. It begins by focusing upon individuals and groups, examining how self-concepts, behaviour and ideas are socially formed and how everyday interactions are negotiated accomplishments. The subject also deals with wider social structures and power relationships which shape the destinies of individuals and groups. We will discuss such issues as social class, gender, ethnicity and the state. The subject includes consideration of the methods and theories whereby sociologists produce knowledge about the social world.

Reference  

AS101 Sociology 1B  
Semester subject  
Four and a half hours per week daytime or Three hours per week evening  
Prerequisite, AS100  
Assessment consists of essays, exercises and examination

Subject aims and description  
This subject provides an introduction to sociological ways of thinking about contemporary Australia. It looks at changes and controversies in the modern family including marriage, divorce, childrearing, youth homelessness and violence in the family. Other current issues covered include wealth and poverty, employment, the environment and the global economy. The subject will also address the question of how sociological theory makes sense of social change.

Reference  
To be advised

AS200 Social Change  
Semester subject  
Three hours per week  
Prerequisites, AS100 and AS101, and AP112 for students majoring in Australian Studies  
Assessment is continuous

Subject aims and description  
Industrial and technological changes have been the defining features of the ed societies over the past 150 years, accompanied by the struggles over their control. Sociologists, among other social analysts, responded to these phenomena by providing a range of explanations concerning the nature of human society. This subject concentrates on just a few examples of important changes and they are examined by reference to major sociological perspectives. The emphasis of the subject is on technological change and social movements. Both are subjects which are discussed outside academic sociology and offer an opportunity to test the relevance of sociological theory as a means of understanding contemporary social problems.

References  

AS204 Models of Sociological Analysis  
Semester subject  
Three hours per week  
Prerequisites, AS100 and AS101, and AP112 for students majoring in Australian Studies  
Assessment consists of assignments and a test

Subject aims and description  
No application of sociological techniques can be productive without an understanding of the theoretical issues which inform sociological explanation. In this subject an examination is undertaken of the most influential social theories, the sources in 19th Century thought and their present-day formulations. The works of Marx, Weber and Durkheim and the 20th Century writings which build on these are discussed. Feminist theory and the issue of class are also covered. Theories are examined for their core assumptions, ideological foundations and approaches to age. The discussions are designed to enable students to link these theories to contemporary social issues and to practical strategies of social research.

References  

AS205 Sociology of Deviance and Social Control  
Semester subject  
Three hours per week  
Prerequisites, AS100 and AS101  
Assessment is continuous

Subject aims and description  
The study of deviant behaviour and social control raises questions about the nature of social order and the use of knowledge and power by more powerful groups over the less powerful society. 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 course will examine the contributions of a variety of sociological perspectives to understanding 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.

References  

AS206 Sex and Gender in Society  
Semester subject  
Three hours per week  
Prerequisites, AS100 and either AS101 or AP112 for students majoring in Australian Studies  
Assessment consists of two essays and a class test

Subject aims and description  
This subject 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 and the ideological uses of these arguments.
All social institutions encode gender, but two in which gender is of central importance (family and work) are examined in detail. The ways in which these institutions are built on and, in turn, contribute to gender divisions in Australian society are studied.

Sexuality is considered in the context of its implications for social structures and the social meanings attached to heterosexuality and homosexuality.

The relationships between power, gender and sexuality are explored, including social and political power and sexual violence.

References

AS300 Urban Sociology
Semester subject
Four hours per week daytime
or
Three hours per week evening
Prerequisites, two stage two sociology subjects including AS204
AS204 Assessment consists of tests, class exercises, and an essay

Subject aims and description
This subject focuses on the relationship between urban theory and policy. A range of theoretical frameworks are used to provide an understanding of research and policy around issues of housing, inner-city redevelopment, suburban sprawl and spatial segregation. The role of the state and its relationship with the private sector in urban development is also examined.

Reference

AS302 Sociology of Organisations
Semester subject
Three hours per week
Prerequisites, two stage two sociology subjects including AS204
AS204 Assessment is continuous

Subject aims and description
This subject combines elements of the studies commonly referred to as ‘organisational theory’, ‘industrial sociology’ and ‘sociology of work.’ It includes the study of the various ways in which organisations have been identified and analysed and a consideration of the sociocultural contexts in which they operate. Organisational structures are controversial because they engage the interests of different social groups for a variety of reasons which are perceived by their proponents as rational or moral. Particular organisational forms are not merely more or less efficient for the achievement of goals, they have a political and therefore problematical content and it is important that both of these main themes be emphasised. The major sections of the course are:

- major schools of organisation theory
- corporations as a case study of organisational structure and change.

References

AS303 Current Issues in Sociology
Semester subject
Three hours per week
Prerequisites, two stage two sociology subjects including AS204
AS204 Assessment is continuous

Subject aims and description
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.

References
AS308 Migration and Ethnicity
Semester subject
Three hours per week
Prerequisites, two stage subjects AS204 or two sociology subjects and AP207 for students majoring in Australian studies
Assessment is continuous
Subject aims and description
International migration pressures in Western societies are widespread and growing, as are tensions over settlement and integration. This subject will examine social and political factors shaping these processes with examples drawn from Australia, North America, France and Germany. It will analyse theories that attempt to explain the international migration of people and developments in the development of ethnicity. Particular attention will be paid to the position of migrant women.

References

AS400 Urban Social Theory
Subject aims and description
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
Subject aims and description
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 structures. Particular topics such as housing, land-use, infrastructure will be used to exemplify issues, and experts in various policy areas will participate in the course.

AS403 Research Report
Subject aims and description
This subject provides students with the opportunity to gain research experience by carrying out a research project 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
Subject aims and description
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
Subject aims and description
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 on urban research and methods of data acquisition; and thirdly, to develop a limited competence in urban research techniques. This involves introductory procedures relevant to urban research, use of Swinburne's computer facilities, and an introduction to the software packages for social research.

AS413 Applied Social Planning
Subject aims and description
In this subject, the role of the social scientist in the social planning process is examined. While emphasizing the important role of the social scientist in critically examining the values and assumptions underlying the planning process, this subject is predominantly skills oriented. Particular attention is paid to the techniques of needs surveys, evaluation, secondary data analysis, and social impact analysis.

AS465 Urban and Regional Economics
Subject aims and description
This subject is designed to introduce students to the principles of economic analysis as they apply to the city. Particular attention is given 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.

AT116 Introduction to Language
Semester subject
Three hours per week
Prerequisite, nil
Assessment is continuous
Subject aims and description
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. Stude

References

AT118 Aboriginal Issues
Semester subject
Three hours per week
Prerequisite, nil
Assessment is continuous
Subject aims and description
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 recognize relationships that exist between them. The subject will focus on issues such as housing, land rights, community development, health, employment, art and music.

References
To be advised.

AT119 Academic Communication Skills
Semester subject
Four hours per week
Prerequisite, nil
This subject is strongly recommended for all first-year international students
Assessment is continuous, and will be based on coursework, a journal and essay.

Subject aims and description
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.

References
AT218 Archaeology
Semester subject
Three hours per week
Prerequisites, nil
Assessment is by essay, fieldwork diary and report

Subject aims and description
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.

References

AV103 Vietnamese 1A
Semester subject
Six hours per week
Prerequisites, nil
Assessment is continuous

Subject aims and description
A practical introduction to the language, this subject introduces the tone, essential syntax and the writing system of the Vietnamese language. The subject deals with contemporary spoken and written Vietnamese. No previous knowledge of Vietnamese is assumed.

Textbooks

AV104 Vietnamese 1B
Semester subject
Six hours per week
Prerequisite: AV103 or approved equivalent
Assessment is continuous

Subject aims and description
Building on the work begun in AV103, this subject covers more complex aspects of the language: the use of particles, the question of tense, the use of articles, kinship terms and terms of address. The emphasis is on active oral and writing skills.

Textbooks

AV203 Vietnamese 2A
Semester subject
Six hours per week
Prerequisite: AV104 or approved equivalent
Assessment is continuous

Subject aims and description
This subject aims to consolidate and extend the work accomplished in stage one. The emphasis is on active oral and writing skills. The context of language use will be enlarged to extend the students’ range of vocabulary and to enhance their communicative competence.

Textbooks
To be advised by the lecturer.

AV204 Vietnamese 2B
Semester subject
Six hours per week
Prerequisite: AV203 or approved equivalent
Assessment is continuous

Subject aims and description
This subject continues to expand students’ competence in written and spoken language.

Textbooks
To be advised by the lecturer.

AY100 Psychology 100
Semester subject
Four hours per week daytime
Prerequisites, nil
Assessment is based on practical sessions (including participation as a subject in research) and an examination

Subject aims and description
AY100 and AY101 are designed to introduce students to the content and method of psychology. Topics introduced in AY100 include psychology as a science, comparative psychology, biological foundations of perception and consciousness and experimental design and analysis.

Preliminary reading
Students wishing to familiarise themselves with concepts in psychology could read any recent introductory psychology text available from most regional libraries.

Textbook
Details will be provided in the first lecture in AY100.

AY101 Psychology 101
Semester subject
Four hours per week daytime
Prerequisites, AY100
Assessment is based on an essay, a practical report (including participation as a subject in research) and an examination

Subject aims and description
This subject concentrates on various aspects of cognition. Topics covered include memory, information processing, intelligence and problem solving, as well as motivation and emotion. The design and analysis of experimental studies again forms a major part of the teaching program.

*AY202 Cognition and Human Performance
Semester subject
Four hours per week
Prerequisites, AY100, AY101, SM278
Assessment is based on project work, laboratory exercises and an examination

Subject aims and description
This subject examines major theories of cognitive functioning and the mechanisms and processes involved in human performance. It will provide a basis for understanding skill acquisition and the effects of a workload on arousal levels. After a general introduction to theory, contemporary issues are considered, including decision-making and perceptual-motor performance in clinical and organisational applications.

Textbooks

Not available to students who have previously passed AY313 Cognition and Human Performance.
**AY203 Developmental Psychology**
Semester subject
Four hours per week daytime
or
Three and a half hours per week evening
Prerequisites, AY100 and AY101
Prerequisite or corequisite, SM278
Assessment is based on a practical report, an essay, and an examination

Subject aims and description
This subject focuses on development and maturation in the early periods of life from infancy and childhood through adolescence. The emphasis is on social, emotional, cognitive and intellectual development with a comprehensive experiential and theoretical program supporting the theoretical material.

The teaching program consists of two lectures, a practical session and a tutorial class per week.

Reference
*Not available to students who have previously passed AY200 Psychology 201.*

**AY204 Social Psychology**
Semester subject
Four hours per week daytime
or
Three and a half hours per week evening
Prerequisite, AY100, AY101, SM278
Assessment is based on a practical report, an essay, and an examination

Subject aims and description
This subject involves the scientific study of the personal and situational factors that influence individual social behaviour. 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 plus a tutorial and practical session per week.

Reference
*Not available to students who have previously passed AY201 Psychology 201.*

**AY312 The Psychology of Personality**
Semester subject
Three hours per week
Prerequisites, AY202, AY203, AY204, SM278
Prerequisite or corequisite, SM378
Assessment is based on an examination and a research project and report

Subject aims and description
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 defense; the self; self-regulation; purpose and meaning; the effective personality.

References

**AY319 Psychological Measurement**
Semester subject — equivalent value of one half semester subject
Two hours per week
Prerequisites, AY312, SM378
Assessment will involve four assignments

Subject aims and description
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 unit 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.

Reference
*Not available to students who have previously passed AY311 Methods and Measures.*

**AY320 Psychological Foundations of Counselling**
Semester subject — equivalent value of one half semester subject
Two hours per week
Prerequisite, AY312
Assessment is based on a theoretical examination and a practical interviewing skills project

Subject aims and description
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.

References
*Not available to students who have previously passed AY314 Counselling and Interviewing.*

**AY400 Applied Social Psychology**
Lectures: 1 hour per week
Seminars: 2 hours per week
Assessment: Seminar presentation and literature review

Subject aims and description
Theory, research and applications: social interdependence and conflict; environmental psychology; health psychology; measurement in social psychology.

Research methodology and theory in applied social psychology.

Reference

**AY401 Research Design and Analysis**
Lectures: 1½ hours per week
Seminars: 1½ hours per week
Assessment: Class tests 100%
Submission of satisfactory research proposal

Subject aims and description
Principles of research design. Development of a research proposal.
Social survey techniques.
Questionnaire construction. Interviewing.
Experimental methods. Principles of data analysis.
Reporting research.

References
AY411 Counselling in the Human Services

Lectures: 1 hour per week
Laboratory: 2 hours per week
Prerequisite: AY405
Assessment: Theory examination 50%, Practical assignment 50%

Subject aims and description
Traditional theory and practice in counselling. Models of training in counselling and interviewing.
Models of supervision in counselling psychology.
Counselling service delivery systems.

Evaluating and monitoring counselling service programs.
Contemporary theory and practice in small group psychology; group facilitation skills.

References
Erwin, G. The Skilled Helper, 4th edn, Monterey, California: Brooks/Cole, 1980

AY413 Research Project and Thesis

Independent research under supervision
Prerequisite: AY401 and AY414
Assessment: Submission of a minor thesis (6,000-10,000 words), assessed by two examiners

Subject aims and description
Each student is required to formulate individually an 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 minor thesis.
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 by critical 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 Psychology Department 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 Psychology Department's Statement of Research Ethics.

References
Australian Psychological Society, Code of Professional Conduct.
Parkville, Vic.: The Society, 1986
Swinburne Psychology Department, Statement on Research Ethics. Swinburne Press, 1986

AY414 Computer Use in Psychology

Lectures: 1½ hours per week
Practical Classes: 1½ hours per week
Prerequisite/Corequisite: AY401
Assessment: Class test on SPSS PC+

Subject aims and description
Introduction to the IBM 3090 mainframe and TSO; Introduction to the IBM PC and MS-DOS.
Editing techniques using EDIT on the IBM 3090 and the SPSS-PC+
PREVIEW editor on the IBM PC.
Batch and interactive modes in SPSS
Principles of data analysis using SPSS
Data transformation and recoding in SPSS
Special applications

AY420 Assessing Persons and Environments

Lectures: 1 hour per week
Workshops: demonstration: 1 hour per week
Assessment: Practical examination 100%

Subject aims and description
History of psychological measurement, significant developments, present status and pattern of test usage.
Foundations of psychological measurement: reliability, validity, item characteristics.
Construcuring tests: generating items, formats, norms.
Using tests: general principles of test selection, administration, scoring, interpretation, reporting and communicaion.
Using interviews and behavioural observations.

Assessment in particular applications: clinical, educational, vocational, personality function, neurological and interpersonal behaviour. envionrment Computer: at a time scoring and interpretation.

References

AY422 Ethics and Professional Issues

Lectures: Seminars/class exercises: 1 hour per week
Assessment: 1 hour per week
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.

Subject aims and description
Topics will be selected from the following:
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 ethics: professional problems.
Psychology and the media.
Psychology and the law: mental health legislation, forensic psychology, and the psychologist as expert witness.

References

AY426 Special Application

Fieldwork placement
Assessment: Satisfactory completion of the fieldwork program Submission of a report on the assignments and activities

Subject aims and description
Students will be encouraged to undertake a period of approved practical work in a Psychological Services Unit under the direct supervision of a professional psychologist. This work will normally involve areas of applied psychology such as personnel selection, occupational health and safety, test construction and development, counselling services, educational research. Students intending to undertake such a program will be required to prepare a detailed proposal which must be jointly agreed upon by the supervising
psychologist and the member of the Psychology Department assigned to monitor the fieldwork placement. The program will involve assigned reading, regular consultation between the student and the supervisor and the coordinator, the keeping of a work diary by the student, and the submission of a report of 3,000 words on the placement and the issues of practice highlighted by the placement.

A minimum of 50 hours must be spent in the field.

Reference

AY429 Personality and Social Development

Subject aims and description
This subject is a reading unit which requires students to examine contemporary issues of psychological theory and practice concerning personality development and social behaviour. Topics covered may include:
- Lifespan development models.
- Models of personality, and personality disturbance.
- Couples, marriage, the family.
- Psychology of women.
- Life transitions and crises.
- Gender in social life.
- Ageing.

Each student prepares a review paper suitable for publication in a major psychological journal.

Individual supervision is provided by staff members.

Reference
Peterson, C. Looking forward through the Lifespan. Sydney: Prentice Hall, 1984

AY500 Human Services Research and Evaluation

Subject aims and description
This course will build upon knowledge and skills acquired during undergraduate study in areas such as research design and statistical analysis. The aim is to equip graduates to design, conduct and report applications of psychological research methodologies in human services settings.

Review of foundation topics in research design and analysis.
- Research design in field settings.
- Measurement in human services research.
- Qualitative research methodologies.
- Action research and intervention.
- Single-case methodological models.
- Models of program evaluation.
- Program evaluation methods.
- Program monitoring and performance indicators.
- Evaluation in practice.
- Computer applications in human services research.
- Computer data analysis — advanced procedures.
- Reporting research.

References

AY501 Development and Adaptation

Subject aims
This course is designed to explore contemporary theory pertaining to development, adaptation to stress, and transitions, and to a selected array of specific developmental transitions and life crises together with related intervention strategies which help individuals, families and groups to cope with such life-events.

Introduction to lifespan development theory: analysis of meta theorems. Theoretical models derived from the above metatheory, e.g. Havig-hurst, Erikson, Piaget, Levinson, Neugarten and others.

Theorist of life transitions and their links to the experience of stress and coping.

Theoretical modes of stress and coping, with particular reference to the transactional models of Lazarus and Cox.

An illustrative model for analysing human adaptation to life transitions: Scholsberg.

Problems and issues in conceptualising and measuring development and adaptation to life events.

Interaction strategies for coping with life crises and transitions.

Applications of the above theories and models to specific life events including: burnout as experienced by selected groups (counsellors, teachers, executives); identity issues in adolescence and early adulthood; maladaptive adaptation strategies (drug and alcohol); developmental problems confronting men and women in mid-life, retirement, ageing and senescence.

References

Peterson, C. Looking Forward through the Life Span. 2nd edn, New York: Prentice Hall, 1989


AY502 Psychological Assessment

Subject aims and description
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.


Procedures for establishing and improving the reliability and validity of assessment procedures.

The assessment interview and Psychodiagnostic Systems (e.g. DSM-III-R).

Cognitive and behavioural assessment; Adaptive Behaviour scales.

Assessing occupational interests and references: The Holland VPI and W.A.P.S.

Assessing abilities: including the use of WISC-R and WAIS-R.

Self-report and projective measures of personality functioning.

Conceptualising client and social system dynamics.

Reporting psychological assessments.

References


AY503 Research Colloquium

Subject aims
This subject is designed to extend students’ appreciation of developments in research related to counselling psychology.

Subject description
Brief presentations by students in the program concerning their proposed individual research projects.

Presentations by Departmental staff and visiting researchers and practitioners concerning current research in the field.

Examination of selected examples of published research which constitute exemplars of approaches to researching theoretical or practice issues in counselling psychology.
AY504 Counselling Theory and Skills

Hours per week: 3
Assessment: Practical examination involving the demonstration of an adequate skill level in conducting and appraising a counselling interview (100%)

Subject aims and description
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 helpintended 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.

The development of counselling and counselling psychology. Major theoretical perspectives; cognitive-behavioural, psychodynamic, experiential, systemic.


Developing competence in counselling skills through microcounselling skill-based training.

Assessment, problem-conceptualisation, selected cognitive-behavioural interventions.

References

AY505 Counselling Psychology A: Psychology of Work and Health Psychology

Hours per week: 3
Assessment: Applied project 50%
Class Test 50%

Subject aims
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 organisational settings. Specific topics will include:

Subject description
Psychology of Work Organisational theory
Career choice, development and change
Vocational guidance and career counselling
Personnel selection, induction, training and socialisation
Leadership and supervision
Communication
Staff appraisal
Industrial relations, negotiations, change and conflict resolution
Health Psychology
Stress, illness and psychological Health; Stress and its management Rehabilitation
Retirement, unemployment and retirement
Occupational health and safety
Health surveillance, occupational hygiene and safety practices
Assessing and confronting potential hazards
Ergonomics and person/machine interaction
Future developments

References

AY506 Counselling Applications

Hours per week: 3
Assessment: Practical examination involving case-studies (100%)

Subject aims and description
This subject follows on from Counselling Theory and Skills. It aims to introduce students to a workshop context, to important topics in counselling psychology practice in preparation for students' supervised practice and subsequent independent practice.

Application of counselling techniques to selected client problems: e.g., depression, anxiety, anger, interpersonal-skills deficits, decision-making, crisis counselling, substance abuse, post-traumatic stress, rehabilitation, marital and family conflict, child abuse.

Special issues in client assessment: level of risk of suicidal or violent behaviour, physical illness; DSM-IV Record-keeping and referral, using psychological tests in counselling.

Supervision: functions of supervision, supervision skills, consultation.

References

AY507 Counselling Psychology B: Psychology of Marriage and the Family, Educational Counselling

Hours per week: 3
Assessment: Seminar presentation 50%
Class Test 50%

Subject aims
The course is designed to:
(a) examine contemporary theory concerning the role and function of the family in society.
(b) introduce students to theory and strategies appropriate to the provision of counselling services within educational settings; and
(c) encourage students to conduct self-initiated research into a selection of topics related to the family and education.

Introduction to the study of the family. Definitions of family, variations of family structure. The Australian family: demographics. Family formation and family functions as they concern individuals, families and society. Work and the family life-cycle.


References
AY600 Professional and Ethical Issues

Hours per week: 3
Assessment: Research essay 25%, Practical examination based on case studies 75%

Subject aims and description
This course is designed to ensure that students understand the ethical and legal responsibilities of psychologists working in the human services. Through study of related topics, students will learn about the process of ethics and professional conduct. Topics covered will be chosen from: the Australian Psychological Society; the APS Code; the Psychologist's Registration Act; Ethics in Psychology; professional issues; confidentiality and ethical issues in assessment; professional issues; psycholgists and the media. Values and ethics in psychotherapy. Contemporary ethical issues; child abuse; legal and professional issues; domestic violence; professional and legal issues. Professional competence and weakness; quality assurance. Dual role relationships and conflicts of interest; the public image of psychology.

Mandatory counselling: ethical issues in a private practice; fee charging.
Legal issues: guardianship; intellectual disability. Mental health legislation; psychologists as expert witnesses; the family court; the child witness.
Family law, Community Welfare Services.

References

AY601 Group Counselling Skills

Hours per week: 3
Assessment: Demonstration of an acceptable level of skill in conducting group-based activities 100%

Subject aims and description
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. Applications of groups in counselling psychology practice, types of groups.

References

AY603 Aspects of Professional Practice

Hours per week: 2
Assessment: Students will be required to have reached a competent level of case reporting and to have participated effectively in discussion of cases.

Subject aims and description
The aim of the subject is to consolidate the knowledge and skills gained by students during their supervised practice in order to assist the transfer of this knowledge and skill to psychological practice after graduation. The co-ordinator of the supervisory practicum (Internship A) with the Swinburne Centre for Psychological Services will present cases from their own work for discussion by the group.

Case presentation: Students will present their own cases for discussion by the group.

Theoretical issues: as general issues of practice emerge from case presentation, further reading will be assigned and discussed. Likely issues include:
- the role of psychiatric diagnosis in counselling;
- post-traumatic stress disorder;
- the problem of client relapse;
- issues of counsellor burn-out;
- medical assessment, medication, consultation with medical practitioners.

References
Baruth, L.G. and Huber, C.H. Counseling and Psychotherapy: Theoretical Analyses and Skills Applications. Columbus: Merrill, 1985
Figley, C.R. Trauma and Its Wake. New York: Bruner/Mazel, 1985

AY604 Second Supervised Practicum — Internship B

Prerequisite: AY602
Semesters 1 and 2
Assessment: Students will be evaluated by the supervisor(s) most directly involved with their work and the co-ordinator. Performance will be reviewed mid-way through the internship and an evaluation made at the end.

Subject aims and description
This second practicum is intended to broaden and consolidate students' previous experience in providing a comprehensive case history and problems to a wide range of clients. Students will be allocated to an external internship in one or possibly 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 all aspects of the role, most directly with the co-ordinator. Performance will be reviewed mid-way through the internship and an evaluation made at the end.

References

AY602 First Supervised Practicum (Internship A)

Prerequisites: AY502, AY504, AY506
Semesters 1 and 2
Assessment: Students will be evaluated by the supervisor(s) and the co-ordinator. Performance will be reviewed mid-way through the internship and an evaluation made at the end.
Subjects Taught by Other Faculties

BE110 Microeconomics
Prerequisite: nil

Subject aims
To introduce key micro-economic concepts and to encourage and assist students to apply economic reasoning to issues facing business, government and consumers.

Subject description
This unit introduces students to microeconomic concepts and their application within the framework of the Australian economic and business environment. The course commences with an examination of the role of the contemporary market system 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 situations. The role of microeconomic concepts is discussed for both business and government.

Textbooks

References

BE220 Macroeconomics
Prerequisites, BE210 Microeconomics

Subject aims and description
To provide students with an understanding and appreciation of key macroeconomic concepts, issues and policies pertaining to the Australian economy.

This unit introduces students to key macroeconomic concepts, issues and policies. It is descriptive in nature and emphasis is placed on current issues and policies. To fully appreciate the current Australian economic situation, some theoretical background is necessary and this is provided in the course by the ADAS model. This model is applied to issues such as inflation, unemployment and economic growth. It takes into account the impact of government policies on economic performance.

Textbook

References

BE221 Managerial Economics
Prerequisites, BE110 Microeconomics

Subject aims and description
The unit shows how economic analysis can be used to assist business decision-making. Cases are prepared to illustrate the concepts involved. The unit has the following topics: demand analysis (including empirical demand studies and forecasting); cost estimation and forecasting; and alternative goals of firms.

References

BE222 Industry and Government
Prerequisites, BE210 Microeconomics

Subject aims and description
The unit examines the performance of industry in contemporary economies with special reference to Australia and considers the role of government in these economies. Specific reference will be made to the performance of industry in contemporary economies with special reference to Australia and considers the role of government in these economies.

Textbook

Reference

BE223 Industrial Relations
Prerequisite, BE210 Microeconomics

Subject aims and description
This unit 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 unit will address a range of contemporary issues such as industrial relations, collective bargaining, industrial disputes, the role of management in industrial relations, and wage determination.

Topics to be studied within the unit include:
- Industrial conflict
- The role of the parties unions, employers, government
- Federal and State arbitral systems
- Wage determination
- Management and industrial relations.

Specific references will be provided at the beginning of the unit, however, the following references will provide useful preliminary reading.

References
**BE224 Economic Evaluation**
Prerequisites. BE110 Microeconomics

**Subject aims and description**
This unit provides students with a sound grasp of basic concepts and techniques of economic evaluation for application in areas such as: a review of the effectiveness of budgetary programs, evaluation of major construction projects and capital equipment acquisition, and cost-effectiveness studies. Emphasis in the unit is on the development of interpretative skills, through awareness of the elements of uncertainty and imprecise information.

**Textbooks**

**Reference**

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**BE225 Economic Techniques for Business**
Prerequisites. BE110 Microeconomics and BE110 or BE111 Quantitative Analysis for Business (or an approved equivalent)

**Subject aims and description**
The aim of this unit is to equip students with the techniques and skills generally used in economic and market research in business. The course will cover a wide variety of techniques with an emphasis on analyses and interpretation of information rather than underlying mathematical theory.

**Topics include:**
- Statistical computing
- Data analysis
- Statistical analysis
- Econometric modelling
- Simple linear regression
- Multiple regression

**Textbook**

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**BE226 Applied Macroeconomics**
Prerequisites. BE220 Macroeconomics

This is a second year unit which builds on the material covered in Macroeconomics. The focus of the unit is macroeconomic policy in an applied sense.

**Subject aims and description**
The main objectives of the unit are to:
1. Broaden students’ understanding and appreciation of macroeconomic principles, current issues and policy.
2. Provide students with the necessary skills to evaluate macroeconomic policies.
3. Develop skills in interpreting macroeconomic data, reports and policy statements and to evaluate implications for managerial decision making.

**Topics include:**
- The measurement of macroeconomic performance, limitations of major aggregate indicators, sources of data, situations in economic activity, major macroeconomic forecasting, macroeconomic management within an open economy.

**References**

**Index**

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**BE331 Public Finance**
Prerequisite. BE110 Microeconomics and BE220 Macroeconomics

**Subject aims and description**
This unit involves an analysis of the economic rationale of government expenditure and revenue raising. It will cover the following topics:
1. An introduction to the welfare economics and public choice paradigms and their implications for public sector revenue and expenditure.
2. 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 tax; subsidies to producers and consumers; taxes on the factors of production and prices for reform of the Australian tax system.
3. Techniques for evaluating government programs with particular emphasis on cost-benefit analysis.

**References**
Brown, C.V. and Jackson, P.M. Public Sector Economics. 3rd edn, Oxford: Basil Blackwell, 1986

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**BE332 Economic Research**
Prerequisite. BE110 Microeconomics and BE220 Macroeconomics

**Subject aims and description**
The intention in this unit 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, estimation and data analysis; selected topics in applied economic research (economic model building, cost benefit analysis, industrial studies, aspects of industrial relations).

**Reference**
There is no single prescribed reference for this course, but extensive use is made of current journal articles.

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**BE333 Financial Institutions and Monetary Policy**
Prerequisites. BE110 Microeconomics and BE220 Macroeconomics

**Subject aims**
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.

**Subject description**
This course includes:
- a study of Australian financial intermediaries;
- the process of deregulation and its impact 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.

**Textbooks**
To be advised
BE309 Monetary Course Booklet, 1993

**References**
The Reserve Bank Bulletin — recent issues
BE334 International Trade
Prerequisites, BE110 Microeconomics and BE220 Macroeconomics

Subject aims
To encourage students to recognise the importance of international trade to the Australian economy and to equip students to appreciate and evaluate the ways in which government and business can improve Australia's international trade performance.

Subject description
The subject combines an examination of the nature of economic theory relating to international trade, trade restrictions and industry policy, with discussion of international trade issues of importance to the country.

Topics covered include:
- International Trade and the Australian Economy
- The Economics of Trade and Trade Restrictions
- Australia's place in world trade
- The Terms of Trade and Gains from Trade
- Trade restrictions — nature, reasons, and effects
- regional trading blocs
- Improving Australia's International Competitiveness
- Industry policy issues (e.g. level playing field debate, macroeconomic reform)
- the business perspective — obstacles, and strategies for success
- the role of government.

References

BE335 International Finance
Prerequisites, BE110 Microeconomics and BE220 Macroeconomics

Subject aims and description
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.

Topics covered include:
- The International Financial Environment
- Australia's External Position
- Exchange Rate Theories and Systems
- The Operation of Foreign Exchange Markets
- The International Financial System
- International Banking
- International Regulation

This course is particularly relevant for students who may work in areas which have international financial or trade dealings.

References

BE336 Economics of Social Issues
Prerequisites, BE110 Microeconomics and BE220 Macroeconomics

Subject aims and description
This course 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 course will further 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 environmental protection.

The unit endeavours to teach students the theory and principles needed to be able to analyse social issues from an economic perspective.

Textbook
Because of the contemporary nature of the unit no textbook is set. Comprehensive reference lists will be provided.

BE337 Economic Development
This unit will not be offered in 1993.

BE338 Comparative Labour Relations
This unit will not be offered in 1993.

BE339 Comparative Economic Systems
This unit will not be offered in 1993.

SC173 Biology
Four hours per week (2 hours of lectures and 2 hours of practical work)

A first year subject offered by the Department of Applied Chemistry for students enrolled in the Bachelor of Arts program.

Subject aims and description
Cell structure and function.


Practical work reinforces the theory.

SC174 Biology
Six hours per week for one semester

A second semester subject offered for first year students enrolled in the Bachelor of Arts program.

Subject aims and description
The course 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.


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, antibody-
mediated immunity.
Nervous system: nerves and excitability; transmission, the synapse;
simple reflex arc. Overview of functions and structures in the central
nervous system.
Endocrine system: functions, major glands, their products and
functions.
Reproductive system: anatomy, gametogenesis, contraception,
pregnancy.
Integration of body systems: responses to stresses such as exercise,
shock.
Practical work in the course includes use of the microscope in the
examination of cells and tissues, the testing of body parameters and
physiological functions using charts, biological models and equipment.

SM278 Design and Measurement 2A
Four hours per week daytime
or
Three and a half hours per week evening
Prerequisites, AY100 and AY101
Assessment is continuous

Subject aims and description
A stage two, first-semester subject in research design and statistical
analysis is planned to complement concurrent and future studies in
psychology.
In this subject the emphasis is on understanding the methodology of
basic research design and how the associated statistical analysis can
provide answers to research questions. Students also receive instruc-
tion in the use of the Statistical Package for the Social Sciences (SPSS).
This computer package will be used to analyse data both in this course
and in second and third stage courses in psychology.

Topics to be studied include an introduction to computer based data
analysis, and two-way factorial designs and the corresponding
analysis of variance.

Textbook

SM279 Design and Measurement 2B
Four hours per week daytime
Prerequisite, SM278
Assessment is continuous

Subject aims and description
A stage two, second-semester subject in research design and statistical
analysis that is designed to complement concurrent and future studies in
psychology.
In this subject the topics in SM278 are extended and further
topics in design and analysis are considered. The SPSS package will
be used to perform the various statistical analyses.

Topics to be studied include correlation and an introduction to multiple
regression, analysis of covariance, factor analysis and non-parametric
methods.

References
Child, D. The Essentials of Factor Analysis. London: Holt Rinehart and
Ferguson, G.A. Statistical Analysis in Psychology & Education. 5th edn,
Kerlinger, F.N. and Pedhazur, E.J. Multiple Regression in Behavioural
Norusis, M. SPSS-X. Introductory Statistics Guide. Chicago, Illinois:
SPSS Inc, 1990
Roscoe, J.T. Fundamental Research for the Behavioural Sciences. 2nd

SM378 Design and Measurement 3
Four hours per week daytime
Prerequisite, SM278
Assessment is continuous

Subject aims and description
A stage three, first-semester subject in research design and statistical
analysis that is designed to complement concurrent and future studies in
psychology.

Norusis, M. SPSS-X. Introductory Statistics Guide. Chicago, Illinois:
SPSS Inc. 1990
In this subject the topics included in SM278 are extended and further
topics in design and analysis are considered. The SPSS package will
be used to perform the various statistical analyses.

Topics to be studied include correlation and an introduction to multiple
regression, analysis of covariance, factor analysis and non-parametric
methods.

References
Ferguson, G.A. Statistical Analysis in Psychology & Education. 5th edn,
Kerlinger, F.N. and Pedhazur, E.J. Multiple Regression in Behavioural
Norusis, M. SPSS-X. Introductory Statistics Guide. Chicago, Illinois:
SPSS Inc. 1990
Roscoe, J.T. Fundamental Research for the Behavioural Sciences. 2nd
Academic staff .............................................. 152
Courses offered ............................................. 153
General Information ........................................ 154
Co-operative Education .................................... 154
Professional Associations .................................. 155
Standards of Progress ...................................... 155
Prizes and Scholarships .................................... 155
Graduate Society of Business .............................. 155

Undergraduate courses
Bachelor of Business ......................................... 158
Entrance Requirements ..................................... 158
Accounting major ........................................... 158
Business Law major ......................................... 158
Business Modelling major .................................. 159
Computing major ............................................ 159
Economics major ............................................ 159
Finance major ................................................ 159
Marketing major ............................................ 159
Organisation Behaviour major ............................. 160
Course Structure ............................................. 160
Bachelor of Business (Honours) ......................... 161
Bachelor of Business/Bachelor of Arts .................. 162
Bachelor of Information Technology .................... 162

Postgraduate courses
Graduate Certificate in Business Administration .... 162
Graduate Certificate in Business Information Technology .... 163
Graduate Certificate in Taxation and Finance ....... 164
Graduate Diploma in Accounting ....................... 164
Graduate Diploma in Business Administration .... 164
Graduate Diploma in Business Information Technology .... 165
Graduate Diploma in Corporate Finance ............ 166
Graduate Diploma in Management Systems ......... 166
Graduate Diploma in Market Modelling ......... 167
Graduate Diploma in Organisation Behaviour .... 167
Master of Business by Course Work and Minor Thesis
Information Technology .................................... 168
Organisation Behaviour ................................... 169
Business Administration (MBA) ..................... 169
Master of Information Technology .................. 170
Master of Business by research ..................... 170
Doctor of Philosophy ...................................... 170

Subject Details .............................................. 170

General Information ....................................... 1
Faculty of Business

Dean
M.C. Frazer, BSc(Hons)(Mon), GradDipEdTer(DDIAE), MAadmin(Mon), PhD(Camb), AIMM, MAIP, MACB
Director, MBA Program
R.M. Brown, BCom(Melb), DipEd(Melb), MEd(Mon), MPhil(Lough), FCIM, MACE, MIPMA
Faculty Associate
R. Sharma, BSc, DipEd(Tas), GradDipOpsRes(RMIT), MEdadmin, PhD(UNE)
Assistant Registrar (Business)
M. Conway, BA(Griffith)
Faculty Resources Co-ordinator
S. Kennedy
Faculty Administration Co-ordinator
M. Rheinberger

Academic staff

Department of Accounting

Head
WC. Nash, BCom, DipEd(Melb), MBA(CranIT)
Associate Professor
H.M. Paterson, DipEd, BCom(Melb), MEC, PhD(LaT), CPA
Principal Lecturers
N.J. Allport, BCom, MBA(Melb), BEc(Mon), FCPA
W.H. Platt, BCom, DipEd(Melb), MAdmin, MEnvSc(Mon), CPA
Senior Lecturers
RC. Donkin, DipMechEng(SIT), DipBus(DP)(SIT), BBus(ACC)(Vic), MBA(Deakin), CPA, MACS
M. Dunkley, BBus(CIT), DipEd(Melb), MBA(Mon), CPA
J.R. Gerrand, BEc(Mon), CPA
L. Kloot, BA(Melb), BBus(SIT), MCom(Melb), CPA
A. Richardson, BEc(Mon), GradDipEDP(CIT), MBA(Melb), ACA
BW. Spurrell, BCom, BA, DipEd(Melb), CPA
D.G. Vinen, BEc, MAdmin, DipEd(Mon), ACA, FTIA
J.D. Wells, BCom(Hons)(Qld), MAdmin(Mon), FCPA, ACA
Lecturers
M. Barut, BBus, GradDipAcc(SIT), MBA(Mon)
A. Bell, BBus(SIT), CPA
C. Marsh, DipBus(Acc)(SIT), ACA
E. Sandercock, BA(WA), BBus(SIT), CPA, ACA
I. Tempone, BCom, DipEd(Melb), CPA
K. Turple, BEc(Hons)(LaT), CPA

Department of Economics

Head
J.B. Wielgosz, BCom(Hons), MA, DipEd(Melb)
Principal Lecturer
D.J. Thomas, BA(NSW), MA(Syd), PhD(Mon)
Senior Lecturers
P.G.L. Harkness, BAppSc(UNE), MAdmin(Mon)
Holligan, BEc(Hons)(LaT)
D.J. Owens, BEc(Hons), MAdmin(Mon)
D.J. Smith, BCom(Hons), DipEd, DipConEd(UNE), MCom(NSW)
GradDipBIT(SIT)
K. Xavier, BEc(Hons)(WAust), MA(Leic), MEC(Mon)
Lecturers
C. Barry, MEC(Mon)
A. Binn, BAppSc(UNE)
J. Gerstman, BA, BEc(Mon)
K. Ryan, BEc(Mon), CPA
L. Schulberg, BEc, DipEd(Mon)
J. Watkins, MEC, DipEd(Mon)

Department of Information Systems

Head
D.G. Adams, BCom(Melb), MAadmin(Mon), TSTC
Associate Professor
M.G. Nicholls, MEC, PhD(Mon), MACE
Principal Lecturers
J.A. James, DipMedRadiography, GradDipDP(RMIT)
G.M. Leonard, BSc(Melb), MACS
G.A. Murphy, BCom(Melb), CPA
J.F. Pidgeon, BA, DipEd(Mon)
W.D. Wilde, BCom(Birm), MSc(Melb), MACS
Senior Lecturers
N.L. Bailey, BSc(Leeds), GradDipEd(HIE), MACS
P.M. Kindler, DipBus, BAappSci(CIT), CPA, MACS
G. Monen, BBus(UTS), MSc(TI)(Mon)
G.M. Barlow, BAppSci(UNE), MACS
J.A. Sykes, BE(Melb), DipEE(CIT), PhD(UNSW)
Lecturers
OK. Burmeister, BAppSci(CIT), DipMin
B.A. Calway, GradDipMgtSys(SIT), MBus(IT)(SIT)
P.J. Eden, BSc(Hons)(Qld), MSc(Com), GradDipComp(Melb), GradDipEd(AI), MACS
L. Fantin, DipBS(EDP)(FIT), DipEd(HIE), BEc(Lat)
E. Lindberg, BAAppSci(EDP)(CIT), GradDipEd(HIAE), MACS
J.L. Munro, BEc(Mon), GradDipBusAdmin(SIT), MACS
J.M. Pitt, BA(Melb)
G. Ravalli, BSc(Hons)(Melb), DipEd(Melb), GradDipMathSci(Melb)
PA. Sala, BBus(SIT)
MS. Thurairasa, BA(SU), MACS
M.C. Too, BA(Mu), MSc(MSc), GradDipSAD(Edin), MACS

Department of Law

Head
P. Holland, DipEd, BCom, LLB(Hons)(Melb), MEnvSc(Mon), Barrister & Solicitor (Vic) Supreme Court
Principal Lecturer
B.R. Clarke, BEc, LLB(Mon), GradDipMkt(CIT), Barrister and Solicitor p/c) Supreme Court
Senior Lecturer
S. Kapnoulias, LLM, BA, DipEd(Melb), Barrister and Solicitor (Vic) Supreme Court
Lecturers
S. Edmonds, LLB(Adel), Barrister and Solicitor (Vic) Supreme Court
P. McIntosh, BJuris, LLB(Mon), Barrister and Solicitor (Vic) Supreme Court
C. Parkes, LLB(Tas)
P.J. Pascoe, LLM, BCom(Melb), DipEd, AASA, Barrister-at-Law
M. Psaltis, BA, LLM, DipEd(Melb), Barrister and Solicitor (Vic) Supreme Court
S. Wilson, BJuris, LLB(Mon), Barrister and Solicitor (Vic) Supreme Court
## Department of Marketing and Organisation Behaviour

**Associate Professor and Head**
C. Christodoulou, BAgSc(Melb), MSc, MAdmin, PhD(Mon)

**Principal Lecturers**
J. Newton, MA(Leeds), BBus(CIT)
G. Watts, BCom, MBA, DipEd(Melb), GradDipAppSocPsych(SIT)
L.A. Zimmerman, BCom, MBA(Melb)

**Senior Lecturers**
B. Cargill, BA(Melb), MAPs
G. Drummond, MA(Melb)
B. Evans, BAppSc(RMIT), MAdmin(Mon), GradIMA
M. Enright, DipBusStuds(CIT), BA(Melb)
S. Long, BA(Hons)(Melb), TSTC, MEd(Mon), PhD(Melb)
A. Rodger, BBus, GradDipBusAdmin(SIT), BA(LaTrobe)

## Courses offered in the Faculty of Business

<table>
<thead>
<tr>
<th>Course title</th>
<th>Length of course (minimum)</th>
<th>Entrance requirements</th>
<th>Special comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bachelor of Business</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Full-time</td>
<td>Part-time</td>
<td></td>
</tr>
<tr>
<td>Bachelor of Business</td>
<td>3 years</td>
<td>6 years</td>
<td>Satisfactory completion of VCE or equivalent (including all English work requirements).</td>
</tr>
<tr>
<td>Bachelor of Business (Honours)</td>
<td>1 year</td>
<td>2 years</td>
<td>Extension to the Bachelor of Business degree</td>
</tr>
</tbody>
</table>

Bachelor of Business/Bachelor of Arts — a four-year course is available for applicants wishing to complete the Business degree course combined with a major study in Japanese, Korean, Italian, or Vietnamese.

Bachelor of Information Technology — a three-year degree course taught in conjunction with the Faculty of Applied Science.

**Graduate Certificate**
- Business Administration — 1 year
- Business Information Technology — 1 year
- Taxation and Finance Graduate Diploma
- Accounting — 2 years
- Business Administration — 2 years
- Business Information Technology — 2 years
- Corporate Finance — 2 years
- Management Systems — 2 years
- Market Modelling — 2 years
- Organisation Behaviour — 2 years

**Graduate Diploma**
- Accounting — 2 years
- Business Administration — 2 years
- Business Information Technology — 2 years
- Corporate Finance — 2 years
- Management Systems — 2 years
- Market Modelling — 2 years
- Organisation Behaviour — 2 years

**Master of Business**
- Information Technology — 2 years
- Organisation Behaviour — 2 years
- Business Administration (MBA) — 1 year
- by research — —

**Master of Information Technology**
- 1 year
- 2 years

**Doctor of Philosophy (PhD)**
- 1 year
- 2 years

Refer to course entries for the Master of Information Technology and Doctor of Philosophy (PhD).
GENERAL INFORMATION
Enrolment above standard load
Students may not enrol for more than four subjects full-time or two subjects part-time without permission from the Assistant Registrar. Students seeking to do one extra unit will be assessed on the basis of their previous record; students wishing to do two extra units must apply in writing to the Dean for permission.

Amendments to enrolment
Students must finalise their enrolment by 31 March (first semester) and 31 August (second semester). Subjects cannot be added more than three weeks into a semester, and subjects deleted after the census dates will have a fail result recorded. An Amendment to Enrolment form must be completed for all amendments.

Transfer between full-time and part-time study
Subject to fulfilling any conditions set by the Student Review Committee, a student can transfer between full- and part-time study at re-enrolment times without special permission.

Admission to examinations
Enrolment and satisfactory completion of prescribed assignment work are usual prerequisites for admission to a final examination.

Cancellation of enrolment
Students wishing to cancel their enrolment are encouraged to first discuss this action with the Faculty Student Services Manager or the Assistant Registrar.

Study at another institution for credit towards a Swinburne award
Students wishing to study at another institution for credit towards a Swinburne award must complete the application form available from the Faculty Office (Level 9).

Noticeboards
Information for the benefit of all students is displayed on the noticeboards on Levels 2 and 9 of the Business Arts Building, and it is advisable to check these occasionally. General enquiries should be directed to the Faculty Office (Level 9).

Textbooks
Unless otherwise specified in subject outlines, students are advised not to purchase textbooks or references until classes commence. Books to be purchased are indicated by an asterisk* and further information will be given during the first lecture or class.

Cooperative Education in the Faculty of Business
Manager: J.R.W. Gerrand, BEc, CPA
Secretaries: R. Liethhead, M. Stephens

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

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

The program:
Students are invited during the second year 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 Faculty 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.

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

Students are required to successfully complete a detailed report on their work experience year. Whilst working, students are permitted to study one unit per semester.

Benefits of the program to the students:
The coop year is a wonderful opportunity to combine theory and practice.
- Coop gives students one year of practical experience, enabling them to learn about the working environment, to understand employers' expectations, ethics and relationships with colleagues.
- Coop gives students a head start to a successful future. As they have already held a job, career decisions are made easier and coop students have more to offer to prospective employers.
- There is a potential for coop students to have a job waiting on graduation. Alternatively, part-time employment during final year of study may become available with the coop employer.
- Students have financial freedom through the opportunity to earn and save money.
- Coop enables students to use work experience to choose final year subjects.

Coop employers:
The following companies have been associated with employing business students:
- Alpha Graphics
- ANZ Bank
- Amcor Ltd
- Arthur Andersen
- Attorney General's Department
- Australian Taxation Office
- Australian National Line
- BDO Parkhills
- BHP
- BP Australia
- Bowater Ltd
- Bunge (Aust)
- Cadbury Schweppes
- Carlton & United Breweries
- Chemplex Aust.
- Co-Cam Pty. Ltd.
- Coles Myer
- Coopers & Lybrand
- Creighton-Brown & Co.
- Department of Management & Budget
- Department of Ind. Tech. and Res.
- Duesburys
- Ernst & Young
- Financial Aims Pty. Ltd.
- Ford Aust.
- Hall Chadwick
- Hewlett Packard
- IBM Australia
- Jeffrey Thomas & Partners
- Kraft Foods
- Kwikasair
- McLean Delmo
- Ministry of Education
- MMBW
- Mobil Oil
- National Australia Bank
- Partnership Pacific
- KPMG Peat Marwick
- Philip Morris
- Rag Weir
- Rockwell Electronics
- Scuderia Pty. Ltd.
- Siemens
Professional Associations
To be eligible for membership of the various professional associations, students must complete the following requirements:

Australian Computer Society
Computing stream graduates are eligible for Level 1 membership of this society. Other graduates may qualify for membership by choosing appropriate computing electives.

Australian Society of Certified Practising Accountants (ASCPA) and Institute of Chartered Accountants in Australia (ICA)
Computing stream graduates are eligible for Level 1 membership of these societies. Other graduates may qualify for membership by completing the following post-core units:

- BE220 Accounting 2
- BC221 Corporate Accounting
- BC222 Management Accounting 1
- BC223 Management Accounting 2
- BC224 Financial Management 1
- BC225 Auditing
- BC330 Accounting Theory
- BC331 Taxation
- BE220 Macroeconomics
- BL220 Contract Law
- BL221 Company Law

Australian Human Resources Institute (course accreditation pending)
To be eligible for associate membership of the ASCHPA, students must have completed the following core units:

- BH220 Organisation Behaviour 1
- BH221 Organisation Design
- BH222 Human Resource Management 1
- BH223 Dynamics of the Multi-Cultural Workplace
- BH330 Organisation Behaviour 2
- BH331 Human Resource Management 2
- BH332 Enterprise Bargaining
- BH333 Managing Quality in Organisations

A further two units from other discipline areas

- BE223 Industrial Relations
- BL332 Employment Law

are also required, making a total of 10 units post-core.

Australian Institute of Bankers
The Australian Institute of Bankers 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.

Standards of Progress
1. Preamble
All full-time and part-time students enrolled in undergraduate and postgraduate courses in the Faculty 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.

2. Progress requirements
2.1 Completion of First Year of Undergraduate Program
Full-time and part-time students are not permitted to enrol for second or third year subjects unless they have completed, or are concurrently completing, all outstanding first year 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.

2.2 Standard Enrolment Load
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 be permitted only in exceptional circumstances, and will normally be varied for one semester only. Students wishing to increase or decrease their load must apply in writing to the Assistant Registrar before the next scheduled re-enrolment period, clearly stating the reasons for wishing to vary their load. Variations to the standard enrolment load can only be undertaken at scheduled re-enrolment periods, and the academic record of the student will be taken into account.

2.3 Change of Enrolment Status
Students admitted on a full-time or part-time basis are expected to study on that basis for at least two semesters. Students wishing to change their enrolment status (i.e. from full-time to part-time or vice versa) must apply in writing to the Assistant Registrar before the next scheduled re-enrolment period. Change of status can only be undertaken at scheduled re-enrolment periods, and the academic record of the student will be taken into account.

2.4 Time Limit for Completion of Degree
2.4.1 Undergraduate
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). Leave of absence taken as a progress review condition will not be counted for the purposes of degree completion.

2.4.2 Postgraduate
This section does not apply to higher degree by research students.

Full-time students are normally expected to complete their postgraduate program within two years of their first enrolment in the course (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 normal completion time plus one year for any periods of 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 Faculty Board for an extension of time to complete their course. Applicants must specify the reasons for the delay in completing their course within the specified period.
2.5 Higher Degree Students
Students enrolled for a Master of Business by research, Master of Business by publication or Doctor of Philosophy are governed by progress rules detailed in University statutes (refer to page xxx in this Handbook for further information).

3. Student-at-risk program
Students who do not pass at least 50% 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. These students will be given the opportunity to discuss their situation with a member of the academic staff chosen from a panel of academic staff. Attendance at the "at-risk" sessions is not compulsory, but is strongly encouraged.

4. Unsatisfactory academic progress
The academic progress of a student will be considered to be unsatisfactory if:
   4.1 in the two most recent semesters in which the student was enrolled, the student fails to pass at least 50% of the student's workload; or
   4.2 the student fails for the third time to pass a subject; or
   4.3 the student has failed to meet a condition previously imposed by the Student Progress Review Committee.

The grade NWD — Not Pass Late Withdrawal — will count as a fail grade for the purpose of this section.

5. Show cause applications
Students whose progress is considered to be unsatisfactory will normally 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 faculty. Such students are entitled to make a show cause application to the Student Progress Review Committee about why they should not be excluded. No student will be excluded from the faculty without first having been given the opportunity to show cause to the Student Progress Review Committee as to why they should not be excluded. Such students will not be permitted to re-enrol until the outcome of any show cause application is known.

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

6. Student Progress Review Committee
6.1 Composition
   (a) Chair, appointed by Faculty Board.
   (b) Two members of the academic staff selected from a panel of academic staff nominated by Heads of Departments.
   (c) Faculty Administration Co-ordinator (Secretary).
   (d) Where requested by the student, the President or the Student Union or nominee may be present at the Committee for consideration of that case only.

6.2 Procedure
6.2.1 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.

6.2.2 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.

6.2.3 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.

6.3 Powers
The Student Progress Review Committee may, when considering a show cause application:
   6.3.1 accept the student's show cause application and allow the student to re-enrol without condition;
   6.3.2 accept the student's show cause application but place conditions upon the student's enrolment in the following semester;
   6.3.3 require the student to take a leave of absence for a specified period; or
   6.3.4 exclude the student from the Faculty for a period of two academic years.

6.4 Enrolment Conditions
The academic record of students placed on conditions will be reviewed by the Student Progress Committee at the end of the following semester and a decision made to:
   6.4.1 permit the student to continue studying without further condition; or
   6.4.2 impose a further condition on the student for an additional semester; or
   6.4.3 require the student to show cause why they should not be excluded from the Faculty for a period of two academic years.

7. Appeals against decisions of the Student Progress Review Committee
To be advised pending finalisation of new University Assessment Regulations.

8. Period of exclusion
Students who are excluded from the Faculty will not be permitted to re-enrol for a period of two academic years (four semesters, excluding summer semesters), unless the student was excluded under Section 4.2.

Students excluded under Section 4.2 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 subject at that institution.

9. Re-enrolment after a period of exclusion
Students wishing to re-enrol after a period of exclusion must contact the Faculty Administration Co-ordinator three months prior to the semester in which they wish to re-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 permitted subject to places being available.
Prizes and Scholarships

The Faculty 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 Faculty at all times encourages.

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

TW. Higgins Scholarship
Awarded on the basis of need and academic performance to a full-time second or third year student in the Faculty of Business. Applications close in April.

Bourne Griffiths/ Swinburne Entrepreneurial Accountant Scholarship
Awarded on interview to a student entering final year 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.

Aspect Computing Scholarship
Awarded on interview to a second year computing student.

Swinburne Association of Marketing Scholarship (SAM Scholarship)
Awarded on the basis of need and academic performance to a full-time second or third year Economics/Macroeconomics/Marketing student in the Faculty of Business.

Faculty of Business Prizes
Annual awards are made by the following donors:
Arthur Andersen and Co. Prize
The student with the best aggregate performance in Financial Management.
Bill Hibble, Arthur Andersen and Co. Prize
The best performance in a computing programming unit.
Australian Chamber of Manufactures Prize
The best student in Industrial Relations
Australian Chamber of Manufactures Prize
The best student in Industry & Government
Australian Computer Society Prize
The best student in final year computing practical work. (Awarded to a BBus student in 1993 — alternate years awarded to BAppSc student.)

The Australian Institute of Management Malcolm Moore Medal
The best overall student completing the Economics and Marketing combination.

Australian Institute of Management Business Administration Prize
The best candidate completing the Graduate Diploma in Business Administration selected for entry without a first degree or diploma.

Australian Society of Certified Practising Accountants Prizes
The best students in first, second, and third year accounting units.

Australian Society of Corporate Treasurers’ Prize
Blashki Regalia Supplies Pty. Ltd.
BP Australia Prize
John D. Brooke Prize
William Buck and Co. Prize
Butterworths Books Prizes

Faculty of Business

Australian Institute of Auditing, Taxation and Marketing Law.
ICI Prize

Institute of Chartered Accountants of Australia Prizes

Integrity Prize
KPMG Peat Marwick (incorporating Touche Ross and Co.) Prize
KPMG Peat Marwick (incorporating Touche Ross and Co.) Business Japanese Prize

The best overall student completing the Graduate Diploma in Corporate Finance.
For the best student in the Graduate Certificate in Business Administration public’ course.
The best student in Corporate Accounting.
The best student in Budgeting.
The best student in the unit Business Computing.
1. The best student in Marketing Law.
2. The best student in International Business Law.
3. The best student in Advanced Tax.
The best student in Financial Institutions and Monetary Policy.
The best student in Management Accounting 1 and Management Accounting 2.
The best two students in second year Systems Design — Information Systems 1.
The best student in EDP Auditing.
The best student in Macroeconomics.
The best student in Microeconomics.
The best student with a major study in economics.
The best student in Auditing and a post-first-year DP unit.
The best final year computing student.
1. The student with the best aggregate performance in Auditing, Taxation and Accounting Theory.
2. The student with the best aggregate performance in the Graduate Diploma in Accounting — Professional Year modules.
The best student in Accounting 1.
The best student in undergraduate Auditing.
The best second year student in the BBus/BArts (Japanese) program.
Logica Prize  The best performance in Database.
Malleson Stephen Jaques  The best student in Company Law.
National Australia Bank Prize  The best student in Economic Research.
National Mutual Prize  The best student in the subject The Social Psychology of Organising.
Rigby Cooke Prize  The best student in Legal Environment of Business.
Siemens Ltd Prize  The best student in Contract Law.
Swinburne Graduate Society  Best overall student in the Graduate Diploma in Business Administration.
Thomas Nelson Australia  Best student in the Marketing Concept.
Vic Roads Prize  The best student in Leadership and Change in Organisations.
The following prize is presented by Swinburne University of Technology:
TW Higgins Prize  The best graduating student in the degree of Bachelor of Business.

Swinburne Graduate Society of Business
Membership is open to students and graduates of post-graduate courses within the Business Faculty. The Society:
1) Facilitates networking amongst business people from a wide range of industries;
2) Provides a link between business and Swinburne University and therefore an input into the structure and content of courses;
3) Aims to add value to the members' qualifications obtained from Swinburne University.
For further information about the Society and application forms please contact the Head of the Marketing and Organisation Behaviour Department, Faculty of Business.

Undergraduate Courses
A055 Bachelor of Business
The Bachelor of Business is a three-year full-time (or six-year part-time) degree program offered at both the Hawthorn and Lilydale campuses. Part-time study is available during the day only at Lilydale and it is expected that students who commence their course at Lilydale will undertake their complete course there.

Entrance requirements
The normal entry requirements for the Bachelor of Business degree program is successful completion of the VCE or equivalent. It is recommended that applicants have studied mathematics to at least Year 11 standard.

Other qualifications
Applicants must have a qualification deemed to be the equivalent of the VCE by the Victorian Curriculum and Assessment Board. Such qualifications may include interstate and overseas qualifications and associate diploma studies at a TAFE college.

Special entry
Applicants who have not completed a Year 12 qualification or who completed a Year 12 qualification 5 or more years ago are required to sit for an aptitude test before they can be considered for admission.

Quota
Not all qualified applicants can be accepted because of the limited number of available places.

Applications
Full-time all years: to Victorian Tertiary Admissions Centre
Part-time all years: to Swinburne
Transfer between Swinburne faculties:
— Full-time: to Swinburne
— Part-time: to Swinburne

Bachelor of Business Specialisations
The course leading to the award of Bachelor of Business offers major, minor and elective studies in accounting, business law, business modelling, computing, economics, finance, marketing and organisation behaviour.
The following majors are available from the Faculty of Arts: Australian Studies, Asian Studies, Italian, Japanese, Korean, Literature, Media Studies, Sociology, Political Studies, Psychology, Philosophy and Cultural Inquiry and Vietnamese.

Accounting
Accounting is the basic language of business. The accounting units offered by The Accounting Department cover the many different aspects that accounting embraces in today's business activities.
Year one is designed to give students an overview of accounting from a user point of view and to introduce the basic principles and concepts underlying the accounting discipline. Emphasis is placed on accounting as an information system and a commercial computerised software package is incorporated into the program.
Year two units cover the external accounting financial statement requirements of business entities and the internal management accounting systems developed by business entities to enable them to better manage their activities. Year three students are able to study units in taxation, auditing, finance, accounting theory, management accounting and financial accounting.
All units are designed to integrate the theoretical concepts with the practical reality of today's business environment. Students with an accounting major and other appropriate units are eligible for membership of the two major professional accounting bodies — the Australian Society of Certified Practising Accountants and the Institute of Chartered Accountants. Past students have found their accounting qualifications recognised both here and overseas.

Many accounting graduates do not pursue careers in the public accounting profession. They find their niche in organisations in industry, commerce, the public sector, the finance sector and in business consulting. These careers may well be in accounting or financial specialisations but may find careers in general management or other functional specialisations.

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 unit, Legal Environment of Business, introduces students to basic-legal concepts and important areas of business law. The unit concentrates on the inter-relationship
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 units 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 units to students.

 Whilst 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.

**Business Modelling**

The business modelling major will provide a comprehensive set of skills that are necessary for the successful analysis of everyday business problems and to 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 the Business Modelling and other faculty 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 multidisciplinary skills that are extremely marketable within the business community.

**Computing**

In today’s world, information technology has pervaded every aspect of business organisations. As such, the study of computing and information systems is vital for any business student.

There are a number of discipline areas within computing and the student can select options based on interest or career aspirations. These options can be categorised under three main headings:

- **Business computing**
  This would be taken by students who would 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 units from the information systems offerings qualify for Level One membership of the Australian Computer Society.

**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.

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

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

Third year 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.

**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.

**Marketing**

Successful companies take the path of ‘market focus’, ie. their strategies are customer driven. Marketing deals with the building and implementation of customer focus. The meaning of marketing is often misunderstood. Understandably so, as we see many magnificent advertisements with out 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 ‘inward’, 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 got 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.

**Organisation Behaviour (OB)**
The units 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:

1. Prepare students for a range of management roles in business;
2. Develop a strong understanding of organisation theory and structures, the behaviour of groups, the individuals who comprise those groups and the dynamic inter-relationships among all these parts and aspects;
3. Develop students' capacity to reflect upon and understand their own, and others behaviour;
4. 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 in human resource management (HRM), leading to associate membership of the Australian Human Resources Institute (course accreditation currently being sought with 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.

### The Bachelor of Business Study Program

Students undertake a total of 24 units, consisting of a core of seven units, and a combination of majors, minors and electives. A major consists of six units (at least two at stage three) and a minor consists of four units (at least one at stage three).

Structured options to total 24 units are as follows:

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<tr>
<th>Option 1</th>
<th>7 Business Core</th>
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<td>6 First Major</td>
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<td>6 Second Major</td>
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<td>Option 2</td>
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<td>4 Minor</td>
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<td>7 Electives</td>
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The seven core units are:

- Accounting 1
- Microeconomics
- Information Technology A
- The Marketing Concept
- Organisations and Management
- Quantitative Analysis
- Legal Environment of Business

### Accounting
- Stage one (core unit)
  - BC110 Accounting 1
- Stage two
  - BC220 Accounting 2
  - BC221 Corporate Accounting
  - BC222 Management Accounting 1
  - BC223 Management Accounting 2
  - BC224 Financial Management 1
  - BC225 Auditing
- Stage three
  - BC330 Accounting Theory
  - BC331 Advanced Taxation
  - BC332 Strategic Cost Management
  - BC333 EDP Auditing
  - BC334 Financial Accounting
  - BC335 Financial Management 2
  - BC336 Taxation

### Business Law
- Stage one (core unit)
  - BL110 Legal Environment Of Business
- Stage two
  - BL220 Contract Law
  - BL221 Company Law
  - BL222 Marketing Law
  - BL223 Computer Law
  - BL224 Retailing Law
- Stage three
  - BL330 Advanced Company Law
  - BL331 International Business Law
  - BL332 Employment Law
  - BL333 Finance Law

### Business Modelling
- Stage one (core unit)
  - BQ110E Quantitative Analysis (Enabling)
  - BQ110 Quantitative Analysis A
  - BQ111 Quantitative Analysis B
- Stage two
  - BQ220 Business Forecasting
  - BQ221 Marketing Data Management
  - BQ222 Quantitative Management Techniques
  - BQ223 Business Demography
- Stage three
  - BQ330 Market Modelling
  - BQ331 Survey Research Methods

### Computing
- Stage one (core unit)
  - BT110 Information Technology
Bachelor of Business (Honours)

Introduction

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 Department of Accounting, Business Law, Business Modelling, Economics, Information Systems, Marketing and Organisation Behaviour.

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

The program encourages a multi-disciplinary approach by permitting students to undertake, where appropriate, subjects offered by other Departments, Faculties 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 requirement

A student may be admitted into the Bachelor of Business (Honours) program if they have satisfied the requirements for a Swinburne Bachelor of Business three year pass 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 Faculty of Business 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.

Research methodology component

The research methodology unit (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 unit 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 unit is compulsory for all Bachelor of Business (Honours) students and no prerequisite is necessary. Subject to approval from the Faculty of Business Honours Committee, a pass in an equivalent subject at a graduate level may entitle the student to an exemption from this unit.

Discipline-specific and research components

Students should seek advice from the Honours Convener in the appropriate department when formulating their discipline-specific course of study and their research project proposal. Students may, subject to approval, undertake selected Honours-level coursework units from other Departments,
Bachelor of Business/Bachelor of Arts Double Degree

The Bachelor of Business/Bachelor of Arts double degree is of four years duration (32 units) and is designed to enable students to complete the compulsory requirements for any Business major and minor together with the full range of available Japanese, Korean, Italian or Vietnamese units in order to complete the requirements of two degrees.

Entrance Requirements
See section under Bachelor of Business above.

Degree Structure
Students must complete the core units of the Business degree (7 units) and a major and minor in the Faculty of Business. The following language units are also studied depending upon the language specialisation chosen.

A057
Beginner's stream

AJ103 Japanese 1A
A1104 Japanese 1B
A1203 Japanese 2A
A1204 Japanese 2B
A1303 Japanese 3A
A1304 Japanese 3D

Advanced stream

A1106 Advanced Japanese 1A
A1106 Advanced Japanese 1B
A1205 Advanced Japanese 2A
A1206 Advanced Japanese 2B
A1305 Advanced Japanese 3C
A1306 Advanced Japanese 3D

Both streams

A1102 Understanding Italy
A205 The European Community
A206 20th Century European Literature and Thought
A308 Italian Business Practice
A311 Modern Italy

A059
Korean
AK103 Korean 1A
AK104 Korean 2A
AK101 Background to Contemporary Korean Society
AK205 Korean 2B
AK206 Contemporary Korean Society
AK203 Modern Korea
AK301 Korean 2B
AK303 Korean 3C
AK304 Korean 3D

Vietnamese*

AV103 Vietnamese 1A
AV104 Vietnamese 1B
AV203 Vietnamese 2A
AV204 Vietnamese 2B
AV303 Vietnamese 3A
AV304 Vietnamese 3B
AV305 Vietnamese 3C

This course is undergoing accreditation and will be offered in 1993.

1050 Bachelor of Information Technology

Manager: G.A. Murphy, BCom, CPA
Administrative Officer: R.J. Shaw, BSc

This course is offered in conjunction with the Faculty of Applied Science.

The course equips graduates 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.

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 44 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 $9,000.

Segment 1

IT101 Computer Fundamentals
IT102 Introduction to Programming
IT103 Business Applications and Systems 1
IT105 Behaviour and Communications in Organisations
BC104 Accounting 1

Segment 2

1 Decision Analysis
IT202 COBOL Programming
IT203 Business Applications and Systems 2

2 Non-computing Electives

Segment 3 (Summer Term)
IT301 Systems Software 1
IT302 Organisation Behaviour
IT303 Data Base Management Systems 1

Segment 4

IT401 Industry Based Learning
20 weeks

Segments 5 and 6

10 units must be studied in these two consecutive segments. They can be taken in any order that prerequisites allow, and must include 6 core units, 4 chosen from the specialist units on offer and 2 non-competing electives.
Core units
IT501 Systems and Information Analysis 1
IT503 Data Base Management Systems 2
IT504 Data Communications 1
IT505 Software Engineering 1
IT601 Systems and Information Analysis 2
IT602 Software Engineering 2
Specialist units
IT502 Systems Software 2
IT505 Knowledge Engineering
IT506 Expert Systems
IT507 Computer Graphics and Imaging 1
IT508 Systems Software 3
IT603 Data Base Management Systems 3
IT606 Artificial Intelligence

Other approved specialist computing units may be chosen from either the Bachelor of Applied Science or the Bachelor of Business courses.

Segment 7
IT701 Industry Based Learning
20 weeks
Segment 8 (Summer Term)
IT801 Project
IT802 Seminars and Project Management and Control
All units will not be offered each semester.
For detailed syllabus information see Faculty of Applied Science.

Graduate Certificate courses
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 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
BC401 Accounting for Management
BH401 Managing People
BH402 Managing Organisations
BM401 Marketing Management
BT401 Business Software for PCs
This course is based on 16 week semesters. Classes are conducted on Friday afternoons between 1:00pm and 3:15pm and 3:45pm and 6:00pm.
In addition the course may be run 'in house' for organisations where a significant number of students are available.

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. Graduate Certificate students who are accepted into the Graduate Diploma would normally gain exemptions in three Graduate Diploma units, viz: BC503 Introduction to Financial Management 1, BM501 Marketing Management and BH501 Administration of Organisational Systems.

Fees
The Graduate Certificate Business Administration is a full-fee paying course.

A072 Graduate Certificate in Business Information Technology

This course is equivalent to one semester of full-time study or two semesters part-time. However it may be taken in a variety of modes.

Course objectives
The course is designed to provide candidates with the basic information technology skills necessary to support a successful career in business.

The primary objectives of this course are:
• to develop within candidates the basic information technology skills necessary to support a successful career in business;
• to provide formal information technology education for personnel involved in information systems but who lack a broad perspective of information technology;
• to develop candidates’ analytical and creative skills in using information technology for business planning, decision making and opportunity analysis;
• to provide 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 not 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.

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 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;
• at least five years significant and relevant industry experience; and/or
• professional experience in a computing environment.

Course structure
BT402 Introduction to Information Technology
BT403 Business Computing
Plus two units from:
BT404 Computer Programming
BT405 Information Systems Strategies
BT406 Data Base Design and Implementation
BT407 Technology and Change
In special circumstances, after consultation with course authorities, students may study other approved units from either the Graduate Diploma in Business Information Technology or the Graduate Diploma in Management Systems.

**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 advisors;
- 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:

- 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**

- BC410 Introduction to Taxation
- BC411 Taxation Entities, Issues and Planning
- BC412 Introduction to Finance
- BC413 Investment Analysis

**Fees**

The Graduate Certificate in Taxation and Finance is a full-fee paying course.

**Graduate Diploma courses**

**A080 Graduate Diploma in Accounting**

The Graduate Diploma in Accounting is offered by Swinburne University of Technology in conjunction with the Institute of Chartered Accountants in Australia. This course is designed to provide candidates with an opportunity to pursue an advanced course of study which incorporates the Professional Year technical modules requirements of the Institute of Chartered Accountants.

**Course objectives**

This course offers candidates:

1. an opportunity to study for professional year technical modules in a structured learning environment;
2. the chance to enhance their professional skills in both the technical areas of accounting practice and related fields which have assumed a position of greater importance in recent years.

**Entrance requirements**

1. Applicants must have an approved tertiary qualification in business, commerce or economics including a major study in accounting.

2. Applicants must have at least one year's relevant work experience and be in full-time employment with a chartered accountant or firm of chartered accountants in public practice and be enrolled for the ICAA Professional Year.

**Course structure**

The course consists of three mandatory double units as follows:

- BC554 Auditing and EDP
- BC555 Accounting
- BC556 Taxation
- and the mandatory unit:
- BC557 Personal Financial Planning

* These three units are the Swinburne equivalent of the Institute of Chartered Accountants' Professional Year technical modules of Accounting, Taxation and Audit and EDP.

**Exemptions**

Students will be granted exemptions for a maximum of one Professional Year unit previously passed.

**Methods of study and assessment**

Candidates will complete the same research projects, in-class work and module examinations as required by the Institute of Chartered Accountants. In addition to these requirements, further sessions will be held to develop conceptual and practical skills with the aim of enhancing candidates' prospects of success in their Professional Year examinations.

**Standards of progress**

In order to continue in the course, candidates must maintain a satisfactory standard of progress. A sub-committee shall review results with the object of determining whether a satisfactory standard of progress has been attained and whether the candidate should be allowed to continue in the course.

**Institute of Chartered Accountants in Australia (ICAA)**

To satisfy the ICAA's Professional Year requirements candidates must also complete the Institute's Professional Practice module. This module will be conducted by the ICAA and can only be attempted after all three technical modules are passed.

**A083 Graduate Diploma in Business Administration**

This program is offered for qualified executives or potential executives, who have not undertaken significant studies in this area.

The program gives candidates:

1. a working knowledge of the factors affecting the task of the manager and methods of analysing these factors. Particular emphasis is on the needs of middle-management in both private and public enterprise, to manage in a changing environment;
2. 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 within two years of part-time study, but, in order to continue in the course, students must maintain a satisfactory standard of progress.

Course structure
First year
- BCS03 Introduction to Financial Management
- BE501 Economics
- BH501 Administration of Organisational Systems
- BS501 Marketing Management 1
- BC504/5 Quantitative Methods

Second year
- BC604 Financial Structures and Policy
- BH605 Managing Human Processes
- BS601 Marketing Management 2
- BM603 Business Policy

The program is an intensive two-year part-time course. All units 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 units 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 unit, 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 units and assigned alternative units in their place.

Alternative units
Candidates who are precluded from more than one first-year unit must choose, in consultation with the course convener, an alternative post graduate unit.

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 co-operative 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 about 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 units have been organised on a block system. All unit sessions will be offered on Monday morning between 8.00am and 10.00am and between 10.30am and 12.30pm. In addition, special seminars and subject seminars may be scheduled for one evening (normally Wednesday) between 6.00 and 9.00.

A087 Graduate Diploma in Business Information Technology

Course objectives
This course is designed as an entry level course for graduates in any discipline who wish to utilize 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 are dependent on obtaining specific skills and knowledge of computing as applied to business.

Specifically the course is aimed at giving students:
- Practical skills in:
  - (i) common business software packages
  - (ii) computer programming
  - (iii) structured analysis
  - (iv) data base management systems
  - (v) data communication
  - (vi) expert system tools
- Conceptual knowledge about:
  - (i) evaluating systems development tools
  - (ii) choosing appropriate methods of systems development and appropriate processing facilities
  - (iii) solving problems associated with implementing computer and office automation systems
  - (iv) the role of information technology in meeting an organisation's business objectives.

Employment opportunities
The type of work that graduates may be involved in includes:
- (i) liaising between user areas and the computer department (business analyst)
- (ii) analysing and designing information systems
- (iii) programming
- (iv) evaluating software and hardware
- (v) coordinating computer projects
- (vi) administering a computer function within an organisation
- (vii) marketing support for software and hardware suppliers
- (viii) education and training in information technology in schools, the computer industry or the public sector.

Course structure
The course consists of eight (8) semester units. Taken on a part-time basis, the course will consist of two (2) units per semester for four semesters. Taken on a full-time basis, the course will consist of four (4) units per semester for two semesters. For the final unit, students will select one from Knowledge Based Systems, Systems Software, and Advanced Programming.

The units are:
- BT504 Introduction to Information Technology
- BT506 Information Analysis
- BT507 Computer Programming
- BT508 Data Base Management Strategies
- BT509 Data Communications and Office Automation
- BT513 Business Software Engineering
- BT508 Systems Development Strategies
- BT509 Knowledge Based Systems
- BT511 Systems Software
- BT612 Advanced Programming

Each unit is conducted for four hours per week. In many units part of this time will be taken up in computer laboratories. Students will have access to laboratories outside normal class times.

Entrance requirements
Entry is open to graduates who have a degree, diploma or equivalent in any discipline from a recognised university or other institution.
In addition, a small number of places are available to applicants without tertiary qualifications but who have substantial business experience.

**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.

### A086 Graduate Diploma in Corporate Finance

This course is intended to further career prospects for people who are presently employed in, or want to be employed in, the area of corporate finance, but who have undertaken little or no undergraduate study in corporate finance.

These people may include, among others:
1. those with undergraduate accounting or business qualifications in which only introductory finance courses were available or chosen;
2. graduates from disciplines such as engineering, law, data processing or other related fields, who have moved, or want to move, into financial management or corporate finance positions.

**Course objectives**
- To provide participants with a broadly-based training in all major aspects of contemporary corporate finance.
- To integrate the associated disciplines encompassed by the corporate finance function (e.g., economics, law, corporate strategy, quantitative methods) with the corporate finance core of the course.
- To improve significantly, specific decision-making and management skills by emphasising the practical application of theoretical concepts developed during the course.

**Entrance requirements**
The course is intended for graduates and diplomates who have sufficient professional experience to benefit from it. Entrance is also available to a restricted number of mature-age non-graduates or diplomates whose position or experience is sufficient indication of their capacity to complete the course.

**Course structure**
The course is organised into an eight-unit structure to be completed over two years of part-time study at the rate of two units per semester. In order to continue in the program, candidates must maintain a satisfactory standard of progress.

Consistent with the course objectives of a broad coverage and the integration of related disciplines, there are no elective units offered.

#### First year
- **Semester 1**
  - BCS04 Corporate Financial Management 1
  - BCS05 Financial Modelling
- **Semester 2**
  - BCS05 Corporate Financial Management 2
  - BCS06 Investment Management

#### Second year
- **Semester 1**
  - BC606 Current Developments in Corporate Finance
  - BES03 International Finance and Monetary Theory
- **Semester 2**
  - BES03 Financial Instruments and Markets
  - BLS02 Legal Aspects of Finance

**Preclusions**
Candidates may be precluded from attempting a unit in the unlikely event that they have recently passed an equivalent unit elsewhere. In such instances candidates may select an elective unit after consultation with appropriate staff members.

**Standards of progress**
The following should be read in conjunction with 'Standards of Progress' as applying to Graduate Diploma in Corporate Finance:

- 'At least one unit must be passed each semester until all course work is completed, unless a deferment of study is sought and approved.'

### A084 Graduate Diploma in Management Systems

The Graduate Diploma in Management Systems involves two years of part-time study. Classes are conducted in the evening.

**General objectives**
This course is offered to people working in a data processing environment who wish to pursue an advanced course of study and improve their career opportunities.

After completing this course, candidates should be able to:
1. develop their understanding of the application of management systems methodology to the problems of commerce, industry and government;
2. evaluate the changes and advances in the field of computing technology and use sound reasoning to determine the acceptability of these developments;
3. fully appreciate the effects of various proposed solutions;

**Course structure**
The course is in two parts, mandatory units and elective units. The compulsory part of the course is concentrated on the ‘systems and management’ side of data processing. The range of the investigation, analysis, design and development of management systems will form a major part of the course. Project and operation management is covered in depth to ensure that students have a thorough understanding of how systems can be developed and operated efficiently. The course stresses commercial applications with particular emphasis on the involvement of the eventual users of these systems in the process of their development.

The program is made up of eight units and candidates are required to take these from two groups as follows:

#### Group 1
The following units are compulsory:
- BT503 Software Engineering Strategies (2 units)
- BT502 Current Issues in Systems Design
- BT501 Systems Project Management
- BT502 Information Systems Management
- BT603 Management Systems

#### Group 2
Students must take an approved pair of units from this section:
- BH604 Management, Organisation and People
- BM602 Strategic Management
- BT503 Introduction to Financial Management
- BC604 Financial Structures and Policy

The Graduate Diploma in Management Systems forms the first two years of the Master of Business (Info. Tech.). Candidates wishing to proceed to the Master of Business (Info. Tech.) should choose the elective pair:
- BH604 Management, Organisation and People
- BM602 Strategic Management

**Preclusions**
It is normal policy to grant preclusions, however, if students have appropriate prior training, they may be allowed to choose other approved units including BT605 Systems Development Project (2 units).

**Extension seminars**
In addition to normal class contact each student is required to attend up to six three-hour seminars each year of the course. The aim of the seminar program is to present the latest
developers and trends in the data processing industry or present specialised topics of particular interest to the computer industry.

**Suitable applicants**
The intake into this course is usually:

1. computing professionals progressing past the programmer level into systems analysis and project management;
2. systems analysis, consultants and some user department representatives who have had considerable experience in the development of management systems.

**Entrance requirements**
Entry is open to graduates who have a degree, diploma or equivalent from a recognised university or other institution. Graduates from any discipline may apply but applicants are expected to have work experience in a computing environment.

The course is available also to a number of carefully selected candidates without tertiary qualifications or who have substantial computer experience. These comprise only a small percentage of total enrolments.

An information seminar is conducted for short listed candidates prior to entrance to the course. Interviews may be required.

**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 skill 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 marketplace problems and market dynamics,
- recognising the importance of incorporating information and forecasts into the strategic planning process.

There are three broad aims of this course.

a) to develop course participants' skills so that they will be better equipped to perform an analysis of the dominant environmental factors which affect the markets in which different business organisations operate.

b) to utilise the evaluation of the market and together with the necessary tools and knowledge 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 run horizons.

c) to be able to take the results obtained in a) and b) above, and prepare the necessary management and technical reports that will allow efficient and effective use of the information obtained.

**Admission requirements**
Course 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 10 per cent) will be made available to persons who do not hold a formal tertiary qualification and who meet minimum standards as may be laid down from time to time by the faculty of Business. A limited number of places (up to 10 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 units of structured education and training completed at either tertiary education establishments or in the work place. Recognition of prior learning will have a maximum credit transfer of 25 per cent of the course.

**Structure and student workload**
The course structure consists of enabling units in information technology and statistics, a Faculty generic core unit in Research Methodology, six core units and one elective unit.

It is anticipated that students wishing to undertake this program will have a background in information technology and statistics at the undergraduate level or through appropriate industry based training. Students who cannot demonstrate introductory knowledge in these areas will be required to undertake formal coursework.

The unit in Research Methodology has been designed to meet the needs of all students proceeding to post-graduate studies. The unit aims to provide students with the basics for performing self directed learning.

The core units are designed to provide students with the basic knowledge and skills necessary for developing and applying market models.

The elective unit may be chosen from a subset of accredited units 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 course participants will choose units from within existing Faculty of Business Graduate Diplomas.

The program will be structured with the following units:

1. **Enabling units**: Information Technology (eg. BT504 Introduction to Information Technology).
2. Generic Core Unit: 
   - Research Methodology (eg. BQ405 Research Methodology).
3. **Core Units**:
   - Market Modelling 1 (eg. BQ507 Market Modelling 1).
   - Marketing Research Methods (eg. BM605 Marketing Research Methods).
   - Business Demography (eg. BQ606 Business Demography).
   - Market Modelling 2 (eg. BQ607 Market Modelling 2).
4. **Plus one elective unit from**:
   - Introduction to Financial Management (eg. BC503 Introduction to Financial Management).
   - Information Analysis (eg. BT506 Information Analysis).
   - Organisational Psychology (eg. BH507 Organisational Psychology).
   - Forecasting and the Planning Process (eg. BC612 Forecasting and the Planning Process).

**A085 Graduate Diploma in Organisation Behaviour**
This course is for managers who wish to extend their knowledge of human behaviour within organisations. Most students in this course aspire to, or occupy middle and senior management positions in large or small organisations.

The object of the course is to give candidates:

1. a knowledge of the human factors that affect the task of management, together with a study of available methods for an analysis of these factors;
2. an opportunity to examine and to practise problem-solving and decision-making when handling people in the organisational context;
3. a broadened outlook beyond their immediate area of specialisation.
Course structure
The program is an intensive two-year, part-time course. The units (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.

First year
BH605 The Social Psychology of Organising
BH606 Leadership and Change in Organisations
BH607 Group and Interpersonal Psychology

Both these units run for the whole academic year and have a total class time commitment of 5 hours per week.

Second year
BH606 Culture and Conflict in Organisations
BH607 Management Organisation and People

Each unit runs for 4 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 is 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 units are taught concurrently over the whole year. Second year units are taken successively on a semester basis. The course is offered on either Wednesday or Friday between 8am and 1pm. Special or syndicate sessions may be scheduled where appropriate. A residential or seminar program in addition to the usual 5 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.

Masters degrees by course work and minor thesis
A092 Master of Business (Information Technology)
The Master of Business (Information Technology) involves four years part-time study.

Course objective
The aim of this course is to provide a formal, structured program, covering the major areas of the broad field known as Information Technology as applied to business, but with the flexibility to allow cross-disciplinary studies within the Swinburne course, i.e. Master of Applied Science (Info. Tech.) and Master of Engineering (Info. Tech.) and, where appropriate, special electives to be undertaken at other associated institutions.

This course is intended for career students who aspire to management level positions or in management consulting with software houses or management service organisations. During the course, students will develop:
- the high level capacity and independent analytical skills necessary to assess the impact of Information Technology on an organisation, the people in it and its implications for commerce, industry and government;
- the capacity to understand the information technology needs of an organisation, and the ability to manage its selection, introduction and operation within the organisation;
- an understanding of the technology of information processing and its application in technical or management tasks.

In general, graduates will have enhanced skills in developing and applying advanced Information Technology systems in a wide range of industrial, commercial and public sector applications.

Course structure
The Graduate Diploma in Management Systems forms the first two years of the Master of Business (Info. Tech). Candidates in that course wishing to proceed to the Master of Business (Info. Tech.) should choose the elective pair:

BH604 Management Organisation and People
BH605 Strategic Management

First Year and Second Years
Graduate Diploma in Management Systems.

Third Year (Masters Course)
Semester 1
BQ701 Business Forecasting
B7702 Knowledge Based Systems

Semester 2
BQ702 Computer Aided Management
BH707 Management of Strategic Change

Fourth Year
B7801 Project and Thesis (4 units)

Admission requirements
Entrance requirements are as specified for the Graduate Diploma in Management Systems. For progression from the Graduate Diploma in management to the third year of the Master of Business course, students would normally be expected to have attained an average of at least Credit throughout their Graduate Diploma in Management Systems studies.

Students with honours degrees in Business or Computer Science may be granted advanced standing by exemption from appropriate subjects. Provision is also made for transfer of subject credits to, and from, other co-operating institutions in Melbourne for approved equivalent course content.
A091 Master of Business (Organisation Behaviour)
This is a four year part-time degree by course work and minor thesis. The first two years are the same as for the Graduate Diploma in Organisation Behaviour; year three comprises a further four units of course work and the final year is devoted to the preparation, under supervision, of a minor thesis. The objectives of the Masters 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 criteria. Accordingly, each applicant is asked to attach to the application form a detailed curriculum vitae and a personal statement.

Course structure
Wars One and Two
Graduate Diploma in Organisational Behaviour
War Three
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 into further domains of organisation behaviour.

War Four
BB801 Organisation Research Project and Thesis (under supervision)

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, on the need to make proper use of new technologies, on the need to export, and on 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. Both senior managers and young executives in the early stages of their careers will benefit from the course.

An Organisation Based Strategic Project
During the course it is necessary for participants to obtain access and support from the management of a Melbourne 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 unit 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 unit 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:
1. A complete MBA course in one year full-time.
2. 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 six months full-time or 12 to 18 months part-time.

Course structure
A093 Full-time MBA
Four days in residence
To get to know other course members and the teaching staff, to clarify expectations about the course and its themes, to establish working teams, and to consider the key behavioural aspects of organisational life.

Also, BT703 Introduction to Business Software, a five day computer skills program, is held prior to the start of the main semester.

Term 1 (15 weeks)
BB809 Strategic project planning
(BB706 Managing People and Organisations)
BB701 Economics for Management
BC701 Accounting for Management
BB803 Technology and Management
BM701 Marketing for Management

Term 2 (15 weeks)
BB809 Strategic project (continues)
BB701 Management of Resources
BT704 Computing for Management
BM801 Business Planning and Policy
BB702 Management of Ideas
BB803 Elective

Term 3 (10 weeks)
BB809 Strategic project (concludes)
BB804 Management and Society
BM801 Business Planning and Policy

N.B. Applicants who have qualified for the Swinburne rad Certificate in Business Administration may be credited with up to 3 units towards the full-time MBA.

Conversion to MBA from Graduate Diploma
A095 Full-time
Term 1 (15 weeks)
BB702 Management of Ideas
BT704 Computing for Management
BB801 International Business
BB809 Strategic project (Value 4 units. To be completed in six months.)

Term 2 (10 weeks)
BB804 Management and Society
BB809 Strategic Project (Concludes)

A094 Part-time
Term 1 (15 weeks)
BB809 Preparation for Strategic project which continues throughout the year and up to 18 months (Value 4 units.)
BB802 Technology and Management

Term 2 (15 weeks)
BB702 Management of Ideas
BB801 International Business
BB809 Project continues

Term 3 (10 weeks)
BB804 Management and Society
BB809 Project continues
A further period of approximately six months.

**BB809 Strategic project completion and report**

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 one-year MBA, students are required to complete an elective unit.

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 unit requires classes or seminars totalling 30 hours plus individual work or assignments in small groups. There are additional seminars when needed dealing with topics which enhance the unit 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**

This intensive and innovative course is required to meet all costs from the fee of $29,000 for the one year MBA (1993). Of this, half is due on acceptance into the course, and the remainder at the end of term 1.

For the conversion course for Graduate Diploma holders, the fee is $13,000.

**Master of Information Technology**

This course is offered in conjunction with the Faculty of Applied Science.

**Course objective**

The course is designed to provide a framework in which students can pursue at an advanced level particular areas of interest in contemporary information technology. Current areas of specialisation are automated systems development, human-computer interaction, intelligent systems, and software engineering.

Each of the areas of specialisation is intended to suit the needs of recent graduates who wish to pursue advanced studies, and practitioners seeking to update or enhance their knowledge.

**Course structure**

The units of study in the Master of Information Technology course are organised into clusters, which are of three types: Discipline clusters, consisting of four units with a common theme.

Complementary clusters, consisting of four units that complement the discipline cluster, previous experience and interests. Units forming a complementary cluster may come from other clusters, the Bachelor of Business (Honours) program, the Bachelor of Applied Science (Honours) program in computer science, or other suitable programs.

Research and project clusters, consisting of a major piece of work in the area of the discipline cluster and the submission of a thesis.

For 1993, the following clusters will be offered, subject to adequate demand:

**Discipline clusters**

- Automated Systems Development
- Information Systems Requirements
- Resources for Information Systems Development
- Systems Strategies
- Automated Development Methods
- Human-Computer Interaction
- Programming the User Interface
- Interactive Systems Development
- Human-Computer Interaction Project
- Intelligent Systems
- Foundations of Intelligent Systems
- Intelligent Systems Applications
- Adaptive Intelligent Systems
- Intelligent Systems Project
- Software Engineering
- The Software Process
- Systems Analysis
- Object-Oriented Design and Programming
- Real-Time Systems
- Advanced Database Technology
- Research/Project Clusters
- Automated Systems Development Project
- Research Project
- Software Engineering Project

**Duration of the course**

The course will normally be completed through one academic year of full-time study, or two years of part-time study. Subject to timetabling restrictions, which may vary from semester to semester, students undertaking the course on a part-time basis may enrol initially for two clusters, each to be completed over two years, or alternatively, enrol for one cluster at a time, each to be completed over one year.

**Admission requirements**

To be eligible for selection into the Master of Information Technology course, an applicant will have completed, at an appropriate level of achievement, a graduate diploma in information technology or computer science, or equivalent, or will have completed an honours degree (or equivalent) in information systems or computer science. The requirement for an honours degree may be waived for an applicant able to demonstrate substantial relevant industrial experience. For progression from the Graduate Diploma in Business Information Technology (A072), applicants would normally be expected to have achieved an average grade of at least Credit throughout the course.

Applicants admitted to the Master of Information Technology course may be granted advanced standing for previous studies at masters level at Swinburne or elsewhere. Such advanced standing would be granted on a case-by-case basis.

**A090 Master of Business**

- **A091 Doctor of Philosophy**

The Faculty of Business offers full-time and part-time research Master of Business and Doctor of Philosophy programs. Research programs can be carried out in the following discipline areas:

- Accounting
- Business Law
- Business Modelling
- Economics
- Information Systems
- Law
- Marketing
- Organisation Behaviour
Each department has Research Co-ordinators who help prospective candidates to develop innovative projects and arrange appropriate supervision.

Scholarships

Higher Educational Contribution Scheme (HECS): 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) a year to postgraduate researchers of exceptional promise.

Industry Sponsored Scholarship: The Faculty of Business has been fortunate to obtain a number of scholarships from industry for which its higher degree students can apply.

Faculty Scholarships: The Faculty of Business is able to offer scholarships for full-time higher degree students from time to time.

Applicants should note that 2-3 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 Assistant Registrar, Faculty of Business on 819 8491.

Undergraduate subject details

BC110 Accounting 1
Prerequisite, Nil

Subject aims and description
A basic introduction to accounting concepts and the analysis of financial reports. Accounting theory and practice are examined in an historical cost accounting system. This unit includes the following topics: an introduction to accounting and financial statements; revenue and expenses; cost of sales and inventory valuation; non-current assets and depreciation; liabilities; equity; performance evaluation; analysis and interpretation and cash flow statements.

Textbooks


References


BE110 Microeconomics
Prerequisite: Nil

Subject aims
To introduce key economic concepts and to encourage an understanding of how businesses make their decisions and how government policies affect the market. The unit introduces students to the role of the contemporary market system 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 situations. The significance of microeconomic concepts for both business and government policy is emphasised throughout the unit.

Textbooks


References


BH110 Organisations and Management
Prerequisites, nil

Subject aims and description
The objectives of this unit are:

— to enable students to gain an understanding of the nature of organisations and the role of management including open systems theory and the management roles of planning, decision-making, organising, leading staffing and controlling;

— 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.

In addition to the theoretical material covered in lectures, tutorial exercises are designed to enable students to apply concepts either to situations within their own experience or to relevant business situations. The importance of people in organisations is stressed in these exercises.

Textbook


References

As advised in class

BL110 Legal Environment of Business
Prerequisites, nil

Subject aims and description
This unit 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 unit 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.

Textbooks


BM110 The Marketing Concept
Prerequisite, nil

Subject aims and description
This unit explores the concept of marketing from a variety of perspectives. The objective is the understanding of key concepts of marketing, which is the process of building a framework for the integration of a variety of ideas on business-customer exchanges and the role of the marketing function.

The unit provides common year students with a series of lectures, group tutorials, case studies and assignments designed to give students an opportunity to explore basic business and marketing concepts from a variety of perspectives. Related issues of concern to not-for-profit organisations are also explored.

Particular emphasis is given to the role marketing plays in the organisation's process of adapting 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 unit, 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 as well as providing a strong philosophical foundation for the vocational study of marketing, either as an electivesequence or as part of the Marketing or Economics-Marketing stream.

Textbooks

Students are required to purchase 'The Marketing Concept' book, a comprehensive guide to the course, tutorials and assignments.

References

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.

BQ110E Quantitative Analysis A (Enabling)
BQ110 Quantitative Analysis A
BQ111 Quantitative Analysis B

Three hours per week for one semester
Prerequisites: Students without appropriate Year 12 mathematics, or its equivalent, must take both 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 the appropriate Year 12 mathematics, or its equivalent, must take the unit BQ111 Quantitative Analysis B consisting of three hours per week for one semester.

Subject aims and description
The content of BQ111 is the same as the combined content of BQ101E + BQ110, but the time allocation differs. The primary purpose of this unit is to 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. The unit will provide students with a knowledge of particular techniques in mathematics and statistics so that students with a knowledge of particular techniques in mathematics and statistics will be better placed to understand and apply modern techniques in various disciplines within the Faculty. The unit has distinct business modelling emphasis and is applied in nature with interpretation and presentation forming an integral part of the unit.

Topics covered will normally include the following:
- Language and notation;
- Functional relationships;
- Differential calculus including determination of maxima and minima and partial differentiation;
- Introduction to the mathematics of finance;
- Presentation of statistical data;
- Measures of central tendency and dispersion;
- Probability theory and probability distributions;
- Sampling theory and design;
- Statistical inference including estimation and confidence intervals;
- Index numbers;
- Time series analysis including correlation and regression.

Textbook
Comprehensive student notes and references will be made available.

This unit will cover:
- database theory
- database practice using dBASE III+ or dBASE IV
- advanced DOS
- structured programming
- programming practice using dBASE + or dBASE IV
- systems analysis and development

References
To be advised.

BT110 Information Technology

Subject aims and description
An understanding of Information Technology is essential for a successful career in business (and most other areas of employment). This unit develops an awareness of how computers are used to solve business problems and gives the student strong practical skills in current microcomputer software.

Objectives
1. To give students a broad understanding of information technology
2. To endow students with computer skills which will be of immediate benefit in other units, and of later use in their careers.

Content
- fundamentals of computing
- microcomputers and large systems
- data communications
- systems development
- data concepts
- structured programming
- word processing
- spreadsheets (Lotus 1-2-3)
- data base (dBASE III + or IV)
- basic DOS

Textbook

References
Other current introductory books on information technology
Swinburne-produced guides on word-processing, Lotus 1-2-3, and dBASE III +, and DOS.

BC220 Accounting 2

Prerequisite: BC110 Accounting 1

The development of accounting processes as in information flow to provide the basis from which management control and decision making stems.

Both the manual and computerised processing of information are examined and a commercial accounting package for microcomputers is used to facilitate the latter.

The accounting equation is re-examined in order to prepare the balance sheet and profit and loss statement from supporting ledgers. The effects of cash stock and debtors are included, as are rules for balance day adjustments and bank reconciliation statements.

Textbooks
Student Manual, Swinburne, 1992

References

BC221 Corporate Accounting

Prerequisite: BC220 Accounting 2

Subject aims
The overall unit objective 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 financial accounting 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.

**Subject description**
The unit covers the following areas:
— share capital and other forms of finance;
— business combinations, including amalgamations, mergers and takeovers;
— group accounting basis; 
— availability of profits for distribution;
— 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.

**Subject aims**
The objectives of this unit are:
— to provide students with an understanding of the concepts of financial management;
— to develop in students the skills of analysis and evaluation needed to apply the concepts of financial management.

**Subject description**
The course is structured from the point of view of orientating the student to the fundamentals of managing the financial aspects of a business and covers the following specific topics:
— concepts of financial management;
— evaluation and selection of investment projects;
— cost of capital;
— sources of finance and financial intermediaries;
— dividend policy;
— financing methods and impact on capital structure;
— financial statement analysis;
— current developments in finance.

**Textbook**

**References**
Bruce, R., McKenn, B., Pollard, I. and Skilly, M. Handbook of Australian Corporate Finance. 4th edn, Sydney: Butterworths, 1991

**BE220 Financial Management 1**
Prerequisite: completion of all core units, and BC220 Accounting 2

**Subject aims**
The objectives of this unit 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.

**Subject description**
The course is structured from the point of view of orientating the student to the fundamentals of managing the financial aspects of a business and covers the following specific topics:
— concepts of financial management;
— evaluation and selection of investment projects;
— cost of capital;
— sources of finance and financial intermediaries;
— dividend policy;
— financing methods and impact on capital structure;
— financial statement analysis;
— current developments in finance.

**Textbook**

**References**
Bruce, R., McKenn, B., Pollard, I. and Skilly, M. Handbook of Australian Corporate Finance. 4th edn, Sydney: Butterworths, 1991

**BE225 Auditing**
Prerequisite, students enrolled in this unit are expected to have passed BC221 Corporate Accounting

**Subject aims**
The broad objective of this unit is to familiarise students with the underlying concepts, objectives and reporting function of the audit process. The unit deals with both theoretical and practical aspects of auditing. The aim is to integrate the concepts of auditing with practical approaches taken by the auditor to ensure students gain a complete picture of the audit process.

**Subject description**
Theoretical topics studied include auditing methodology and the formulation of auditing standards; audit independence; audit evidence; the rights, duties and legal liability of auditors; the audit report and the concept of truth and fairness; internal control. The various approaches to the sufficiency of audit evidence; computer audits, internal management audits and materiality.

**References**
Subject aims and description

This unit deals with topics such as decision-making under conditions of uncertainty, demand analysis with emphasis on demand estimation and forecasting, pricing decisions in decision-making, performance criteria, the nature of the modern corporation (including transnational corporations) and specific approaches to industrial policy and regulation are discussed.

Textbook

Reference

BE223 Industrial Relations
Prerequisites: BE110 Microeconomics

Subject aims and description

This unit 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 unit 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 unit include:

- industrial conflict;
- the role of the parties — unions, employers, government;
- Federal and State arbitral systems;
- wage determination;
- management and industrial relations.

Specific references will be provided at the beginning of the unit, however, the following references will provide useful preliminary reading:

References
BE227 Environmental Economics  
Prerequisites: BE110 Microeconomics

Subject aims and description  
The aim of this unit is to familiarise students with the economic techniques that can be applied to the problems of environmental management. 
Topics include: the environmental impact of growth; the need for pollution control; the economics of pollution control.

Textbooks and References  
To be advised.

BH220 Organisational Behaviour 1  
A second year unit of three hours per week for one semester.  
Prerequisite: BHII0 Organisations and Management

Subject aims and description  
The major aim of the unit is to give students a sound knowledge and understanding of the impact of human behaviour on organisational effectiveness. 
By reflecting on and applying this experience, students gain insight into the behaviour of people as individuals and as group members within the organisational context. They also begin to learn about their own behaviour and their impact on others. Some class sessions may be conducted in the Management Behaviour Laboratory where activities may be recorded for student use only.

Topics include: socialization, group dynamics, negotiation, learning, personality, perception, motivation, leadership, managing change, power and politics.

Textbooks and References  
To be advised.

BH222 Organisation Design  
Prerequisite: BHII0 Organisations and Management

Subject aims  
The aim of the field of study known as organisation design is to create an understanding of what ‘good organisation’ is for each of a variety of institutions that are engaged in very different activities on all kinds of scales within contrasting economic, social, political and cultural settings.

Within this context, the unit aims 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 practical problems through the use of research and theory of organisation design and involvement in the investigation of at least one organisation.

Subject description  
The unit covers five main areas of study:

(1) The contextual dimensions of organisation:  
- the external environment;  
- goals and effectiveness.

(2) Organisation structure and design:  
- the design of jobs and work structures;  
- organisational bureaucracy, size and growth;  
- organisational design, size and growth;  
- organisational technology;  
- functional, product and matrix structures.

(3) Design influences on dynamic processes:  
- information and control;  
- organisational change.

(4) Integrating the total system  
(5) Organisational research

References  

BH223 Dynamics of the Multi-Cultural Workplace  
Prerequisite: BHII0 Organisations and Management or BHII2 Organisational Behaviour 1

This is a new unit, currently being developed and expected to be offered in Semester 2, 1993.
It will explore difference and the management of such differences as race, gender, and national and cultural background — all very real for the increasing diverse Australian workforce and society.

BL220 Contract Law  
Prerequisite: BL110 Legal Environment of Business

Subject aims and description  
The general aim of this unit 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.

Textbooks  

References  

Acts of Parliament  
Goods Act 1958 (Victoria)
Trade Practices Act 1974 (Commonwealth)
Insurance Contracts Act 1984 (Commonwealth)

Faculty of Business
BL221 Company Law
Prerequisite: BL110 Legal Environment of Business
This unit is compulsory for students in the accounting stream; optional for others.

Subject aims and description
The intended here is to undertake a comparative analysis of the form of business organisations.
This involves an introduction to partnership and company law.

Textbook
Lipton, I. and Herzberg, A. Understanding Company Law. 4th edn, Sydney: Law Book Co., 1991

References
Healey, D., and Terry, A. Misleading or Deceptive Conduct. North Ryde: CCH Australia Ltd., 1991
Healey, D. and Terry, A. Misleading or Deceptive Conduct. North Ryde: CCH Australia Ltd., 1991

BL222 Marketing Law
Prerequisite: BL110 Legal Environment of Business

Subject aims and description
The unit involves an examination of the legal controls imposed on the manufacturing, 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.

Textbooks
Healey, D. and Terry, A. Misleading or Deceptive Conduct. North Ryde: CCH Australia Ltd, 1991
Healey, D. and Terry, A. Misleading or Deceptive Conduct. North Ryde: CCH Australia Ltd, 1991
Healey, D. and Terry, A. Misleading or Deceptive Conduct. North Ryde: CCH Australia Ltd, 1991

BL224 Retailing Law
Prerequisite: BL110 Legal Environment of Business

Subject aim
This unit aims 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.

Subject description
Topics covered in this unit 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.

Textbook

References
Healey, D. and Terry, A. Misleading or Deceptive Conduct. North Ryde: CCH Australia Ltd, 1991

BM204 Marketing Appreciation
Prerequisite: BM110 The Marketing Concept

Method of Instruction: In a course of this nature active participation is essential. The theoretical aspects of the course can be reinforced by use of case studies and exercises.

Subject aim
The subject aims to give students a broad understanding of the marketing environment and an overview of the total business function, in particular with respect to planning and decision-making.

Subject description
Marketing foundation; strategic planning and marketing plan.

Textbook

References
BM220 Market Behaviour

Prerequisite: BM110 The Marketing Concept

Method of instruction: In a course of this nature active participation is essential. The theoretical aspects of consumer behaviour are supplemented by practical problems through the use of case studies and fieldwork exercises.

This unit is a mandatory requirement for the Bachelor of Business (Marketing) and Bachelor of Business (Economics/Marketing). It can be taken as an elective in other courses.

Subject aims

The objective of this unit is to study the process of consumer choice, its determinants and its implications for marketing strategy. At the completion of the unit, students should have acquired an understanding of:

- the process of human decision making, and:
- understand the three main influences on consumer choice:
  - the individual consumer
  - environmental influence
  - market strategy

Textbook


BM221 Marketing Research

Prerequisites: BM220 Market Behaviour and BQ222 Marketing Data Management or BEO205 Economic Techniques for Business. Unless students study BM222 Marketing Strategy and BM221 Marketing Research concurrently, BM222 is a prerequisite for BM221.

Method of instruction: Lecture and tutorial sessions will be interrelated and will be split approximately 50/50. The experience of several guest lecturers will be drawn upon to illustrate practical applications of course material. Additionally, logbooks, project submissions and class presentations will form part of the learning process.

Subject aims

This unit is designed to extend the knowledge and skills gained from the prerequisites with particular emphasis on the gathering and analysis of data to provide information required for marketing decisions. It is aimed at those individuals who use marketing research as an aid to better decision-making by giving an insight, via hands-on experience, of how marketing research is carried out.

Subject description

Marketing research as an aid to decision-making. Plan a marketing research project. Develop and write a proposal. Secondary and primary research. Collection of information: qualitative and quantitative methods, questionnaire design, sampling. Data analysis: introduction to using computer packages. Writing and presenting a report. Ethical issues in marketing research.

Textbooks

To be advised.

BM222 Marketing Strategy

Prerequisite: BM220 Market Behaviour

Marketing Strategy is a mandatory unit in the economics-marketing, and marketing streams and an elective unit in the accounting and computing streams.

Subject aims and description

The objective of this unit is to examine further marketing concepts at a more complex level, focussing on the marketing planning process as a key tool in an organisation's interaction with the environment. Specific aims:

- to allow students to consolidate and develop upon the concepts developed in BM101 and BM220;
- to enhance students' capacity to critically analyse business situations from a marketing viewpoint;
- to give the students a working understanding of the methods and concepts of strategy analysis and how these can be applied in practice;
- to expose the 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

Case studies 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


Textbook


References


BM223 Business Forecasting

Prerequisites: BM111 Quantitative Analysis B (BM111E + BM110) Quantitative Analysis A

Subject aims and description

This unit will provide students with an exposure to the first of many vital business modelling tools. The unit commences by providing students with an overview of forecasting techniques and approaches. Following on from this, the criteria for selection of an appropriate forecasting technique are examined and detailed consideration is given to the first of the three main forecasting categories — predictive forecasting from a time series. These techniques are introduced via case studies based on a variety of product markets. The techniques considered range from the simple non-adaptive averaging methods through to an examination of the need to use more advanced methods.
complex approaches. After successfully completing this unit, students will be competent users of the main forecasting techniques. The approach taken in this unit is a practical one and therefore considerable use will be made of PGBased business modelling software packages.

Textbook

References
Bowers, DA. An Introduction to Business Cycles and Forecasting, Addison Wesley, 1985
Cryer, J.D. Time Series Analysis, PWS Publishing Co., 1986
Newbold, P. and Bos, T. Introductory Business Forecasting, South-Western publishing & Co., 1990

BQ221 Marketing Data Management

Three hours per week for one semester
Prerequisites: BQ111 Quantitative Analysis B (BQ111E + BQ110) Quantitative Analysis A and BMII0 The Marketing Concept

Subject aims and description
This unit forms an important part of the market analyst's toolkit. The unit has been designed to equip students with the techniques and skills required to access and analyse information relevant to market research activities of both private and public companies. The approach taken in this unit is a practical one and therefore considerable use will be made of PGBased business modelling software packages.

This unit 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 and in a mainframe computing environment;
- Extend students' knowledge of the statistical methods that are necessary for the analysis of primary and secondary data.

Textbook
Norusis, N.M. SPSS/PC+ Studentware Plus for Business, SPSS Inc., 1991

References
Supermap User Guide and Reference, Space-Time Research, Melbourne, 1988

BQ222 Quantitative Management Techniques

Students intending to complete a major or minor in Accounting are strongly recommended to include this unit as part of their studies.

Three hours per week for one semester
Prerequisites: BQ111 Quantitative Analysis B (BQ111E + BQ110) Quantitative Analysis A

Subject aims and description
This unit will provide students with an awareness of a range of business modelling techniques and their application to a variety of accounting and general business problems. As a result of this unit, students will gain an understanding of the inter-relationships between decision making techniques and the traditional accounting function in an organisation. This will form the basis for a more advanced study in the future.

The emphasis of this unit 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 unit considerable use will be made of PGBased business modelling software packages.

Areas of study will normally include:
- The general problem of resource allocation with an emphasis on linear programming, including an introduction to post-optimality analysis;
- An introduction to qualitative and predictive business forecasting with particular emphasis on short-term product demand;
- An analysis of the use of business modelling techniques to manage inventory;
- An introduction to general approaches to planning and decision-making.

Textbook

References
Anderson, M.O. and Lievano, R.J. Quantitative Management — An Introduction, 2nd edn, Kent, 1986
Groebner, DF. and Shannon, PW. Introduction to Management Science, 1st edn, MacMillan, 1982

BQ223 Business Demography

Three hours per week for one semester
Prerequisites: BQ111 Quantitative Analysis B (BQ111E + BQ110) Quantitative Analysis A and BMII0 The Marketing Concept

Subject aims and description
A substantial number of business problems are related to changes in the population and therefore an understanding of demography is required to understand business markets. This unit consists of an introduction to the basic methods of demographic analysis for human populations, enterprises and industries. The aim of the unit is to explore the market implications of demographic change. The approach taken in this unit is a practical one and therefore considerable use will be made of PGBased business modelling software packages.

The unit will normally consist of:
- Sources of demographic data;
- Measuring demographic phenomena: fertility; mortality; internal and international migration;
- Population estimates and projections;
- Cohort analysis;
- Demographics of enterprises and industries: labour force; skills; markets;
- International demographic trends.

Textbook

References

BT220 Data Analysis and Design

Prerequisites: BT110 Information Technology or both BT102 Information Technology 1A and BT103 Information Technology 1B

Subject aims and description
This unit extends the basic information technology user skills gained in BT110 to the development of a simple automated personal data base and retrieval system to solve a well - defined 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 database system is relevant and accurate. Students will use conceptual data analysis methods to produce a logical data model.

References
To be advised.

BT221 Business Computing

Prerequisites: BT110 Information Technology or both BT102 Information Technology 1A and BT103 Information Technology 1B

Subject aims and description
This unit is specifically for students taking the Business Computing major or minor or non computing majors. The unit 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 away from the 'BT110 Information Technology' aim of understanding the technology to an identification and evaluation of the technological solutions which may be necessary. The unit also aims to enhance students' skills in the presentation of system studies. The unit is structured for a study of business computing from
the user's point of view rather than from 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
To be advised.

References
A detailed reading guide will be issued for each topic and will include articles from industry journals and newspapers. Also included will be:

BT222 Business Computing Applications
Prerequisites: One Stage 2 Computing Unit

Subject aims and description
This unit builds on the knowledge of business computing applications gained in previous Computing units. A range of generic business needs and some corresponding software solutions are viewed from an organisational perspective.

References
To be advised.

BT223 Information Systems 1
Prerequisites: BT110 Information Technology or BT102 Information Technology A and BT103 Information Technology B
BT220 Data Analysis and Design must be taken prior to or concurrently with this unit

Subject aims and description
This unit will extend the information technology user skills gained in BT1 and complement the business information analysis and personal data base design skills developed in BT220 to the analysis, design and implementation of a straightforward transaction processing system with more of emphasis on the procedural aspects. By the end of this unit students should be able to:
- analyse business and organisational information system requirements of limited scope and complexity, e.g., up to a work group or departmental level
- describe and recommend strategies for developing the computer software components of a solution to such requirements
- make appropriate use of automated software development tools
- implement a simple system
- evaluate the successfulness of a system.

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

References
To be advised.

BT224 Programming 1
Prerequisites: BT110 Information Technology or both BT102 Information Technology 1A and BT103 Information Technology 1B

Subject aims and description
To give students an understanding of the principles and practice of commercial programming.

By the end of the course, the student will be able to:
- describe the programming process, from problem definition through to program testing;
- discuss the principles of structured programming;
- explain the importance and philosophy of testing;
- design a logical structured solution to a problem using various algorithm techniques;
- read, understand, modify, and debug COBOL programs;
- design, write, test, and document attractive, well-structured programs in COBOL.

Topics covered include the following:
- program structure;
- data structure;
- algorithm design;
- data validation;
- arrays and tables;
- sequential files;
- reporting;
- indexed files;
- strings;
- testing.

References
To be advised.

BT225 Programming 2
Prerequisites: BT224 Programming 1

Subject aims and description
This unit builds upon the programming skills and concepts learned in BT224 Programming 1. One or more new programming languages (currently C) are introduced and the students design and code programs in this language(s).

Programming expertise is developed by concentrating on techniques that are most appropriate to the new language(s) or operating environment.

References
To be advised.

BT226 Knowledge Based Systems
Prerequisites: BT110 Information Technology or both BT102 Information Technology 1A and BT103 Information Technology 1B

Subject aims and description
In this unit the students develop and understand the nature and uses of expert systems in business. The unit involves practical work using expert system building tools.

Topics covered:
- what expert systems are, how they are developed and who is using them;
- how expert systems differ from conventional software programs, human beings who perform tasks expertly and artificial intelligence programs;
- various forms of knowledge representation;
- principles of frame-based systems;
- basic concepts of artificial intelligence and knowledge engineering that affect design and implementation;
- knowledge base design;
- 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 an expert system shell;
- comparative strengths and weaknesses of existing knowledge engineering tools for end users and professional developers;
- the pitfalls and opportunities that arise from the important need to evaluate artificial expertise;
- computers and natural language;
- introduction to neural networks.

Textbooks
To be advised.

References
BC330 Accounting Theory
Second year accounting subjects should be completed before attempting this subject.

**Subject aims and description**
The objectives of this unit are:
- to examine the development of the theory of 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 unit to study some specific issues in financial accounting including deferred tax accounting, various inflation accounting systems, intangibles, accounting standards development and foreign operations.

Although the subject is concerned with theory, considerable use is made of practical examples in the course. These are designed to illustrate the alternative techniques available while the theoretical framework is used to evaluate and choose between the alternatives.

**Textbook**

**References**
Hendriksen, E.S. Accounting Theory. 4th edn. Homewood, Ill: Richard D. Irwin, 1982
Hodgson, A., Holmes, S. and Kam, V. Accounting Theory Sydney: Jacaranda Willey, 1992

BC331 Advanced Taxation
Prerequisite, BC336 Taxation

**Subject aims and description**
This unit is a final year unit designed for students who require additional experience of taxation issues. The objective of the unit is to acquaint students with the areas of taxation of practical utility by concentrating on the taxation implications of various taxable entities, in particular, companies, unincorporated entities, superannuation funds, primary producers, trusts, beneficiaries and children's income, superannuation funds, companies and dividend imputation, current developments in taxation, capital gains tax, fringe benefits tax, administrative provisions, tax planning, part NTA and tax avoidance.

**References**
Australian Tax Cases. North Ryde: CCH Australia Ltd.

BC332 Strategic Cost Management

**Subject aims**
Students enrolled for this unit will be expected to have passed BC222 Management Accounting I

**Subject description**
This is a final year unit designed to develop and integrate the planning, decision and management techniques introduced to management accounting and financial management.

**Subject estimation**
Budgeting is explored as a strategic cost analysis framework. Traditional practice is questioned and alternative approaches evaluated. The impact of modern manufacturing technology and challenging economic and competitive conditions are considered.

**References**
Various current Exposure Drafts and Standards issued by the Australian Accounting Research Foundation and the Accounting Standards Review Board.

BC333 EDP Auditing
Prerequisite, students enrolled in this unit will be expected to have passed BC225 Auditing

**Subject aims and description**
This unit presumes familiarity with the subject matter of BSE04 Auditing. It should be most useful for those students planning to enter the profession.

The objective of the unit is to provide students with an understanding of the principles of the audit of Computerised Accounting Information Systems and the application of statistical and analytical techniques in the audit context.

The topics to be studied include:
- the study of the principles of auditing 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 orientated software packages.

**References**

Current journals

BC334 Financial Accounting
Prerequisites: BC21 Corporate Accounting and BC330 Accounting Theory

This unit is most relevant to students planning to enter (or already in) the employment fields of chartered accounting or financial accounting in industry.

**Subject aims**
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.

**Subject description**
The conceptual framework; accounting information and share prices; aspects of group accounting; accounting for government issues; cash flow; accounting and ethical issues; international accounting standards; and regulation.

The syllabus is flexible to allow new financial accounting issues which gain momentum to replace topics of less relevance.

**References**
Various current Exposure Drafts and Standards issued by the Australian Accounting Research Foundation and the Accounting Standards Review Board.
BC335 Financial Management 2

No prerequisites but strongly recommended that students should have completed or be concurrently enrolled in BC224 Financial Management 1.

Subject aims and description
The purpose of this unit 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 accomplish this purpose it is necessary to learn about the investment alternatives available today and more important, 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 principles of portfolio theory;
- to consider the process of portfolio selection and on-going 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.

References

BC336 Taxation

Prerequisite, students enrolled in this unit are expected to have passed BC221 Corporate Accounting

Subject aims
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.

Subject description
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 in deductions;
- provide students intending to undertake a career in public accounting a basic grounding in taxation law. It is recommended that these students also complete BC308 Advanced Taxation.

Topics covered include: the nature of assessable income, capital gains tax, fringe benefits tax, allowable deductions and the provisions relating to companies, partnerships, and individuals.

Textbooks

References

BE331 Public Finance

Prerequisites, BE110 Microeconomics and BE220 Macroeconomics

Subject aims and description
This unit involves an analysis 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).

References
Brown, Q.V. and Jackson, P.M. Public Sector Economics. 3rd edn, Oxford: Basil Blackwell, 1986

BE332 Economic Research

Prerequisites, BE110 Microeconomics and BE220 Macroeconomics

Subject aims and description
The intention in this unit 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 unit 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 unit.

References
There is no single prescribed reference for this course, but extensive use is made of current journal articles.

BE333 Financial Institutions and Monetary Policy

Prerequisites, BE110 Microeconomics and BE220 Macroeconomics

Subject aims
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.

Subject description
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.

Textbooks
To be advised.

References
Bruce, F. Handbook of Australian Corporate Finance. 4th edn, Sydney: Butterworths, 1991
Mishkin, F. The Economics of Money, Banking and Financial Markets. 2nd edn, Glenview, Ill: Scott Foresman, 1989
The Reserve Bank Bulletin — recent issues.
BE334 International Trade
Prerequisites, BE110 Microeconomics and BE220 Macroeconomics
Subject aims and description
To encourage students to recognise the importance of international trade and equip them to appreciate and evaluate the ways in which government and society can improve Australia's international trade performance.
The subject combines an understanding 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
— balance of payments
— 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
Improving Australia's international competitiveness
— industry policy issues (e.g. level playing field debate, microeconomic reform)
— the business perspective— obstacles and strategies for success
— the role of government.
References

BE335 International Finance
Prerequisites, BE110 Microeconomics and BE220 Macroeconomics
Subject aims and description
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.
Topics covered include:
— the international financial environment
— Australia's external position
— exchange rate theories and systems
— the operation of foreign exchange markets
— the international financial system
— international banking
— international regulation
This course is particularly relevant for students who may work in areas which have international financial or trade dealings.
References

BE336 Economics of Social Issues
Prerequisites, BE110 Microeconomics and BE220 Macroeconomics
Subject aims and description
This course 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 course 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 environmental protection.
The unit endeavours to teach students the theory and principles needed to be able to analyse social issues from an economic perspective.
References
Because of the contemporary nature of the unit no textbook is set. Comprehensive reference lists will be provided.

BE337 Economic Development
This unit will not be offered in 1993.

BE338 Comparative Labour Relations
This unit will not be offered in 1993.

BE339 Comparative Economic Systems
This unit will not be offered in 1993.

BH330 Organisation Behaviour 2
Prerequisites: BH220 Organisation Behaviour 1
Subject aims and description
OB2 is designed to extend your knowledge base and personal skills in the field of group and organisational behaviour. The subject departs from traditional formats in that it is student-centred, group-based and active. Study will focus primarily on the OB2 group itself, functioning as an organisation in its own right: its composition, resources, collective skills and patterns of relationships. Apart from participating in discussions, you will be encouraged to take part in designing, implementing and evaluating a personalised learning program through the use of a Learning Contract.
Textbooks and References
Other readings will be given to participants during the course.

BH331 Human Resource Management 2
Prerequisites: BH221 Human Resource Management 1 and BH302 HRM or one other OB unit Stage 2
Subject aims and description
This is a new unit currently being developed, which is expected to be first offered in Semester 2, 1993.
It 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. Further details will be available in Semester 1, 1993.

BH332 Enterprise Bargaining
Prerequisites: At least two Stage 2 Organisational Behaviour units with BE222 Industrial Relations additionally recommended
Subject aims and description
This is a new unit, currently being developed and expected to be first offered in 1994. It will explore the emerging practice of Enterprise Bargaining in Australia and develop some of the skills and judgement required for successful outcomes.

BH333 Managing Quality in Organisations
Prerequisites: at least three Stage 2 OB/HRM units
Subject aims and description
The new unit currently being developed and expected to be first offered in 1994, is a “capstone” unit which helps integrate much of the material which might have been taken as part of an OB/HRM major or minor. It recognises that all Australian manufacturing and services industries are needing to increasingly attend to delivering quality outcomes.
The unit will aim to provide preparation for successful implementation of quality and continuous improvement approaches in business and public sector.
BL334 Asian Business

Pre requisite, all first year units completed

This unit is an elective subject for the degree course in Business.

Method of Instruction: A range of methods will be used, including: lectures, seminars, industry, and market place visits in the host country. Travel costs to be borne by students. In 1993 the host country will be Thailand.

Subject aims and descriptions
The objective of this course is for students to have a thorough understanding of the culture of a particular country and of the impact of this on business practices in that country. The country selected may vary from year to year.

This unit entails students attending lectures at Swinburne University and travelling to a selected Asian country for a period of approximately 3 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 unit, 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.

Textbook
Because of the nature of the unit no textbook is set.

References
Comprehensive reference lists will be provided.

BL330 Advanced Company Law

Pre requisite, students enrolled in this unit are expected to have passed BL221 Company Law

Subject aims and description
The unit is designed to acquaint students with various contemporary issues in company law, especially relevant to a future public practice role in accounting. The course examines current topics in such areas as the constitutional and jurisdictional framework of company law, or any dil and company's fill and company's misfeasance. In recent years the course has focused substantially on company insolvency.

Textbook

References
Lipton, P. and Herzberg, A. Understanding Company Law. 4th edn, Sydney: Law Book Co., 1991

Detailed references to journal articles will be given to students.

BL331 International Business Law

Pre requisite, students in this unit are expected to have passed BL220 Contract Law or BL222 Marketing Law

Subject aims and description
The purpose of the unit is to consider the legal aspects of international trade emphasising the following topics:
- 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;
- financing and insurance involved in export sales; the role of tariffs and protection policies;
- methods of transportation and distribution of goods and the legal principles relating thereto;
- international conventions for the protection of intellectual property;
- intellectual property.

Textbook

References
Hoyle, MSW. The Law of International Trade. 2nd edn, Bicester: CCH Editions, 1985

BL332 Employment Law

Pre requisite, BL110 Legal Environment of Business

Subject aims and description
The general objective is to assess the impact of law upon the relationship of employer and employee. The following matters are analysed in this unit:
(a) the contract of employment — formation of the contract, including discrimination and compulsory terms in the contract of employment, remedies for termination;
(b) the arbitration system — the structure of the Australian Arbitration System, the constitutional context, the system in operation in settling disputes and making awards.
(c) industrial conflict — penal powers under the arbitration system, deregistration, common law liability for industrial action, statutory liability for industrial action;
(d) occupational health and safety — the role of law in occupational health and safety, common law remedies, the Victorian Work’s Compensation System, the prevention of industrial accidents.

References

BL333 Finance Law

Pre requisite, students enrolled in this unit will be expected to have passed BL220 Contract Law

The objective of the unit is to extend and develop the principles of contract by focusing on the principles of contract in the area of financing. The new unit will be an alternative to securing contractual obligations and the insuring of property acquired. By analysing these areas students will develop an awareness of problems associated with presently employed credit, security and insurance practices and any consequent need for reform.

References
No one textbook covers all the relevant areas of study. Reading materials and reading lists will be made available to students.

BM330 Product Management

Pre requisite, BM221 Marketing Research and BM222 Marketing Strategy

The course 'Product Management' is a third year unit in the Bachelor of Business undergraduate degree course.

Subject aims
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 Strategy.

The objective of this unit is to enable students to apply their marketing knowledge to the specific area of Product Management. Within this broad unit objective, there are a number of specific objectives. These specific objectives address the unit 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 they are treated as contributory disciplines.

Specific aims include:
- to explore the meaning, importance and function of the product management role in business today;
- to examine the range of concept-generating techniques used for new product development;
- to examine the means of evaluating new product ideas;
This unit is about the underlying process of advertising; it is about the principles which are involved in developing sound advertising strategies and effective executions of these strategies.

Subject description
Topics include:
- introduction to advertising;
- the communication process;
- planning the advertising budget;
- inside an advertising agency;
- advertising media issues;
- public relations and publicity;
- sales promotion;
- direct marketing;
- international advertising;
- evaluating advertising effectiveness.

Textbook

Reference

BM334 Retail Marketing
Prerequisites. BM222 Marketing Strategy and BM221 Marketing Research
Retail Marketing is an elective unit in the marketing stream of the Bachelor of Business.

Subject aims
The unit aims to provide an overview of retailing from a management perspective by providing a range of specialist skills not covered in other units but which are particularly relevant to retailing in Australia in the 1990s.

Subject description
Topics include:
- the retail environment in Australia;
- major changes occurring in retailing overseas;
- the role of research in retailing;
- retail promotion decisions;
- the role of the retail buyer;
- retail buyer behaviour;
- merchandising strategies;
- franchising.

Textbooks
To be advised.

References
To be advised.

BM336 European Business Studies
Prerequisites: BM222 Marketing Strategy
The subject is a third-year marketing elective unit.

Subject aims
The objective of this unit is to enable students to apply their marketing knowledge to date to the West European markets of Britain, France, Germany and Italy, and to do so within the context of the broader European community. Europe in general, and Australia's relative capacity to market products to these regions.

The unit explores the differences and similarities between these regions and their own by developing an understanding of national and regional profiles, specifically for Britain, France, Germany and Italy. Students arc encouraged to take these profiles and apply them to the overseas marketing of Australian products to European countries.

The emphasis is on understanding the cultural elements of these four European countries as an essential part of the successful marketing of Australian products to European markets.

References

BM333 Communications Strategy
Prerequisites, BM222 Marketing Strategy and BM221 Marketing Research
This unit is an elective subject for the degree course in Business.

Subject aims
This is not a course about how to create advertisements. It is not a course in headline writing, television direction, typography, radio production or any of the other wide range of creative skills which contribute to the success of any advertising company.
BQ330 Market Modelling  
Three hours per week for one semester  
Prerequisites: BQ111 Quantitative Analysis B (BQ10E + BQ111) Quantitative Analysis A and BM10 The Marketing Concept  

Subject aims and description  
This unit aims to familiarise students with some of the techniques and skills not yet encountered, but needed to undertake the successful modelling of micro and macro markets and business relationships. The unit will normally cover the use of:  
- Regression analysis, in its various forms, to assist the modelling of demand and supply and other business relationships;  
- Qualitative forecasting methods such as Delphi, panel consensus and scenario analysis;  
- Markov analysis for the investigation of market behaviour (e.g. brand switching); and for the analysis of market share.  

Textbook  

References  

BQ331 Survey Research Methods  
Three hours per week for one semester  
Prerequisites: BQ111 Quantitative Analysis B or (BQ10E + BQ111) Quantitative Analysis A and BM10 The Marketing Concept  

Subject aims and description  
This unit is concerned with a comprehensive examination of the major elements involved in conducting research using survey methodology. The unit extends BM221 (Market Research) which has a broader focus in both qualitative and quantitative research methods. Students will be expected to extend their data analysis skills by learning how to construct valid and reliable scales and indicators. The unit will consist of:  
- Conceptualisation of research;  
- Project design;  
- Questionnaire design;  
- Data collection methods;  
- Sampling plans;  
- Editing coding and data entry;  
- Data validation;  
- Computer software selection;  
- Computer-aided interviewing and coding;  
- Developing scales and indicators;  
- Measuring attitudes and behaviour;  
- Report writing.  

Textbook  
Dillon, W., Madden, T. and Firth, N. Marketing Research in a Marketing Environment. Irwin, 1990  

References  
CATI, Swinburne Centre for Urban and Social Research, 1987  

BT330 Data Base  
Prerequisites: BT220 Data Analysis and Design, and BT243 Programming  

Subject aims and description  
By the end of this unit the student will be able to:  
1. Implement a logical database design in a selection of DBMSs.  
2. Design and program transactions against the database.  
3. Include appropriate security, integrity and recovery functions in the above.  
Topics  
This unit builds upon the logical design concepts taught in Information Analysis in covering the implementation, considerations of a number of DBMSs. The students' acquaintance with SQL from that unit is also built upon in the coverage of Relational Data Bases.  

References  
To be advised.  

BT331 System Architecture 1  
Prerequisites: Any two Stage 2 Computing Units  

Subject aims and description  
This unit concentrates on computer architectures. In particular, at the completion of this unit, students will be able to:  
- demonstrate a sound knowledge of the basic concepts and components involved in data communications;  
- demonstrate an understanding of the various technologies used in the electronic office and how office automation can increase the efficiency of knowledge workers;  
- demonstrate an understanding of the various systems and operating protocols and their relation to system performance;  
- demonstrate an understanding of the goal of the ISO reference model for computer network protocols;  
- show a good knowledge of the data communication services and facilities provided by the common carriers;  
- demonstrate an understanding of how data communications benefits an organisation and how this function is managed.  

References  
To be advised.  

BT332 System Architecture 2  
Prerequisites: BT331 System Architecture 1  

Subject aims and description  
This unit concentrates on operating system architectures. In particular, this unit provides a comparison of the operating systems MS/OS and UNIX after giving students a general introduction to the principles and types of operating systems. Both UNIX and MS/OS are discussed from the perspective of how they manage computer resources and what sorts of software facilities are provided to users. Students are given both theoretical exercises and practical exercises in the use of MS/OS and UNIX operating systems.  

References  
To be advised.  

BT333 Information Systems 2  
Prerequisites: BT220 Data Analysis and Design, and BT223 Information Systems 1  

Subject aims and description  
Information systems which meet the business needs of organisations must be based on a thorough understanding of the information needs (what needs to be done?) and the business processes (what needs to be done?). A number of methods and document this understanding of the organisation are discussed. Several of these are applied to transforming the business needs to a model for system design. This unit extends the knowledge of analysis methods gained in BT220 and BT223 and compares and contrast the various methods so that students will be able to select the most relevant approach.  

References  
To be advised.  

BT334 Information Technology Strategies  
Prerequisites: Any two Stage 2 Computing Units  

Subject aims and description  
This unit 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.  
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.  

References  
To be advised.
BT335 Business Software Engineering
Prerequisites: BT220 Data Analysis and Design, BT223 Information Systems 1

Subject aims and description
In this unit methods are introduced to design principles in methods relevant to the design of software. Although the main emphasis is on techniques in widespread use, other approaches and requirements are also covered. In particular, design methods suited to projects where Computer-Aided Software Engineering (CASE) will be used are studied and applied. Because students are expected to acquire competence in choosing and applying design techniques the unit includes a project component in which CASE software will be used.

On completing this unit, students will be able to:
- describe the process of design
- state and explain the goals of information systems design
- describe some important design techniques
- select suitable techniques for a given situation
- competently apply techniques to design simple systems
- use at least one CASE software product
- specify tests for proving systems
- describe design techniques for CASE environments
- discuss some current issues in systems design

References
To be advised.

BT336 Advanced Application Development
Prerequisites: BT220 Data Analysis and Design, BT224 Programming 1
For 1993, as a transition only, BT330 Data Base or equivalent will also be a prerequisite

Subject aims and description
This unit provides students with the opportunity to work in a formal project team environment on the development and implementation of an information system.

Objectives:
- To employ the practical skills learned in other units, such as:
  - Software engineering techniques;
  - Project control;
  - Standards development;
  - Programming;
  - Testing;
  - Migration/Change control.

By doing so, to deepen and broaden the understanding of practical computing, and to reinforce the theory learned in other units.

References
To be advised.

Honours year units
BC440 Advanced Accounting
Students should seek advice from the appropriate Accounting staff when formulating a 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 units from other Departments, Faculties, or Institutions provided that they show the relevance of these coursework units 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 units by the offering department.

Students must submit their proposal to the Organisation Behaviour 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 Accounting
This unit 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 technological and organisational change on Accounting. Issues of current concern in the areas of finance, management accounting, tax, auditing, reporting, 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.

BH400 Organisation Behaviour Honours
Students should seek advice from the appropriate Organisation Behaviour 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 units from other Departments, Faculties, or Institutions provided that they show the relevance of these coursework units 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 units by the offering department.

Students must submit their proposal to the Organisation Behaviour 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 Organisation Behaviour
Students will undertake one or more coursework units, supervised reading units or other course of study, which will assist them in carrying out their Organisation Behaviour research project. It is envisaged that many coursework units available from within Swinburne would be suitable to support the research project and/or to broaden the student's studies in relevant areas.

Organisation Behaviour Honours Research Project
Students will be expected to undertake a research project within the area of Organisation Behaviour. Suitable research projects might include Organisation Behaviour case studies within a limited and specified area, such as management practices, strategic planning processes, group dynamics, human resource development, work value studies, and/or cross-cultural organisation behaviour studies. Research projects will be supervised within a group seminar setting. The research project will be presented in the form of a written dissertation of approximately 10,000 words in length.
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-discipline approach, students may, subject to approval, undertake selected Honours-level coursework units from other Departments, Faculties, or Institutions provided that they show the relevance of these coursework units 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 units by the offering department.

Students must submit their proposal to the Business Law 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 Business Modelling Techniques

Students will be required to investigate and develop 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 textbooks, periodicals and conferences and investigate the use of computer software packages as part of this unit.

Business Modelling Honours Research Project

Students will be required to undertake a substantial research project utilising Business Modelling techniques in their chosen area of speciality. The research project may involve the collection and analysis of data, an extension of the student's theoretical understanding of the subject matter, and the development of computer software packages for the production of computer assisted decision making (CADM) and/or CADM packages.

BT400 Information Systems Honours

Students will be required to undertake a substantial research project utilising Information Systems theory and practice. Student's study programs must be based on a combination of attendance at a series of seminars and/or seminars based on the research interests of staff and postgraduate students and an approved reading program. Students will be expected to prepare a written report on the results of their particular course of study and will be required to present their findings in a seminar.

Information Systems Honours Research Project

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 undertake their research activity in the form of a written dissertation of approximately 10,000 words in length and will be required to progressively present their findings as part of a research seminar program.

BQ405 Research Methodology

An average of four hours per week for one semester

Prerequisites: Nil

Subject aims and description

The Research Methodology unit aims to equip students with the necessary research skills to conduct research studies for higher degrees. It is designed to facilitate the development of research skills and to provide students with a range of research methodologies appropriate to their individual research interests.

Research Methodology topics normally covered include:

- Posing research questions and the measurement of concepts:
  - Theory perspectives and construction;
  - Orienting statements and propositions;
  - Value free research;
  - Nominal and operational definitions;
Subject aims and description
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 unit 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.

Subject description
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.

(Refer Appendix 1 for further details.)

References

BC410 Introduction to Taxation
36 hours, 2 1/4 hours per week for 16 weeks

Method of Instruction: Lectures and class discussion of issues and problems.
Assessment: Class presentations 10%, Assignments 40%, Examination 50%

Subject aims
To develop the student's ability to understand and apply financial information in making business decisions and assessing the performance of a business.

The objective of the unit is to acquaint students with the areas of taxation of practical utility by concentrating on the taxation implications of various taxable entities, in particular individuals and partnerships, companies, unincorporated entities, trusts, superannuation funds and primary producers. In addition the unit will look at the issues involved with tax planning and current developments in taxation.

Subject description
A selection of topics including the taxation of individuals, partnerships, companies, trusts, primary producers and cooperatives, superannuation, administrative provisions, international taxation, tax planning and recent developments.

(Refer Appendix 1 for further details.)

References

BC411 Taxation Entities Issues and Planning
36 hours, 2 1/4 hours per week for 16 weeks

Method of Instruction: Lectures and class discussion of issues and problems.
Assessment: Class presentations 10%, Assignments 40%, Examination 50%

Subject aims
To develop the student's ability to understand and apply financial information in making business decisions and assessing the performance of a business.

The objective of the unit is to acquaint students with the areas of taxation of practical utility by concentrating on the taxation implications of various taxable entities, in particular individuals and partnerships, companies, unincorporated entities, trusts, superannuation funds and primary producers. In addition the unit will look at the issues involved with tax planning and current developments in taxation.

Subject description
A selection of topics including the taxation of individuals, partnerships, companies, trusts, primary producers and cooperatives, superannuation, administrative provisions, international taxation, tax planning and recent developments.

(Refer Appendix 1 for further details.)

References

Textbook
Miller, D.C. Handbook of Research Design and Social Measurement. 5th edn, Sage Publications, 1999

Graduate Certificate units

BC401 Accounting for Management

Subject aims and description
This is a one semester unit for students in the Graduate Certificate in Business Administration. The objectives of the unit are:

1. To develop a manager's ability to understand and apply financial information in making business decisions and assessing the performance of a business.
2. The unit 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.
3. The unit will require the student to use modelling skills developed in the unit Business Software for PCs, in the solution of problems and in assignments.
4. No prior knowledge of accounting is assumed.

Topics include:
- general purpose financial statements;
- financial statement analysis;
- cash and fund flow statements;
- business finance and valuation;
- cost—volume—profit analysis;
- costing products and services;
- information analysis for decision making;
- segment performance evaluation;
- budgeting and profit planning.

Textbook

BC410 Introduction to Taxation

36 hours, 2 1/4 hours per week for 16 weeks

Method of Instruction: Lectures and class discussion of issues and problems.
Assessment: Class presentations 10%, Assignments 40%, Examination 50%

Subject aims
To develop the student's ability to understand and apply financial information in making business decisions and assessing the performance of a business.

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 unit 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.

Subject description
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.

(Refer Appendix 1 for further details.)

References

BC411 Taxation Entities Issues and Planning

36 hours, 2 1/4 hours per week for 16 weeks

Method of Instruction: Lectures and class discussion of issues and problems.
Assessment: Class presentations 10%, Assignments 40%, Examination 50%

Subject aims
To develop the student's ability to understand and apply financial information in making business decisions and assessing the performance of a business.

The objective of the unit is to acquaint students with the areas of taxation of practical utility by concentrating on the taxation implications of various taxable entities, in particular individuals and partnerships, companies, unincorporated entities, trusts, superannuation funds and primary producers. In addition the unit will look at the issues involved with tax planning and current developments in taxation.

Subject description
A selection of topics including the taxation of individuals, partnerships, companies, trusts, primary producers and cooperatives, superannuation, administrative provisions, international taxation, tax planning and recent developments.

(Refer Appendix 1 for further details.)

References

Textbook
Miller, D.C. Handbook of Research Design and Social Measurement. 5th edn, Sage Publications, 1999
BC412 Introduction to Finance
36 hours, 2½ hours per week for 16 weeks
Method of Instruction: Lectures and class discussion of issues and problems
Assessment: Class presentations 20%, Assignments 40%, Examination 40%

Subject aims
The objectives of this unit 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.

Subject description
Various topics 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.

References

BC413 Investment Analysis
36 hours, 2½ hours per week for 16 weeks
Method of Instruction: Lectures and class discussion of issues and problems
Assessment: Class presentations 30%, Assignments 30%, Examination 40%

Subject aims
The broad objective of this unit 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 unit 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; and
- to consider the process of portfolio selection and ongoing investment strategies.

Subject description
Various topics including investment and financial planning, role of the stock exchange, shares, fixed interest securities, foreign investment, tax, investment strategies, options and convertible securities, current theory and practice.

References

BH402 Managing Organisations
A subject in the Graduate Certificate of Business Administration.

Subject aims
To help participants identify their preferred ways of understanding organisations and to expand their repertoire of ‘frames’ for analysis and problem solving in their roles as managers.

Subject description
Organisations are explored from the perspectives of:
(i) structure
(ii) politics
(iii) culture, and
(iv) human resources.

Reference
To be advised.

BM401 Marketing Management

Subject aims
The unit BM401 covers the same body of knowledge and the same approach as the unit BM501 Marketing Management 1 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.

Subject description
Consumer behaviour — consumption and expenditure patterns, 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.

Textbook

References
Current business journals.

BT401 Business Software for PCs

Subject aims
The aim of this unit is to:
- introduce students to PC-based 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;
- provide students with skills in the use of PCs that they can utilize in other areas of the course.

Subject description
Throughout the unit, extensive use will be made of computer packages and particular emphasis will be given to current developments in computing that relate to financial management.

Topic coverage includes:

References
Software documentation, user manuals and current journal articles will provide the major reference material for the unit.
BT402 Introduction to Information Technology

Prerequisites, prior to beginning this unit students are not expected to have any previous experience with computers or information technology.

Subject aims and description
At the end of this unit students will be expected to be able to:
- state in general terms what constitutes information technology and an information system and its applications;
- state the major components of a computer system, how they operate and interact together;
- state the purpose of an operating system and demonstrate a knowledge of the elementary functions of the DOS operating system;
- use a word processing package to prepare documents of a specified standard which can be handed in for assessment;
- state the functions that computers perform in the business world and illustrate these functions with practical examples;
- state the problems associated with manual filing systems and traditional computer systems, illustrate these problems with practical examples and apply this knowledge to a practical situation;
- state the main functions of data base management systems, and these in real practical examples and apply this in real practical situation;

BT403 Business Computing

Subject aims and description
This unit gives students an introduction to the use of computers in business. Students will study many different types of applications ranging from those used by small businesses through to those used by large corporations. Computer systems discussed will range from microcomputers through to mainframe computers. During the course, students will solve simple business problems with the aid of a spreadsheet package on a microcomputer. Students will also be exposed to a number of analysis skills used in building information systems. The unit concludes with a discussion of the social implications of introducing new information technology.

At the end of this unit, students will be able to:
- describe a variety of applications used by business
- identify the type of problems to which spreadsheets should be applied and use such a package to solve simple business problems
- describe how computers are used in large organisations, including centralised processors, distributed systems and networked PCs
- understand basic communications terminology and describe some currently used communication services and products
- describe the main methods of systems development and means of obtaining information for analysis of requirements
- understand the social implications of computerisation.

Textbook
To be advised.

Reference

BT404 Computer Programming

Subject aims and description
To give students an understanding of the principles and practice of commercial programming.

By the end of the course, the student will be able to:
- describe the programming process, from problem definition through to program testing;
- discuss the principles of structured programming;
- explain the importance and philosophy of testing;
- design a logical structured solution to a problem using various algorithm techniques;
- read, understand, modify, and debug COBOL programs;
- design, write, test, and document attractive, well-structured programs in COBOL.

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

BT405 Information Systems Strategies

Subject aims
The aim of this unit is to provide students with a thorough understanding of the varying information needs in an organisation and the various methods which are appropriate to meet those needs. Particular emphasis will be placed on the need to understand the data available in and to an organisation and how it can be used to provide relevant information reliably and efficiently.

Subject description
Topics covered include:
- Types of decisions, types of information
- Retrieving Data, processing and presenting it - SQL
- Networks - Centralised, decentralised distribution processing
- Strategic and Tactical issues of networks and EDI.
- Developing an Information Strategy including the use of modelling
- Managing End User Computing
- Internal Controls and Security: Crime, Fraud, Theft, Piracy and Sabotage
- Improving, refurbishing, redeveloping, existing systems
- Using technology for operational, tactical and strategic advantage

References

BT406 Data Base Design and Implementation

Prerequisite: BT404 Computer Programming

Subject aims
This unit is very much a hands-on unit. Students will get the opportunity of using the relational DBMS, DB2, and associated query languages.

The major aim is to prepare students to be productive in projects involving relational database applications.

After completing this unit successfully, students should:
- be able to develop a data model for a small application
- be able to explain the advantages and disadvantages of the database as opposed to the traditional file approach of data processing
- be able to distinguish between the 3 major categories of DBMS; Network, Hierarchical and Relational
- have a good understanding of the terminologies and concepts associated with relational DBMS
- be able to use SQL with confidence to define, load and access data in relational databases
- understand the need for normalisation of data
- differentiate between Logical and Physical Data Independence
- understand the strategies used in implementing a database Management System.

References
Date, C.J. An Introduction to Database Systems. Vol. 1, 4th (1986) or 5th (1990) edn, Addison-Wesley
BC504 Corporate Financial Management

Subject aims
- to develop an understanding of finance theory and its relationship to the firm;
- to develop an appreciation of the derivation and interpretation of financial statements;
- to examine the investment and financing decisions of the firm emphasising the trade-off between risk and return.

References

Subject description
Topics include:
- Understanding financial statements.
- Valuation concepts.
- Capital structure.
- The cost of capital.
- Capital asset pricing model.
- Investment appraisal.
- Risk analysis.

Textbook

BC505 Corporate Financial Management 2

Subject aims
This unit is designed to develop an understanding of the way in which firms plan and manage their financing and investment strategies.

Subject description
Strategic planning - commitment of resources to profitable activities.
- Financial analysis - testing for causality and adequacy.
- Financing techniques, managing liabilities.
- Control of short-term assets.
- Prediction of financial distress and corporate failure.
- Analysis of take-overs and mergers.
- Determination and evaluation of the firm's financing and investment strategies, e.g. financial mobility, leasing, project financing, divestments.

References

BC554 Auditing and EDP

Prerequisites. BC504 Auditing and BT102 Information Technology 1A and BT103 Information Technology 1B, or suitable equivalents

Subject aims and description
The increasing dependence of all types of organisation on computer-based systems has brought about a need for new approaches to auditing. In this double unit it is intended to acquaint students with some auditing computerised systems.

Topics covered include: revision of basic data processing principles; the audit role in systems development; the design functions and development of controls; processing and program controls; the computer audit trail; auditing packages; appraisal of control requirements in the various processing options, e.g. bureaux, time-sharing, etc.; auditing advanced systems, e.g. on-line systems, data base, etc.; internal control questionnaire for EDP.

The teaching method is by lectures, seminars and practical case work. A major case study is undertaken.

References
Specific articles and texts are referred to when completing each topic area.

BC555 Accounting

Assessment: By one case study and a final exam

Subject aims and description
Current issues in Accounting is a mandatory unit in the graduate diploma course in accounting, it carries a weighting of 2 units. The unit incorporates within it the Accounting module of the Institute of Chartered Accountants' Professional Year.

The major emphasis in the course is an in-depth coverage (both practical and theoretical) of the Accounting Standards. Current exposure drafts and recent developments in reporting requirements of the Companies Code are also studied.

Assessment
By one case study and a final exam.

References
The Institute of Chartered Accountants in Australia, Member's Handbook Australian National Companies and Securities Legislation, latest edn.
BC556 Taxation
This unit is compulsory for the graduate diploma course in accounting (Professional Year Higher Degree Program).

Subject aims and description
The course aims are relevant to the 4th Year Taxation Module set by The Institute of Chartered Accountants. This unit has a weighting of 2 units.

References

BE501 Economics
No prior knowledge of economics is assumed. Applicants who have majored in economics are advised to enrol for another postgraduate diploma subject. Applicants who have studied economics at secondary level or who finished their course some time ago are enrolled in this subject.

The first half of the course is concerned with Industry Economics, including public policy aspects, demand and supply analysis, money and fiscal policy, employment and unemployment, inflation, monetary and fiscal balance of payments, and prices/incomes policies.

References
Indocs. State of Play 7, Allen and Unwin, 1992

BE503 Financial Institutions and Markets
(Graduate Diploma in Corporate Finance)
Two hours per week for one semester

Subject aims
To provide students with:
(i) knowledge of the structure, development and function of financial institutions and markets;
(ii) an understanding of financial instruments and their uses in the financial market;
(iii) the process and implications of deregulation for monetary authorities and participants in the market.

Subject description
Financial markets and institutions — nature and role of financial intermediation — growth and description of Australian financial intermediaries — impact of deregulation on the financial environment and on the Reserve Bank of Australia’s role and policies.

Market issues — Australian debt markets — Australian equity markets — monetary policy in a deregulated market.

References

BE504 The Nature and Characteristics of Markets
Prerequisites: Nil
Assessment: Assignments 50%, Final examination 50%
Method of Instruction: One two-hour class per week

Recognition of prior learning
Credit will be given for a comparable unit successfully completed at the graduate level.

Subject aims
This unit will provide an introduction to aspects of micro-economics which will promote an understanding of the nature and characteristics 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.

Subject description
1. Introduction to the market system. Basic market theory.
2. Demand analysis.
3. Production and costs.
5. Public policy.
6. Trade and protection.

Textbooks
Students are expected to have access to at least one of the following texts:

BH505 The Social Psychology of Organising
A first year subject in the graduate diploma course in organisation behaviour.

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.

References
Bolman, L. and Deal, T., Modern Approaches to Understanding and Managing Organisations. San Francisco: Jossey Bass, 1994

BH506 Group and Interpersonal Psychology
Three hours per week for two semesters
Assessment: Students are required to submit two minor written assignments. There is no written formal examination. Because of the experiential nature of this subject, a minimum 80% attendance is required

This subject is designed for students taking the graduate diploma course in organisation behaviour.

Subject aims
The objectives are:
— to introduce psychological concepts and techniques relevant to individual, 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 behaviour (mainly communications) through learning appropriate skills. Methods used are largely co-operative and practical rather than didactic and theoretical. Active group participation is therefore necessary.

Subject description
Semester one will involve students in the study of group processes and their effects on individual and inter processes and
relations. Students will approach the study of these phenomena through reading, discussion and experiential learning.

Semester two will build on earlier work. In particular, skills involved in the consultative management of groups and interpersonal relations will be examined. Students will be encouraged to work on 'real life' group and organisational issues that emerge in their own workplaces.

References
Extensive reading and resources will be given as appropriate.

**BH507 Organisational Psychology**

Prerequisite, no prior knowledge of administrative theory is assumed, but working experience in a business, public service, or other form of organisation is assumed.

A first-year unit in the graduate diploma courses in business administration and management systems.

Subject description
This unit constitutes an examination of organisational problems in the implementation of corporate strategy with particular emphasis on the relationships between strategy, structure, process and people.

The learning experience depends largely on the involvement and experience of the students, who bring knowledge and skill to the task. The lecturer's role is to generate a situation in which current attitudes and practices are challenged, and alternative approaches to management will be examined.

Theoretical models are applied to problems in order to permit impartial analysis of organisational issues.

Experience is also gained in cooperative group preparation of material and presentation to the class.

Theory is applied to real situations through the use of a situation requiring the student to become familiar with the basic principles in contract and company law, prior to embarking upon a study of this unit. Materials are provided and texts referred to for this purpose.

Textbooks

Reference
Bolman, L. and Deal, T. Modern Approaches to Understanding and Managing Organisations. San Francisco: Jossey Bass, 1984

**BE01 Secretarial Practice and Procedure**

Subject aims and description
This unit is intended to equip potential company secretaries for their future careers.

Topics covered include:
- meetings and conferences; duties of chairman, organisation; standing orders, terms and expressions, etc.;
- board meetings; preparation, agenda and minutes, quorum, voting rights, powers of members' motions;
- documentation, including annual return and registers; various ways of raising finance; winding up procedures;
- the Board and the Stock Exchange: functions and procedures, listing requirements and terminology, voluntary and statutory controls, etc.

Textbooks


**BE02 Legal Aspects of Finance**

Prerequisites, nil. Students who have not studied law previously are expected to become familiar with the basic legal terminology and reasoning processes in the principles of contract and company law, prior to embarking upon a study of this unit. Materials are provided and texts referred to for this purpose.

Subject aims
This unit is intended to promote an appreciation of the importance of the law which have an impact upon the business environment.

Where appropriate, attention is given to the need for law reform.
BQ507 Market Modelling 1
Two hours per week for one semester
Prerequisites: Nil
Assessment: Course participants are expected to complete a project (each worth 40%) as specified during the semester, together with a final examination 20%.
Methods of Instruction: This unit will be delivered via one two-hour class per week for one semester. Classes will comprise a lecture segment as well as tutorial and computer laboratory sessions as required. Note that throughout this course, extensive use will be made of computer software packages.

Recognition of prior learning
Credit will be given for equivalent studies completed at the graduate level.

Subject aims
This unit aims to introduce students to the concept of developing models for product demand and will require students to undertake a minor project which is of direct relevance to the participant areas of interest. Some of the most recent developments and trends in forecasting models are examined to state the problems associated with manual filing systems and the limitations of traditional computer systems, illustrate these problems with practical examples and apply this knowledge to a practical situation; state in general terms what constitutes information technology and define related terms; describe the purpose of an information system and its applications; 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.

Subject description
Topics covered include:
- Qualitative research methods;
- Library research methods;
- Types of study:
  - Qualitative research methods;
  - Survey research methods;
  - Experimental research methods;
  - Analysis and interpretation of results;
  - Presenting a project outline and report writing techniques.

Textbook

BQ511 Research Methodology
An average of two hours per week for one semester
Prerequisites: Nil

Subject aims and description
This introductory research methodology unit aims to provide participants with a basic knowledge of the research methods that are necessary for successful Market Modelling in today’s business world. As part of this unit, participants are expected to make extensive use of library resources and will be required to undertake a minor project which is of direct relevance to the participant areas of interest. Some of the most recent developments and trends in research methodology topics normally covered include:
- Posing research questions and the measurement of concepts;
- Library research methods;
- Types of study:
  - Qualitative research methods;
  - Survey research methods;
  - Experimental research methods;
  - Analysis and interpretation of results;
  - Presenting a project outline and report writing techniques.

Textbook

BT502 Current Issues in Systems Design
Prerequisite, BT501 Systems Analysis and Design

Subject aims
In this unit, some of the most recent developments and trends in computer applications and technologies are addressed 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.

Subject description
Topics covered include:
- Systems analysis and design for the fourth and fifth generation systems;
- Prototyping strategies;
- Integrating personal and corporate computing;
- Knowledge-based systems.

References

BT503 Software Engineering Strategies
A one-semester subject in the graduate diploma course in management systems.

Subject aims
The subject is intended to develop a formal awareness of the processes of analysing and developing systems while at the same time emphasising the necessary communications skills for success.

Subject description
The tools, techniques and methodologies for both analysing and designing an information system are covered to assist students in:
- further understanding the system development process;
- acquiring and understanding of data modelling, data analysis, structured analysis, use of CASE tools, database planning, design and implementation;
- developing an understanding of information concepts with a view to efficient software design;
- evaluating the effectiveness of computerised information systems.

The development of techniques for successful communication with both users and other computing professionals:
- written skills of report writing and essays;
- fact gathering techniques of interviewing, questionnaires, sampling, etc.,
- verbal communication skills for various forms of presentations;
- systems documentation techniques of structured analysis.

References
Davenport, C.J. An Introduction to Database Systems. 5th edn, Reading, Massachussets: Addison-Wesley, 1990

BT504 Introduction to Information Technology
Prerequisites, prior to beginning this unit students are not expected to have any previous experience with computers or information technology.

Subject aims
At the end of this unit students will be expected to be able to:
- state in general terms what constitutes information technology and an information system and its applications;
- state the major components of a computer system, how they operate and interact together;
- use a word processing package to prepare documents of a specified standard which can be handed in for assessment;
- state the functions that computers perform in the business world and illustrate these functions with practical examples;
- state the problems associated with manual filing systems and traditional computer systems, illustrate these problems with practical examples and apply this knowledge to a practical situation;
- state the main functions of data base management systems, illustrate these functions using practical examples and apply this knowledge in analysing a practical situation.
BT506  Information Analysis
Prerequisite. BT504 Introduction to Information Technology

Subject aims and description
Models are important tools used by analysts in trying to understand information systems. This unit examines some of the models commonly used including:
- Dataflow Diagrams
- Functional Dependency Diagrams
- The Entity Relationship Model
- Fact Modelling
They are used to produce pictures which are both simple and effective in representing either the processes or data required for the information system.
We can convert these pictures into a form suitable for storing data in a Relational Database by a process called normalisation.
An introduction to Structural Query Language is given as a means of extracting data from a Relational Database.

Textbook
To be advised.

References
McFadden, F. and Holfer, J. Database Management. 2nd edn. Menlo Park, Benjamin Cummings, 1988

BT507  Computer Programming

Subject aims
To give students an understanding of the principles and practice of commercial programming.

By the end of the course, the student will be able to:
- describe the programming process, from problem definition through to program testing;
- discuss the principles of structured programming;
- explain the importance and philosophy of testing;
- design a logical structured solution to a problem using various algorithm techniques;
- read, understand, modify and debug COBOL programs;
- design, write, test and document attractive, well-structured programs in COBOL.

Topics covered include:
- program structure;
- data structure;
- algorithm design;
- data validation;
- arrays and tables;
- sequential files;
- reporting;
- indexed files;
- strings;
- testing.

Textbook

References

BC604  Financial Structures and Policy
Prerequisite. a pass or preclusion from BC503 Introduction to Financial Management

Subject description
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 variety of problems involving financial decisions.

Subject aims
- financial statement analysis
- working capital management
- concepts of valuation
- cost of capital
- sources of finance
- capital structure and leverage
- business combinations

Textbook

References

BC605  Investment Management

Subject description
Prerequisites, no formal prerequisites are specified; candidates usually would have completed the first year of the course

Subject aims
- to acquaint the student with the various securities and funds available to corporate investment;
- to introduce the use of financial and other information in the evaluation of alternative investment media;
- to consider the selection of an appropriate investment portfolio and the management of that portfolio.

Textbook

References
Ball, R., Brown, R., Finn, F. and Officer, R. Share Markets - Portfolio Theory. 2nd edn, St. Lucia, Qld.: Univ. of Qld., 1989
Jacob, N.L. and Pettit, R.S. Investments. Homewood, Ill.: Irwin, 1984

BC606  Current Developments in Corporate Finance

Subject description
The unit represents a coverage of contemporary issues in the area of corporate finance as presented by experienced professionals working in the area; thus it is very much a pragmatic unit.

Subject aims
- borrowing offshore;
- rating commercial paper;
- foreign exchange management;
- equity raising;
- take-over activity;
- taxation implications for financing;
- regulation;
- competitive advantage;
- financing techniques.

References
A selection of articles as detailed each session by the session leader.
BC607 Research Project
Prerequisites, usually students would have completed the first four units of the course before commencing the research project.

Subject aims
To enable students to apply the concepts and techniques studied during the course to a substantial practical problem in corporate finance.

Specifically, students are required to show they have the ability to define a corporate finance problem clearly, select and apply appropriate methodology to solve it and present a clear and concise written report on the work undertaken.

Subject description
This unit is conducted over two semesters. While the work is carried out by students it is done in a set program under the supervision of staff.

Seminars are run at the beginning of the semester. They cover the following topics:
- the objectives of the research project;
- the selection of an appropriate project;
- the selection of suitable methodology for different types of projects;
- organisation and standard of report expected.

Very proposals for projects are submitted by 31 March. These must include full details for the staff to assess the usefulness and feasibility of a project.

Proposals are then approved and supervisors appointed as soon as possible after submission, but in any case not later than 30 April.

Students are required to report on at least a monthly basis to supervisors and to be fit of all und prior to the presentation of the final written report which must be for a by 31 October.

References
No specific references are required for a unit of this nature. General references on report writing will be used, such as:

BC612 Forecasting and the Planning Process
One semester
Prerequisites, this is a capstone unit and assumes that students have completed all compulsory units. Assessment: Individual tutorial presentation 10%, Individual assignments (2 x 10%) 20%, Group assignments (2 x 15%) 30%, Individual or group project 40%.

Method of Instruction: Two hours contact time each week totaling formal lectures, tutorials and practical sessions as required. Computer laboratory facilities for use and maintenance of 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 unit.

Recognition of prior learning
The nature of this unit does not permit credit transfer arrangements from other courses.

Subject aims
To provide the participant with an opportunity to integrate knowledge gained from the other units taken within the course by giving participants a proper perspective of the role and importance of the 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.

Subject description
Corporate planning, the basics
Analysis of current position
Development of corporate plan through selection of appropriate strategies. Integration plan for planning subunits.

Information requirements
Management information concepts, data and implications, data sources, historic and projections environmental considerations.

Application areas
Market analysis, financial modelling, budgeting and technological implications.

Textbooks
No set text. A selection of readings from the reference material.

BE603 International Finance and Monetary Theory
Prerequisite, BE503 Financial Institutions and Markets should be completed or undertaken concurrently.

Subject aims
To introduce students to the structure and workings of international financial centres and markets and to provide a study of issues relating to international financial transactions, monetary theory and internal-external management.

Subject description
The following list should be taken as a guide only:
The International Financial Environment
- Current position
- Major indicators
- Outlook
Australia's External Position
- Balance of Payments
- Terms of Trade
- External debt
Foreign Exchange Markets
- Exchange rate determination
- Fixed versus floating exchange rate mechanisms
- Transactions in foreign exchange markets
- Foreign exchange risk management
The International Financial System
- International financial centres and markets
- International banking

References

BH604 Management, Organisation and People
Subject aims and description
This unit is taken in the course for the graduate diplomas in accounting and management systems.

The course provides a macro-view of organisations as open systems examining the interfaces and interactions of environment, tasks, technology, structure and people. It then focuses on the psycho-social subsystem, studying individual, interpersonal, group and inter-group processes within the organisational context. The role of the manager in each of these contexts is a recurring and integrating theme. In particular, wherever possible learning is applied to the business and management systems environments immediately relevant to students. They have the opportunity to contribute by sharing their current and past work experience as an enrich class activities. Experiential learning as well as discussion and case methods are employed.

Considerable supplementary reading is required outside class time. Assessment is progressive and may include essays, case studies and class presentations.

Topics are chosen from the nature of the organisation; the organisation as an open system; interactions between sub-systems and their implications for management; organisation change and development; inter-group communication; decision-making; conflict management; group dynamics and team building.

Students are continually encouraged to apply newly-acquired knowledge to facilitate transfer of their own work situation.
References


BH605 Managing Human Processes

Prerequisite, BH501 Administration of Organisational Systems

A unit in the graduate diploma course in business administration.

Subject aims and description

The contribution of the behavioural sciences in solving the ‘people’ problems of management are studied so that the student will be better able to interpret psycho-social aspects of organisations, and be equipped for the successful management of people.

- the student is introduced to current ideas of organisation theorists;
- the student is able to use concepts to manage people;
- the development of skills in communication, assertiveness and self-knowledge are subsidiary aims.

After the course, the candidates will have developed increased awareness of human organisational problems and of the impact their personal behaviour has on others.

Class sessions may draw upon lecture-discussions, group experiential exercises, case studies, tests, student presentations and films.

These are complemented by extensive private reading and practical assignments out of class.

Topics include interpersonal communications, motivation, perception, leadership, teamwork, intra and inter-group processes, conflict management.

Textbooks and references

Details provided at the first session.

BH606 Culture and Conflict in Organisations

A second-year subject in the graduate diploma course in organisation behaviour.

Subject aims and description

The subject introduces students to current theory and practice associated with 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 unit is tightly sequenced with the following unit, Management and Leadership.

Textbooks and References

It is unlikely that a specific text will be prescribed. 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

A second-year subject in the graduate diploma in organisation behaviour.

Subject aims and description

This subject has three specific points of focus:

1. Leadership and systems theory.
2. Leadership and psychodynamics.
3. 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.

Textbooks

As a guide:


Faculty of Business

BM601 Marketing Management 2

Prerequisites, BM501 Marketing Management 1, BU504/BU505 Quantitative Methods, and BE501 Economics.

Method of Instruction: Partial emphasis is placed upon the use of case studies to complement the lecture material. Students are expected to participate actively throughout the semester, and are required to present both individual as well as group assignments.

A second-year subject in the Graduate Diploma in Business Administration.

Subject aims and description

This unit builds upon the knowledge that students have gained from Marketing Management 1, especially in regard to the marketing concept, the marketing planning process and the elements of the marketing mix.

The aim of this unit is therefore to study various issues in marketing with special reference to:

- the fundamentals of marketing research;
- identifying the value of additional information and how this information can be used;
- international and services marketing;
- the practical and theoretical issues of international marketing;
- involving the student in practical issues through the use of case studies, assignments and group presentations.

Course framework

The main topics include:

- marketing research: costs and benefits, marketing research strategy, evaluation of results;
- international business.

Textbooks

Nil.

References

Topic reference will be given in class for the specific marketing applications covered.

BM602 Strategic Management

Prerequisite, nil.

A fourth semester subject in the graduate diploma in management systems.

Subject aims

The course provides students with an understanding of the management problems involved in developing strategic policies for organisations in both the public and private sectors.

The student is given a practical understanding of how the strategic planning process works, how corporate objectives are developed, how these are translated into strategic plans.

Emphasis is shared between theoretical considerations, the practical problems of case studies and discussions of prepared readings to help students learn how to employ strategy in appropriate administrative policies and in securing their effective implementations.

Students are expected to be actively involved in the class and are required to complete individual and group assignments.

Textbooks

Details will be provided at the first session.

References


BM603 Business Policy

Prerequisites: because of the nature of this unit, Business Policy is taken in the final semester of the course.

Candidates must have completed all of Group A units and two of the Group B units before commencing this.

Subject aims

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 the other MBA units will thus be utilized.

Specific objectives of this unit are:

(a) To introduce the strategic planning process and the range of techniques used in business planning,
(b) To develop skills in using a variety of frameworks for making strategic decisions.

(c) To emphasise the importance of the current development phase of the industry in which an enterprise operates as a basis for appropriate strategy development.

(d) To develop skills in using research in program evaluations and policy development.

Subject aims
Topics to be covered include:

(i) The nature of corporate objectives, hierarchy and conflict of objectives, personal dimensions of objectives, management by objectives.

(ii) Understanding the business and its strategic issues 

(iii) The search for opportunity including Scenario Analysis.

(iv) Industries and their evolution: competitive advantage.

(vi) Planning for entry into new industries and new markets.


Methodology

Textbooks


BQ601 Financial Modelling

Subject aims and description

The aim of the unit is to enable students to appreciate, and gain practical experience in the application of, a range of computer based analysis methods as components of a decision support system.

Throughout the unit, the use will be made of computer packages in computing that relate to financial and financial management.

Topic coverage includes:

Decision support systems, expert systems, micro-computers and current software developments, financial modelling using languages (e.g., FORTRAN) and spreadsheets (e.g., LOTUS 1-2-3). Graphics, use of expert system shells, public data bases, approach to risk analysis, evaluation and selection of computing systems.

References

Software documentation, user manuals and current journal articles will provide the major reference material for the unit.

BQ604 Market Forecasting 2

Prerequisite, BQ606 Market Forecasting 1

Subject aims and description

Market Forecasting 2 concentrates on the area of causal forecasting and commence by introducing the techniques of simple and multiple regression. The development of hypotheses, establishment of appropriate models and their subsequent estimation is considered in the context of a number of case studies, centred on forecasting market share and demand at varying levels of aggregation. Additionally, some of the more common problems associated with these approaches are considered and cures investigated. The difficulties of producing forecasts per se are also dealt with.

Course participants are also introduced to structural and input-output models from a users point of view. Again, considerable use will be made of data bases and computer packages.

Textbook


References


BM605 Marketing Research Methods

Two hours per week average for one semester

Prerequisite, BQ604 Research Methodology and BM501 Marketing Management 1

Assessment Group assignment (pairs) 45%, Final examination 55%

Recognition of prior learning

Credit will be given for a comparable unit successfully completed at the graduate level.

Subject aims

This unit will build on the skills introduced in BQ605 Research Methods and more specifically apply these to situations involving consumers and the marketplace. Rather than the independent research focus of BQ605, this unit will also look at commercial research. Emphasis will be on developing skills such as designing the research approach and selecting appropriate research methods. With this, students will be introduced to the special situations arising in research and evaluating research situations. With this, students will be able to use a program of action to generate research problems and to use a program of action to generate research problems.

Subject description

1. Market research in Australia. The research process. The research problem.

2. Cross cultural research.

3. Qualitative research: focus groups, depth interviewing, delphi techniques, projective techniques, participant observation.

4. Quantitative research: overview of methods. Sampling and sample size, questionnaire design — measuring attitudes and developing scales. Questionnaire design — testing questions. Fieldwork management, editing and coding.


Textbooks


Subject description
1. Sources of demographic data.
4. Cohort analysis.
5. Demographics of enterprises and industries — labour force — skills — markets.
7. Geodemographic software.
8. Psychographics.

Textbooks

BQ607 Market Modelling 2
Two hours per week for one semester
Prerequisite: Market Modelling 1
Assessment: Course participants are expected to successfully complete and submit two projects (each worth 40%) as specified during the semester, together with one final end-of-semester examination worth 20%
Methods of Instruction: This unit will be delivered via one two-hour class per week for one semester. Classes will comprise a lecture segment as well as tutorial and computer laboratory sessions as required. Note that throughout this course, extensive use will be made of computer software packages.

Recognition of prior learning
It will be granted for equivalent studies completed at the same level.

Subject aims
This unit aims to familiarise course participants with three forecasting techniques which have not been covered in detail previously, namely, the Qualitative, Causal and Markovian approaches. Emphasis will be on using a range of techniques to build market demand models.

Subject description
1. Incorporating qualitative techniques including delphi, group consensus, grass roots, and historical analogy into demand models.
2. Causal approaches to forecasting, including a broad range of regression techniques.
3. Product life-cycle and end user analysis.
5. Strategy development for target planning.

Textbook

BT601 Systems Project Management
Subject aims
After completing this unit, students should be able to:
- understand the main reasons for success or failure of data processing projects;
- coordinate the skills of a systems development team, users and operators;
- evaluate both the feasibility of suggested projects and the viability of suggested solutions;
- appreciate the problems and principles of project planning and control;
- plan and control the implementation of new systems.

Subject option
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

No formal prerequisites are specified. However, it will be assumed that candidates have a prior knowledge of the system development process equivalent to that gained from completing BT503 Software Engineering Strategies.

References

BT602 Information Systems Management
Subject aims
At the completion of this unit, the student should be able to:
- specify the organisation and operation of a modern information systems division in terms of its functional units;
- define and use performance criteria for the information systems function;
- introduce and control new developments in information technology in the organisation;
- implement tools and methods for the more efficient operation of the information systems function.

Recognition of prior learning
It is assumed that candidates have a prior knowledge of administrative theory and practice of computer systems.

Subject description
The selection of topics is made from the following, depending on the students' interests: the I-S function — objectives, organisation, performance; operations management; capacity management and planning; the user interface, end-user computing, office automation; negotiating; human resources management; productivity tools.

References

BT603 Management Systems
Subject aims
This unit covers the theory of management information systems and their application for decision-making in organisations. The student should be able to:
- identify the decision requirements for the management of an organisation;
- analyse and develop the process of planning for information systems;
- measure the effectiveness of an organisation's decision support systems;
- develop support systems for the management of knowledge work;
- evaluate the social implications and technical feasibility of an information system.

Candidates usually take this unit in the final semester of the Graduate Diploma in Management Systems.

Subject description
The development of computerised information systems; the design and construction of information systems; decision support systems and knowledge base systems; technical considerations; social considerations. Students will be required to evaluate management systems and the supporting infrastructure within their own organisations.

References
No single book covers the full scope of the course. The texts to be used as references will include:
BT606 Data Base Management Strategies
Prerequisites. BT506 Information Analysis and BT507 Computer Programming

Subject aims
By the end of this unit the student will be able to:
- implement a logical data base design in a selection of DBMSs;
- design and program transactions against the data base;
- include appropriate security, integrity and recovery functions in the above.

Subject description
This unit builds upon the logical design concepts taught in Information Analysis in covering the implementation considerations of a number of DBMSs. The students’ acquaintance with SQL from that unit is also built upon the coverage of Relational Data Bases.

Textbook

References
Date, C.J. An Introduction to Database Systems. 5th edn, Reading, Massachusetts: Addison-Wesley, 1990
Kroenke, D. Database Processing. 3rd edn, Chicago: SRA, 1988

BT607 Data Communications and Office Automation
Prerequisite, BT504 Introduction to Information Technology

Subject aims
At the completion of this unit students will be able to:
- demonstrate a sound knowledge of the basic concepts and components involved in data communications;
- demonstrate an understanding of the various technologies used in the electronic office and how office automation can increase the efficiency of knowledge workers;
- demonstrate an understanding of communication protocols and their relation to system performance;
- demonstrate an understanding of the goals and structure of the ISO reference model for computer network protocols;
- show a good knowledge of the data communication services and facilities provided by the common carriers;
- demonstrate an understanding of how data benefits an organization and how this function is costing.

Textbook
To be advised.

Major Reference

Supplementary References
Black, U.D. Data Communications Networks and Distributed Processing. Reston: Virginia: Reston Pub., 1983
Halsall, F. Data Communications, Computer Networks and OSI. 2nd edn, Wokingham: Addison-Wesley, 1998
Stamper, D.A. Business Data Communications. 3rd edn, Redwood: Benjamin Cummings Publishing Co., 1992

BT608 Systems Development Strategies
Prerequisites. BT606 Data Base Management Systems and BT607 Data Communications and Office Automation

This unit will build on the technical knowledge gained in earlier units and provide 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.

Subject aims
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;
- describe the methodologies in use in organisations and 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 maximized.

Subject description
Topics covered include:
- information systems theory;
- decision support systems;
- traditional life cycle development;
- problems with traditional life cycle development;
- application packages;
- the user interface;
- user driven computing;
- fourth generation languages;
- prototyping;
- Computer Aided Software Engineering (CASE) tools;
- participative design;
- information systems issues for management.

Textbook
To be advised.

References
Behan, K. and Holmes, D. How to Pick a Package. Melbourne: The Ultimate Corp, 1987
Schneiderman, B. Designing the User Interface — Strategies for Effective Human-Computer Interaction. Reading, Mass.: Addison-Wesley, 1987

BT609 Knowledge Based Systems
Prerequisite, BT506 Information Analysis and experience in at least one of the significant language courses.

A knowledge of LOTUS 1-2-3 and dBASE would also be useful.

Subject aims and description
In this unit the students develop an understanding of the nature and uses of expert systems in business. The unit involves practical work using the expert system building tools, VP-Expert and ESE.

A second-year unit in the graduate diploma business information technology course.

Topics covered:
- what expert systems are, how they are developed and who is using them;
- how expert systems differ from conventional software programs, human beings who perform tasks expertly and artificial intelligence programs;
- various forms of knowledge representation;
- principles of frame-based systems;
- basic concepts of artificial intelligence and knowledge engineering that affect design and implementation;
- knowledge base design;
- evolutionary process of knowledge acquisition needed to put expertise into a machine;
- principles of rule based systems and induction systems;
- handling of uncertainty;
- inference;
- VP-Expert (on PC) and ESE (on IBM mainframe);
- comparative strengths and weaknesses of good engineering tools for expert and professional developers;
- the pitfalls and opportunities that arise from the important need to evaluate artificial expertise;
- computers and natural language;
- introduction to neural networks.

Textbooks

References
Green, J. et al. (University of NSW) Expert Systems and Their Applications, Audio-visual. Kensington, NSW: Continuing Education Support Unit, University of NSW, 1986
BT611 Systems Software
Prerequisite, completion of second year data processing units

Subject aims and description
This unit concentrates on a comparison of the operating systems MVS/XA and UNIX after giving students a general introduction into the principles and types of operating systems. Both UNIX and MVS/XA are discussed from the perspective of how they manage computer systems resources, what types of software facilities are provided to users. Students are given both theoretical exercises and practical exercises in the use of the MVS/XA and UNIX operating systems.

Textbook

References
Manufacturers manuals

BT612 Advanced Programming
Prerequisites, BT507 Computer Programming Methods of Instruction: Lectures 2hrs/week for 13 weeks, Lab Sessions 2hrs/week for 12 weeks, Assessment: 2 Programming assignments 20%; 2 fortnightly tests 30% and final exam (closed book) 50%

A pass in the final exam AND an overall score of 50% for the tests and assignments is required to gain a pass in this unit

Subject aims
This unit introduces students to the programming language C in both the PC and mainframe environments. It examines the structured programming paradigm and demonstrates the object-oriented paradigm using C++

Subject description
- introduction to C
- simple data types
- structured programming methodology
- algorithms — sorting, searching and file processing
- recursion vs iteration
- structures
- data structures — arrays, stacks, queues, lists and trees
- the C++ programming language
- object-oriented software design

BT613 Business Software Engineering
Prerequisites, BT506 Information Analysis and BT507 Commercial Programming

Subject aims
In this unit, students are introduced to design concepts, principles and methods relevant to the design of software for information systems. Although the main emphasis is on techniques in widespread use, other approaches and requirements are also covered. In particular, design methods suited to projects where Computer-Aided Software Engineering (CASE) will be used are studied and applied. Because students are expected to acquire competence in choosing and applying design techniques the unit includes a project component in which CASE software will be used.

Masters units

BB701 Management 2: (Resources)
Course: MBA
Prerequisite: Normally all units taught in the first term of the course. This unit is compulsory for all students.

Subject aims
- The subject aims of this unit is to provide a broad understanding of and some basic practical skills for the effective planning, acquisition and control of financial resources in a business. The technological of this unit will be complemented by study in the place of innovation and internationalism.
- Specific objectives include:
  (a) To provide an introduction to the process of planning an organisation’s needs for all categories of resources.
  (b) To provide an introduction to the methods of acquiring the various resources needed.
  (c) To provide an introduction to the key concepts involved in monitoring, reviewing and controlling the use of resources.

Subject description
The unit will emphasise the largely integrated nature of resource management from the point of view of general management.

(i) Planning Resource Requirements.
(ii) Acquiring Resources: Information as a corporate resource

BB702 Management 3: (Ideas)
Course: MBA
Prerequisite: Normally all units taught in the first term of the course. This unit is compulsory for all students.

Subject aims
- The main objectives of this unit are to develop an attitude towards business that encourages and supports innovation and creativity as essential components of a successful business. The unit will provide some basic practical skills for the management of ideas within the business.
- Specific objectives include:
  (a) To establish a framework that encourages and utilises opportunities for creativity and innovation to generate sustainable competitive advantage.
  (b) To examine some of the methods for generating high-value-added products (goods or services) through the application of ideas, intellectual skills and creativity.
  (c) To develop knowledge and awareness that encourages and utilise opportunities for creativity and innovation in the operating environment.
Subject description
Topics to be covered include:
(i) The importance of innovation in business operations.
(ii) Market driven behaviour: making marketable products rather than customised products; creation of new markets.
(iii) Building ideas into products: product design quality, production quality control, image, support and service, manufacturing technologies, productivity.
(iv) Entrepreneurship and intrapreneurship: new ventures, judgement, risk taking, managing and decision support in an uncertain environment.
(v) Management of innovation: seeking opportunities in a changing environment; adapting management styles and the organisation to fit change and to encourage innovative ideas.

Textbooks

Reference

BC701 Accounting for Management
Course: MBA
Prerequisites: None. This unit is compulsory.

Subject aims
The aim of this unit is to develop the student's ability to effectively use accounting information in the management of a business. More specific objectives include:
(a) developing a framework of key concepts necessary for the interpretation and use of accounting information;
(b) developing the student's ability to identify and use relevant information for particular management functions and tasks;
(c) developing the student's understanding of how accounting information requirements vary with the nature of the business.

This unit 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 units in the MBA.

Subject description
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 underly the MBA program.

General Outline of Content
- Introduction to 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 leverage 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.

Texts or References

BE701 Economics for Management
Course: MBA
Prerequisites: None. This unit is compulsory.

Subject aims
The basic objective of this unit is to provide an understanding of economic issues relevant to management and the application of economic concepts to effective decision making.
Specific objectives include:
(a) To provide an understanding of the economic environment in which business operates.
(b) To develop skills in interpreting economic reports and policy statements and in evaluating the implications of government policies for managerial decisions.
(c) To encourage appreciation of the linkages between different economies and the impact of changes in the international economy on specific markets and industries.

Subject description
Topics to be covered include:
(i) Economics and efficiency — critical economic concepts for management
(ii) Management, industry and government — market structure, conduct and performance — performance indicators — policies for improved performance — government and industry policy — adapting to structural change
(iii) The macroeconomic environment — key macroeconomic variables — sources of information on economic performance — influences on the level of economic activity — economic fluctuations
(iv) 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

Texts or References
Economic Roundup, The Treasury, Selected Publications
Reserve Bank of Australia (Selected Bulletins and Special Reports)

BH706 Management 1: (People and Organisations)
Course: MBA
Prerequisites: None. This unit is compulsory.

As part of the unit, all candidates must successfully complete an introductory residential seminar of 4 days 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.

Subject aims
Strategic management requires the direction and control of means as well as ends. This unit 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 unit 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:
(a) To provide a conceptual framework for the analysis of the behaviour and management of people in organisations.
(b) To enable students to analyse and understand behaviour and problems of people, both in small groups and in whole organisations.
(c) To consider organisational design options and their impact on the effective implementation of strategies.

(d) To place the skills and themes of the MBA into a human and organisational context.

(e) To develop the skills of managing people.

**Subject description**

The unit 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:

(i) The concept of organisation design, and its implications for structure, job design and the interface between people, technology, and the organisation.

(ii) 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.

(iii) The impact of the local and international environment on Australian business. Comparisons with the management of people in other countries and cultures (especially Asian).

(iv) An introduction to the practical role of the personnel function in organisations.

**Texts or References**


**BH708 Processes of Inquiry and Research**

**Organisation Behaviour, Part 1 (Intercultural Understanding)**

**Prerequisites:** Nil

**Assessment:** Essay 50% and Research Project 50%

**Methods of Instruction:** Seminars, presentations, simulations and research

**Subject aims**

(1) To develop within participants an understanding of their cultural identity and how this influences the way they manage and research.

(2) To research ‘Australian-ness’ as a cultural identity in management using a team based ‘inter-view’.

**Subject description**

**Drawn from studies in:** psychology, sociology and social anthropology

It provides a starting point for the conceptualisation of cultural identity.

**Concepts include:** gender, authority, religion, and race.

**Reference**

Sue, D.W. Counsellingthe Culturally Different. 2nd edn, John Wiley and Sons, 1990

**BH709 Processes of Inquiry and Research**

**Organisation Behaviour, Part 2 (Senior Management Responsibilities)**

**Prerequisites:** Nil

**Assessment:** Critique of 3 research based papers 40%, development of questionnaire 40% and test and evaluation of questionnaire 20%

**Methods of Instruction:** Classes, seminars, practice

**Subject aims**

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.

**Subject description**

The conceptualisation of corporate policy and strategy and a development of a testable questionnaire instrument to research these activities with senior managers.

**Reference**


**BH710 Processes of Inquiry and Research**

**Organisation Behaviour, Part 3 (Social Defences in Organisation)**

**Prerequisites:** Nil

**Assessment:** Critique of an in-depth interview 50%, Essay 50%

**Subject aims**

To explore the concept of social systems as a construct in the clinical approaches to understanding such phenomenon.

**Subject description**

In this unit students will be encouraged to:

(i) develop ways of thinking that order and understand subjective experience;

(ii) develop the capacity for inductive logic;

(iii) develop and extend observational skills — both of external, and internal phenomena;

(iv) struggle with the dilemma’s involved in participant observation, including methodological, ethical and personal dilemmas;

(v) explore what it means to be involved in cooperative forms of social research; and

(vi) learn about individual, group and organisational forms of defense against anxieties that arise when people work together; and learn about how these might be studied.

**Reference**


**BH711 Processes of Inquiry and Research**

**Organisation Behaviour, Part 4 (Organisational Learning)**

**Prerequisites:** Nil

**Subject aims**

To explore the concept of organisational learning as a dimension of organisational survival, evolution and transformation.

To develop research based methods for inquiry into, assistance with and evaluation of organisational learning.

**Subject description**

The positivist, systemic and cybernetic approaches of western management will be compared to the dialectical, paradoxical and flux models more characteristic of eastern thinking. The stance and technique of the researcher will be explored in relation to the conceptualisation of where, how and why learning occurs in organisations.

**Reference**


**BM701 Marketing for Management**

**Prerequisites:** Normally Management 1: Economics for Management; Accounting for Management; Computing for Management. This unit is compulsory (conversion students excepted).

**Subject aims**

The principal objectives of this unit are to provide a strategic orientation to the study of marketing management and to ensure that candidates obtain a firm foundation in marketing concepts.

Specific objectives include:

(a) To examine the development of marketing strategies at the product (middle management) level which is concerned with developing and implementing marketing plans in regard to positioning, product policy, pricing, promoting and distributing the product, commissioning and undertaking research.

(b) To examine the development of marketing strategies at the corporate (top management) level which is concerned with the more general concerns of corporate growth and the firm’s overall product mix as included in the strategic marketing planning process.

(c) To develop marketing plans to exploit opportunities and deal with the threats before they arise.

203
(d) To examine the development of international marketing strategies; to compare the pros and cons of customisation versus globalisation.
(e) To develop marketing plans and emphasise the differences between a domestic and an export marketing plan.

**Subject description**
Topics to be covered include:
(i) The marketing vision: the external environment.
(ii) The strategic marketing planning process.
(iii) Market information systems and market research.
(iv) International marketing strategic planning: global thinking in product, price, distribution and promotional strategies.
(v) Marketing quality and design.
(vi) Marketing pull and technology push.

**Textbooks**

**References**
(A) Domestie Marketing:

(B) International Marketing:
Catsora, P.R. International Marketing, 7th edn, Illinois: Irwin, 1990

**BQ701 Business Forecasting**
Prerequisites: Completion of the Graduate Diploma in Management Systems or equivalent

**Subject aims and description**
(i) Identify the appropriate approach to adopt for a forecasting problem (i.e., differentiate between the approaches of predictive, causal and more importantly (for users and workers in the field of information technology) qualitative forecasting (specifically Technological Forecasting);
(ii) for selected situations, choose the appropriate computer packages which can be utilized in other areas of the course.
(iii) and then, via the medium of a management report, communicate the findings to the appropriate people;
(iv) be competent at carrying out independent research, and reporting it in an appropriate manner.

Topics include general introduction to forecasting approaches; time based forecasting techniques; technological forecasting; scenario analysis; latest developments in IT; introduction to research methodology.

**References**

**BQ702 Computer Aided Management**
Prerequisites: Completion of the Graduate Diploma in Management Systems or equivalent

**Subject aims**
(i) Develop skills and knowledge in identifying and modelling real world problems in different areas of a management systems.
(ii) Develop relevant computer techniques for using in management problems.
(iii) Enable students to apply these techniques to realistic problems with focus on business operations, planning and control. Emphasis will be on the interpretation and impact of the solutions.

**Subject description**
Overview and Introduction
- survey of problems inherent in managing computer based information systems;
- focus on operation, planning and control issues of information systems;
- identify situations where computer based management techniques can be applied;
- overview of various current computer based management techniques.

Three topics to be selected from the following according to the needs and interests of students.
(i) Optimisation techniques, (ii) Inventory and Manufacturing Management, (iii) Simulation, (iv) Computer Performance and Evaluation

**Case Study**
- Applying techniques to realistic problems.
- Review solutions and impacts.

**References**
Davis, K.R. and McKone, PG. Quantitative Models for Management. 2nd edn, Boston, Massachusetts: Kent, 1984

**BT702 Knowledge Based Systems**
Prerequisites: BT502 Current Issues in Systems Design or equivalent

**Subject aims**
(i) Discuss the position of expert systems in the world of artificial intelligence, and the objectives and development strategy of expert systems.
(ii) Explain the difference between conventional software and expert systems, including concepts such as reasoning, representation of uncertainty, and the generation of explanations.
(iii) Recognise and analyse commercial problems to which expert systems may provide a solution.
(iv) Select the appropriate tool to apply to a commercial problem from a range including object oriented languages (e.g.: LISP, PROLOG), microcomputer based expert system shells (e.g.: VPS, Expert, Guru), mainframe based expert system shells (e.g.: IBM's ESE, Cullinan's Application Expert), or expert system languages (e.g.: IF's XL).
(v) Discuss strategies of supervising the development of expert systems.

**Subject description**
(a) The relationship between AI and expert systems, The relevance of expert systems to business.
(b) Expert systems:
- knowledge acquisition;
- architectures.
(c) the range of tools available to build expert systems.
(d) The selection of suitable problems for expert systems solutions.
(e) Managing expert systems development.
(f) Development areas, e.g., natural language networks.

**References**

**BT703 Introduction to Business Software**
20 hours per week per semester
Prerequisites: Nil

**Subject aims**
The aim of this unit 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 to management decision making;
- enable students to confidently use a number of key software packages which can be utilized in other areas of the course.
Subject description

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 databases.

Availability and accessing of public data bases.

Textbook

As this unit is primarily concerned with the use of applications software and current developments in using micro-computers, text books form a minor component of reference material.

Software documentation, user manuals and current journal articles will provide the major reference material for the unit.

It is required that students have access to a PC for work undertaken outside formal session times.

BT704 Computing for Management

Prerequisites: A five day program to equip students with PC skills, and knowledge of packages for use throughout the course (conversion students excepted).

This unit is compulsory.

Subject aims,

The basic objective of this unit is to provide a broad understanding of the way in which computing and basic quantitative methods can assist an organisation to meet its business objectives. The unit will incorporate the role of innovation, technology and internationalism in business as a link with the other units.

Specific objectives include:

(a) To provide an overview of the ways in which information resources and automated information systems may be used in the management of organisations.
(b) To provide an overview of the ways in which quantitative analysis may be used in the management of organisations.
(c) To provide an introduction to the range of available information technologies and their possible application in modern organisations.

Subject description

The unit will emphasise the key role which the information resource plays in the management of a modern organisation. Specific topics include:

(i) Introduction to the computer as a management tool.
(ii) Computing in the organization: including management of corporate data, use of transaction processing systems and management information systems.
(iii) The provision of effective automated information systems.
(iv) The technology options, including: a review of types of information systems, personal vs corporate computing, communications.

Subject aims

The purpose of this unit is to assist in understanding the technological role of the management of organisations.

Specific objectives include:

(a) To provide an overview of the ways in which information resources and automated information systems may be used in the management of organisations.
(b) To provide an overview of the ways in which quantitative analysis may be used in the management of organisations.
(c) To provide an introduction to the range of available information technologies and their possible application in modern organisations.

Texts or References


BB801 International Business

Two hours per week for 15 weeks

Prerequisites: None. This unit is compulsory for all students.

Subject aims

The purpose of this unit 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.

(a) To provide a framework for international business and for the role of the manager in an international setting.
(b) To raise awareness of the opportunities in international trade (particularly export) and investment, and to examine some of the obstacles.
(c) To examine some of the most unusual aspects of the economic environment of the international operator — the world monetary system, foreign exchange and balance of payments, particularly as they affect Australian exporters.

Subject description

(a) The basis for international trade.
(b) The basis for international factor movements.
(c) Barriers to international business.
(d) The world monetary system and foreign exchange.
(e) Balance of payments.
(f) International reach of trade practices.
(g) Foreign direct investment.
(h) Organisations of international operations.
(i) Export management.
(j) The role of marketing in economic development.
(k) Trading with the socialist economies.
(l) Global marketing management.
(m) Human resource management.
(n) Ethics in international business operations.
(o) Cultural diversity and business operations.
(p) Special problems of international operations from Australia.

Texts or References


BB802 Management 4: (Technology and Management)

Prerequisites: None. This unit is compulsory for all students.

Subject aims

The principal aim of this unit 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:

(a) To examine the increasingly important role of technology in the global and national economies and the consequences of this for corporate strategies.
(b) To provide some basic skills of technology assessment to assist in utilising technology within the organisation and in incorporating technology into corporate strategies.
(c) To examine the role of changing technology on the work environment and to develop ways of minimising adverse influences.
(d) To manage Organisational Change.
Subject description

Topics to be covered include:

(a) The importance of technology in national and global economies: the increase in this 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.

(b) Using the life cycle of new technology; sources of new technology; place of ICT within a system.

(c) Stages of growth in the introduction and application of new technology in organisations e.g. Nolan Stages of Growth.

(d) 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.

(e) The key characteristics of the principal information technology: biotechnology; manufacturing technology.

(f) Relevance of R&D to business success.

Textbooks


Roszk, T. The Cult for Information. New York: Pantheon, 1986

BB804 Management 5: (Management and Society)

Prerequisites: None. This unit is compulsory for all students.

Subject aims

This unit focuses on the international, national and community context in which planning and decision making must take place. The unit aims to encourage successful and socially responsible management by developing:

(a) an understanding of the broader social and environmental context of management;

(b) an awareness of the importance of society and environmental influences on management; and the philosophy and policy underlying it;

(c) a critical awareness of the traditional assumptions underlying organisational values;

(d) sensitivity to other value systems including those of other cultures;

(e) an understanding of the value systems on organisational processes and beliefs;

(f) an awareness of the moral and ethical dilemmas that confrontation practising managers.

Subject description

The unit will draw on the experience of participants to examine the values implicit 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:

(i) Introduction: Identifying values implicit 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.

(ii) The context and structure of organisations: social, political, environmental. Power and control.

(iii) The rationale for social legislation: conceptual, historical and cultural considerations.

(iv) Technology and the formation of organisational values: e.g. the impact of information technology, technocratic values, etc.

(v) Cross-cultural value differences and the implications for international business and trade.

(vi) The challenge of the multi-ethnic work force.

References

Selected articles and extracts will be prescribed.

As background reading, the following texts are recommended:


Rozsak, T. The Cult for Information. New York: Pantheon, 1986

BH801 Organisation Research Project

Participants are required to write, under supervision, a thesis which focuses on some aspect of behaviour in organisation. Applied research is encouraged and emphasis is given to a clearly articulated mode of inquiry.

BM801 Business Planning

Prerequisites: All units in Terms 1, 2 and 3 of the course. This unit is compulsory (conversion student excepted).

Subject aims

This unit is studied in the context of a dynamic global environment in which planning and decision making must take place. The unit aims to introduce the strategic planning process and the range of techniques used in business planning.

Analytical frameworks for business planning and their integration into strategic planning and the other MBA units will thus be utilized.

Specific objectives of this unit are:

(a) To introduce the strategic planning process and the range of techniques used in business planning.

(b) To develop skills in using a variety of frameworks for making strategic decisions.

(c) To emphasise the importance of the current development phase of the industry in which an enterprise operates as a basis for appropriate strategy development.

(d) To develop skills in organising for effective business planning and for the implementation of the business planning process.

Subject description

Topics to be covered include:

(i) The nature of corporate objectives, hierarchy and conflict of objectives, personal dimensions of objectives, management by objectives.

(ii) Analytical frameworks for business planning and their integration into strategic planning.

(iii) Defining the business, the central strategic issue of "What business are we in?"

(iv) The search for opportunity including Scenario Analysis.

(v) Industries and their evolution: competitive advantage.

(vi) Planning for entry into new industries and new markets.

(vii) The Business Plan:

• Management expectations of a business plan

• Criteria for an effective plan

• Preparing the business plan

• Defining the business situation

• Establishing the value proposition

• Defining the business strategy and action programs

• Establishing the key processes and tasks

• Establishing monitoring procedures

• Updating of the business plan.

Texts or References


BT801 Project and Thesis
Prerequisite: Graduate Diploma in Management Systems or equivalent.

Subject description
Candidates will be required to submit a Research project report on a topic of their own selection. The topic will be related to computer-based management systems and, dependent on the specific area covered, an appropriate supervisor will be appointed. In some instances, students may have more than one supervisor. There will be at least two examiners.

A preliminary proposal of the project to be undertaken must be submitted for approval by the convening panel of the Masters Program. There will be a requirement for formal monthly reporting by candidates, both oral and written throughout the term of the project. Failure to meet satisfactory standards of progress on a monthly basis may preclude final submission for the Masters Degree.

To enable other candidates to share the benefits from the applied nature of the projects, all students in the masters program shall attend two or three seminars in second semester (open also to the general public, interested persons and employers) where final year students will present the salient results of their research.

The duration of the project will be equivalent to four units of the Masters Degree. The Project will be normally taken in the final year of the course. Prior to commencing their project, students shall undertake a short course of study in research concepts and methodologies.

As a guide, the following may be examples of topics appropriate for research:

- Performance and implementation issues in database crash recovery;
- Evaluation of information system planning and its relationship to information systems performance;
- A systems model for improving human factors of computer environments;
- A strategic planning methodology for a management information system;
- Designing expert systems;
- The use of knowledge systems in a... environment;
- Expert systems in manufacturing environment;
- Distributed knowledge based system for an intelligent manufacturing system;
- Decision support systems using expert system techniques;
- Organisational structures to support end-user computing.
Academic staff........................................... 210
Courses offered........................................ 212
General Information
Feeder courses.......................................... 212
Women in engineering.................................. 212
Cooperative education.................................. 213
Cooperative program................................... 213
Cooperative employers.................................. 213
Advice to prospective students....................... 214
Admission to courses................................... 215
Course requirements.................................... 216
Examinations and assessment........................ 217
Faculty passing scheme................................ 217
Guidelines for part-time study....................... 219
Enrolment................................................. 219
Publication of results................................... 220
Prizes, scholarships and awards...................... 220
Continuing education (short courses).............. 221
Professional recognition............................... 221
Faculty of Engineering
Degree of Bachelor of Technology................... 221
School of Civil Engineering and Building......... 222
—Career potential....................................... 222
Undergraduate courses
Degree of Bachelor of Engineering (Civil)......... 223
Degree of Bachelor of Technology in Building Surveying.................................................. 223
Postgraduate courses
Graduate Diploma in Civil Engineering
Construction............................................... 224
Master of Technology (Construction)................ 224
Master of Engineering.................................. 225
Doctor of Philosophy................................... 225
School of Electrical Engineering..................... 225
—Career potential....................................... 225
Undergraduate courses
Degree of Bachelor of Engineering
(Electrical Power, Communication and Electronic, Computer Systems Engineering)............... 226
Postgraduate courses
Graduate Diploma in Computer Systems Engineering.......................................................... 227
Master of Engineering.................................. 227
Doctor of Philosophy................................... 227
School of Innovation and Enterprise................. 227
Postgraduate courses—
Graduate Diploma in Management.................... 228
Graduate Diploma in Entrepreneurship and Innovation......................................................... 228
Master of Enterprise Innovation...................... 229
Doctor of Philosophy................................... 229
School of Mechanical and Manufacturing Engineering.......................................................... 230
—Career potential....................................... 230
Undergraduate courses
Degree of Bachelor of Engineering (Aviation).... 230
Degree of Bachelor of Engineering
(Mechanical)............................................... 231
Degree of Bachelor of Engineering (Mechanical)
Degree conversion program.......................... 232
Postgraduate courses
Graduate Diploma in Air-Conditioning.............. 233
Graduate Diploma in CAD/CAM....................... 233
Graduate Diploma in Chemical Engineering........ 233
Graduate Diploma in Computer Integrated
Manufacture.................................................. 234
Graduate Diploma in Manufacturing Technology... 236
Graduate Diploma in Risk Management.............. 236
Master of Technology (Computer Integrated
Manufacture).................................................. 235
Master of Engineering (Computer Integrated
Manufacture) by coursework and thesis............. 236
Master of Engineering by research.................... 237
Doctor of Philosophy................................... 237
Subject Details........................................... 237
General Information................................. 237
Swinburne Higher Education Division
Information.............................................. 19
Faculty of Engineering

Dean
Professor L.M. Gillin, BEng(Melb), MEngSc, MEng(Edinburgh), PhD(Nottingham), DSc, FIE Aust, FAIM, AAIP, FAE, FWAICE

Deputy Dean (Administration)
N. Zorbas, BE(Hons)(WAust), MEngSc, MEng(Edinburgh), FIE Aust

Associate Dean (Research and Graduate Studies)
Professor J.H. Perry, BSc(Tech)(NSW), PhD(S’tan)

Sub-Dean (First Year Studies)
P.J. Roberts, BEng(Melb), MIAusE, CEng

Director, Cooperative Scholarship Programs
J.K. Russell, BE(Ind), MEngSc(Melb), FIE Aust, FIMgE, CEng

Manager, Continuing Education
S.H. Salem, BScEng(Ains), DipEd(Haw), MEng(VIC), SME, CMgE, AIMM

Assistant Registrar (Engineering)
P.A. Dews, BBus(SIT), ARMIT

Administrative Officers
Civil Engineering and Building
H. Kalmus

Electrical Engineering
J.C. McMahon

First Year Studies
B.R. Kidd

Innovation and Enterprise
J.E. White, AssocDip(SP(SIT))

Mechanical and Manufacturing Engineering
R. Kyprianou

A. Lahza, AssocDipAppSci(OH&S)

Laboratory Managers
Civil Engineering and Building
S.A. Scissere

Electrical Engineering
S. Burrows

Mechanical and Manufacturing Engineering
V.C. Deeker

J. Georgiou

School of Civil Engineering and Building

Associate Dean of School and Chair of School Executive
R.B. Sandie, BCE, MEngSc(Melb), FIE Aust, CEng

Leader, Civil Engineering
R.B. Sandie, BCE, MEngSc(Melb), FIE Aust, CEng

Leader, Construction Engineering & Building
K.J. McManus, AM, RFID, ADC, MEngSc, BE(Qld), CEng, FIE Aust

Leader, Structural Engineering
W.J. Spencer, DipCE, BE(Civil), PhD(Mon), TTTC, MIAusE, CEng

Senior Lecturers
F.H. Allen, BE(Civil)(WAust), DipEd, MEngSc(Mon), MIAusE
N.J. Arnot, BE(Civil)(Melb), DipEd(SCV), FGS
J. Attard, BSc(Eng)(Lond), MEngSc(Melb), CEng
G.B. Frecker, BEng(Melb), PhD(Newcastle), MIE Aust, CEng, CEng, CEng
J.T. Fowler, BEng(Survey)(Adel)
A.T.C. Goh, BE(Civil), PhD(Mon), MIAusE, CEng
M. Hatjiantoniou, BE(Civil)(Mon), MUP(Melb), MEngSc(NSW)
R.A. Melchiori, CertBldgSurv, DipAdmin(HIIE), DipEd(SCVH), Dip&PPr, BE(Civil), MEngSc(Melb), MIAusE, CEng
S.J. Mills, BE(Hons)(Mon), MEngSc(Melb), MIAusE, CEng

R.A. Nicholson, BE(Syd), MIAusE, CEng
D.J. Phillips, DipCE(SIT), BE(Civil)(Melb), EWS, MIAusE, CEng

Lecturers
K.C. Aggarwal, BScEng(Civil)(Punj), MTech(Struct) (IIT, Kanpur), MIAusE, CEng
R.M. Bennett, BE(Civil)(Melb)
H.J. Calder, BAppSc(Surv)(RMIT)
B. Chapman, BEng(SIT)

J. Kmita, MSc, PhD(WROCLOW), MIAusE, CEng

School of Electrical Engineering

Associate Dean and Chair of School Executive
B.A. Neyland, BEng(Melb), MEngSc(Melb), TTTC(TTC)

Leader, Communications and Electronic Engineering
J.F. Lambert, BE(Hons), MEngSc, PhD(Melb)

Leader, Computer Systems Engineering
Professor G.K. Egan, BEng(VIC), MSc, PhD(Manc), MBCS, CEng

Leader, Electrical Power and Control Engineering
N. Zorbas, BE(Hons)(WAust), MEd, MEngSc(Melb)

Acting Leader, Electrical Power and Control Engineering
B.S. Adcock, DipEE(PTC), BEE(Melb), MEngSc(Mon)

Senior Lecturers
J.R.F. Alonso, MSc(WP), GMIChemE
I.B. Chapman, BSc(Eng)(Duth)
R. Dluzniak, PhD(Melb), DipEE(RMIT), MSc, FRMIT
S.T. Fennell, BEng(Elec), MEngSc(Melb)
H.A. Ireland, BEng(Elec), BEng(Elec), MA(Lanc)
W. Lavery, BE(Eng)(Hons)(Melb), DipEd(Haw), MEngSc(Melb)

C.S. Lee, BEng (NSW) (Spore), MSc(Eng(Elect))(NSW) (Spore)
PhD(Newcastle, Aust), CDipA&I(ACCA, UK), MBA(Brunel, UK)

P. O’Donoghue, MAppSc(Eng)(Melb)
P. Pitsillos, BSc(Hons)(UMIST)
R. Zawrowski, MSc(Eng)(Cracow), PhD(LaTrobe)

Lecturers
R.G. Assadi, AssDipArt(Miami), BScEng(Texas)
G.P. Banky, BE(Hons), MEngSc(Melb), GradDipCompStudies(RMIT)
A.L. Cheng, BEng(Hons)(Elec)(Melb)
H. Gao, BE(Eng)(Hons)(ElecEng)(Canton), MEngSc(Melb)
I. Hijazin, MSc(Elec)(Ill)
D. Klimovsky, BAppSc(Hons)(Elec)(Melb)
D.V. LaFontaine, BE(Eng)(SIT), TTTC(TTC)
L.H. Neoh, BEng(Elec), PhD(WA)

C. Simpson, BEng(Melb)

Part-time Academic Staff
B. Howell, MEng(SIT)
A. Klebanowski, MSc, PhD(Warsaw)
A.H. Overmars, BEng(SIT)
R. Turton, BSc(Melb)

J.I. Upston, BEng(SIT)
J.M. Worley, BSc(Hons)(ElecEng)(Ess), PhD

Laboratory for Concurrent Computing Systems

Director
Professor G.K. Egan, BEng, MSc(VIC), PhD(Manc), MBCS, CEng

Executive Officer
R.T. Dawe, BA, LLB(Mon), MIE

Professional Staff
J.S. Simmons, BSc(Mech)
S.K. Tang, BSc(Mon)

Postdoctoral Researchers
B.L. Rogers, BEng, PhD(SIT)
School of Innovation & Enterprise

Director of School
Professor L.M. Gillin, BMetE, MEngSc, MEd(Melb), PhD(Chicago), AMIEAust, FIIEAust, FAIM, FACE, FWACE

Leader, Innovation and Enterprise
K.G. Hindle, BA(Hons)(ANU), MBA(Adel)

Leader, Management
B.E. Irons, AM, DipElecEng(CTC), GradDipMaintEng, FIEAust

Principal Lecturer
B.K. Johnson, BA, BEd(Melb), MEd(Alberta), PhD(Alberta)

Senior Lecturer
S.H. Salem, BSc(Eng)(Ains), DipEd(Haw), MEng(Vic), MIEAust, SME, CMfgE, AIIM

Lecturer
H. Evans, BBus(Hons)(Deakin)
J. Legge, BSc(Melb)

Teaching Fellows*
J. Bailey, DipEE(Fracy), BComm, MBA, PhD(Melb), AAIM, FIEAust
B. Ball, BSc(Melb)
I. Shedden, BChemE(Hons)(Qld), FIChemE, FIAE, HonFellowIAEust
B. Whan, BSc(Hons), PhD(NSW)
R. Wheeldon, BEng

School Administrative Officer
J.E. White, AssocDip(PSP)(SIT)

*The above teaching fellows are senior executives who provide an integral teaching link between academic learning and industry practice.

School of Mechanical and Manufacturing Engineering

Associate Dean of School and Chair of School Executive
W.G. Teague, DipMechEng(CIT), BComm, BE(Mech), MEngSci(Melb), MIEAust, FIEAust, FIIEAust

Head, Manufacturing Programs
J.K. Russell, BE(Ind), MEngSc(Melb), FIEAust, FIIEGME, CEng

Leader, CME & Manufacturing Technology
Professor W. Thompson, BScEng(Hons)(UK), GradDipEd(Haw), MEng(UK), FIEAust, CEng

Leader, Design and Human Factors
J.M. Browne, BE(Mech), BSc, MAppSc, PhD(Melb)

Leader, Energy Systems and Chemical Process Technology
Professor J.H. Perry, BSc(Tech)(NSW), PhD(S'on), MIEAust

J.K. Russell, BE(Ind), MEngSci(Melb), FIEAust, FIIEGME, CEng

Leader, Materials Technology Group
Associate Professor E.D. Doyle, BSc(Hons)(Manchester), PhD(UK), MIEAust

Leader, Mechanics of Solids and Machine Systems
I. Freshwater, BE(Mech), MEngSc, PhD(Melb), AGinsTech, MIEAust

Associate Professor
R. Llewelyn, BScEng, FIEAust, FAIE, CEng

Senior Lecturers
H. Ardnt, DipMechEng(SIT), BA(Melb), MSc(Mon), MIEAust, VDI(TTC)
A.S. Blicbaur, BEng(Eng), MEngSci(NSW), MIEAust, CEng
M.D. Buley, BE(Mech)(Mon), MSC(Aston), TTC(TTC)
D.G. Clark, BE(Mech)(Melb), MEng(SIT), MIEAust, FIIEAust, CEng
B.J. Costello, CertManufEng, GradDipEd(Haw), BEng(Prod)(VIC)
J.K. Currey, DipMechEng(CIT), PDipHVAC&R(SIT), BE(Mech)(VIC), TTC(TTC), MIEAust, CEng
R.M. Goeth, DipMechEng(SIT), PDipHVAC&R(SIT), BE(Mech), TTC(TTC)

PG. Higgins, BA, BE, MEngSc(Mon), MIEAust
B.E. Irons, AM, DipElecEng(CTC), DipMechEng(CIT), GradDipMaintEng(SIT), TTC(TTC), FIEAust
G. Mackay, BSc(Hons)(Syd), BEng(Hons)(SIT)
M. Maj, Diping, MIPROD, MIEAust, SMSME, CEng
S.H. Masood, BEng(Hons)(Alig), PDipProdEng(IT Delhi), MEng(NewBrun), PhD(Qld)
Y. Morsi, BE(Hons)(Egypt), BScDesign(London), MIEAust, FIEAust
D. Ph.D(Imp. College London), MIEAust
C.B. Nagarajan, BScEng(Hons), MPPhil(UK), MIEAust, CEng
M.E. Shayan, MEngSci(Tehran-Iran), MSc(OR)(USA), GradDipCompSci(Melb), PhD(OR)(USA)
D.K.J. Soo, BE(Mech), MEngSc(Melb), GradDipBus(Banking and Finance)(CIT), GradDBus(Ascpk)(Deakin), MBA(Mon), ASA, AIIM, FAIP
P.M. Spencer, DipMechEng(SIT), BE(Mech)(Melb), GI MechEng
M. Suffern, BE(Chem)(Mon), DipChemEng, DipAppChem(SIT), MIEAust
W.G. Teague, DipMechEng(CIT), BComm, BE(Mech), MEngSc(Melb)
L.P. Travis, BSc, MS, PhD(Calif), MIEAust
S. Tavrou, BSc(Hons)(UK), MEngCIM(SIT)

Lecturers
G. Bitterfeld, BSc(Mech), MSc(Mech), DipEd(Israel), DipEd(Mon), MIEAust, CEng
A. Bodman, BSc, MIPROD, AFAIM, CEng
H.G. Brinkjes, DipMet, VDI-Ingeny(Germany), MEngSci(SIT), MIEAust, CEng
V. Bulach, DipMechE, BE(Mech), BEngSc, DipEd, MEngSc(Melb), GI MechE
J.S. Chan, BEng, MSc(RMIT)
R. Cummins, ARIC
J.C. Harris, BE(Mech)(Qld), MSc(Mon)
G.R. Hjorth, BE(Mech)(Melb), MIEAust
S.Y. Huynh, BE(Chem)(Melb), GradDipCompEng(RMIT), MEngSc(Melb)
F. Iovenitti, FRMIT, MEngSc(Mon), GradIEAust
D.A. Lee, BSc(Eng)(Mech), BA, MEd, MIEAust, CPEng
H. Knoll, TTC(Haw), DipProdEng(RMIT), MIEAust, CEng
R. Mierisch, DipMechEng(SIT), DipEd
J. Mlynek, GradDipMechEng(Mos), MEng(War), MIEAust
C.L. Peterson, BA(Rom)
A. Sonnenberg, BSc(Eng)(Melb), MIEAust
T. Tonicchio, BE(Chem)(Melb), MEngSci(SIT), MIEAust, CEng, CPEng
J. Wooller, BSc(Eng)(Illinois), MEngSci(Mon)
J.J. Zagorski, BEngSc(London), FIEAust

Part-time Academic Staff
N. Harris, BEng(Mech)(Mon)
A.J. Hill, DipMechEng(SIT)
J. Huxtable, CertBusSt(OH+S), AssDipAppSc(OH+S)
P.J. de Jonghe, AAIL
H. MacKenzie, BEng(Mech)(SIT)
B.M. McDonald, DipMechEng(CIT), MIEAust
G. Ross, BSc(Hons)(Birm), ChemEng, MEng(VIC), FIIEAust, CEng
J. Rijter, BSc, MSc, MEngSc
K. Singh, Diploma(Germany), BSc(Hons), MScEng
H. Zemo, BEng(Mech), MIEAust
Centre for Computer Integrated Manufacture

Director
Professor W. Thompson,
BScEng(Hons)(UK), GradDipEd(Haw), MEng(UK), FIEAust, CEng
Education Manager
B. Costello, BEng(Prod)(VIC), GradDipEd(Haw), CmanEng
Teaching Company Associate
S. Chandler, BEngManuf
Research Manager
D. Toncich, BEElectrical(Hons), MEng, CPE
Research Associates
G. Brien, BSc(Physics), GDip(Robotics)
T. Cleary, BEngMech(Hons)
F. Costa, BEngMech(Hons)
G. Frankish, BEngMech(Hons)
K. Jolic, BEngElect(Hons)
A. Kop, BEngMech(Hons)
W. Leung, BEngMech
A. Luscombe, B MechEng
C. Ng, BEngElect(Hons)
S. Path, BEngElect
D. Rogers, BEngMech(Hons)
S. Stefan, BEngElect(Hons)
E. Wilson, BEngMech(Hons)
E. Woxvold, BSc
C. Yong, BEng
J. Zhang, BEngMech
Administration Officer
E. Jones
Systems Engineer
J. Blackney, BEngMech(Hons)

Energy Systems Engineering Centre

Director
Professor J.H. Perry, BSc(Tech)(NSW), PhD(S’ton), MIET Aus

Courses offered

The Faculty of Engineering includes the schools of Civil Engineering and Building, Electrical Engineering, Innovation & Enterprise, Mechanical and Manufacturing Engineering. Professional courses offered by the Faculty and these schools are as follows:

Faculty of Engineering

Y050 Degree of Bachelor of Technology

School of Civil Engineering and Building

Y001 Degree of Doctor of Philosophy
Y096 Degree of Master of Engineering, by research
C092 Degree of Master of Technology (Construction), by coursework
C050 Degree of Bachelor of Engineering (Civil)
C070 Degree of Bachelor of Engineering (Civil)/Graduate Diploma in Management†
C054 Degree of Bachelor of Technology (Building Surveying)
C082 Graduate Diploma in Civil Engineering Construction

School of Electrical Engineering

Y001 Degree of Doctor of Philosophy
Y097 Degree of Master of Engineering, by research
E050 †Degree of Bachelor of Engineering (Electrical Power and Control, Communication and Electronic, or Computer Systems) GradDipEd(Haw)

School of Innovation & Enterprise

Y001 Degree of Doctor of Philosophy
Y008Y099 Degree of Master of Engineering, by research
P091 Degree of Master of Engineering (Computer Integrated Manufacturing), by coursework
P093 Master of Technology (Computer Integrated Manufacturing)
P050 Degree of Bachelor of Engineering (Manufacturing)
M050 †Degree of Bachelor of Engineering (Mechanical)
Y050 †Degree of Bachelor of Technology
M055 Degree of Bachelor of Technology (Aviation)
M082 Graduate Diploma in Air Conditioning
P085 Graduate Diploma in CAD/CAM
P087 Graduate Diploma in Computer Integrated Manufacture
W83 Graduate Diploma in Chemical Engineering
M081 Graduate Diploma in Maintenance Engineering
P081 Graduate Diploma in Manufacturing Technology
M083 Graduate Diploma in Risk Management

For details of these courses see section for the above school.
* Cooperative courses with periods of industry based learning.
† Combined courses.

General Information

Feeder courses

The Faculty of Engineering has an arrangement with the University of Tasmania at Launceston which enables students to undertake part of a Swinburne engineering degree course at Launceston. The equivalent of the first two years of the courses in civil, manufacturing and mechanical engineering and the first year of the electrical course are currently available at Launceston.

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 Launceston to undertake the two six-month industrial experience components of their course in Tasmania.

Women in Engineering

Women are still a minority in engineering courses and the workforce. The Faculty of Engineering actively encourages women to choose engineering as their career and provides them with opportunities to form networks with other female students within the course and female practising engineers.

Many women who become engineers enjoy the variety of career opportunities that engineering opens to them and aspects of the work that all 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.
The alternative entry scheme (described under Admission to first year degree courses) allows students who have not chosen the standard maths/science prerequisites in their VCE to review their career decisions and to enter engineering by undertaking a more intensive program of mathematics and physics in the first-year of their degree program.

Social and career oriented activities are coordinated with the Advising Centre for Women and provide opportunities for women to interact.

Women who would like further information about the engineering degree program and career opportunities should contact the Sub-Dean, on 819 8510 or Advising Centre for Women on 819 8633.

**Cooperative Education in the Faculty of Engineering**

**Coordinator, Cooperative Education**
J.K. Russell

**Administrator**
K. Brown

**General**
Cooperative Education 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 undergraduate courses offered in the Faculty of Engineering is their cooperative education format. These courses include components of paid industry-based learning which form an integral part of the education program.

**Cooperative program**
Undergraduate courses offered as cooperative education programs are the engineering and technology degree courses in 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 industry-based learning before becoming eligible for the award of an engineering degree. Twelve months (two semesters) of approved industry-based learning is required for the award of a building surveying degree and a technology degree.

**Benefits**
Students who undertake a cooperative education 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;
- students are able to sample particular areas of the chosen branch of their profession before graduation;
- students graduate mid-year when employment opportunities are more readily available;
- industry based learning gained during the course is an advantage when graduates are seeking their first jobs.

**Placement of students**
The Faculty of Engineering is committed to the task of finding placements for students in cooperative courses. Students may take initiatives to secure their own job placements but before contacting a prospective employer a student must contact the Administrator, 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 Associate Dean to reschedule the industry-based learning components of the course.

Students without permanent residence status should be aware that while the faculty 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 faculty will provide information on which academic institutions are able to provide supervision.

**Supervision**
While in industry-based learning students are supervised by their employers and a member of the Faculty's academic staff who acts as the student's industrial tutor.

**Cooperative employers of Swinburne engineering students**
The following are, or have been, recently associated with courses in civil, electrical, manufacturing, and mechanical engineering:

- ACI Packaging
- ACL Engines
- Aerospace Technologies
- Alcoa of Australia Ltd
- Airplan Melbourne
- Airplan Sydney
- Ajax Spurway
- Allen Bradley
- AMP
- APM Ltd
- Arlec Soanar
- ASEA Pty Ltd
- Australia Post
- Australian Automotive Air
- Bailey Controls
- BHP (Coated Products Division)
- BHP (Slab & Plate Product Division)
- Bonlac
- Brake & Clutch Industries
- BTR Aerospace
- BTR Kennan
- Bull Information Systems
- Burns Bridge Australia Pty Ltd
- Cabot Australia
- Carlton & United Breweries
- Caterpillar of Australia
- CIG Ltd
- City of Altona
- Berwick
- Box Hill
- Camberwell
- Caulfield
- Cranbourne
- Croydon
- Doncaster & Templestowe
- Footscray
- Geelong
- Hawthorn
- Heidelberg
- Kellet
- Launceston, Tasmania
- Melbourne
- Nunawading
- Prahran
- South Melbourne
- St. Kilda
- Werribee
- Comalco Research
- Computer Systems Library
- Containers Packaging
- Crooks Michell Peacock Stewart
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. 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 cooperative 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 faculty staff has a beneficial influence on course design and teaching methods;
- the student promotes the image of the employer’s organisation at Swinburne.

Cooperative graduates bring with them:

- a realistic attitude to work;
- access to professional specialisation faculty staff;
- access to Swinburne’s high technology facilities including computer links to international information banks.

For further information, contact the Administrator, Cooperative Placement Service.

Advice to prospective students

First-year engineering degree

Secondary students considering a professional engineering course in civil, electrical Power and control, communication and electronic, computer systems, manufacturing, mechanical engineering or technology, should bear in mind the need to undertake studies in mathematics and the physical sciences will allow one to proceed to a Year 12 course if stipulated in the entrance requirements.

A feature of Swinburne’s engineering degree courses is the common first-year program which enables a student commencing a course to delay making a final decision on the branch of engineering to be undertaken until the end of first year. The subjects comprising first year are intended to form a firm foundation on which studies in later years are built. Considerable emphasis is placed on the development of fundamental scientific principles and an introduction to engineering technology and techniques.

Another feature of all degree courses is their four-and-a-half (nine-semester) year cooperative education format. The program consists of seven semesters of academic tuition plus one semester of industry based learning. The course structure for engineering degree courses is shown in the sections pertaining to the various schools of the Engineering Faculty.

Second and later years engineering degree

Students who may have completed, or partly completed, an engineering course at another tertiary institution may apply for entry to a Swinburne engineering degree course. Applications in this category are essentially considered on the basis of the course studied by the applicant and the results obtained. Enquiries should be directed to the Associate Dean of the school concerned.

The policy of the Engineering Faculty Board regarding admission with advanced standing is stated in the section entitled ‘Admission with advanced standing’.
Bachelor of Technology in Building Surveying

Secondary students planning to enter the Bachelor of Technology in Building Surveying should bear in mind the necessity for studies in mathematics and the physical sciences. Eligible applicants should have successfully completed a VCE course of study as prescribed in the entrance requirements.

Students who have completed a Certificate of Technology course in an appropriate area will be admitted with some exemptions, as appropriate.

Admission to first-year degree courses

Selection

Applications for first-year are considered by the Engineering Faculty Selection Officer.

Selection is based primarily on academic merit as assessed by results achieved in Year 12 subjects, or their equivalent. The Selection Officer may also take into account other factors such as:

(1) the results of any subsequent tests or examinations attempted. For example, some applicants may be invited to undertake a test such as the Australian Scholastic Aptitude Test, prepared by the Australian Council for Educational Research;

(2) information obtained from any interviews that the Selection Officer may arrange.

Eligibility to apply for entry

'Standard' entry

VCE

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):

- English (units 1, 2, 3 and 4)
- Physics (units 1, 2, 3 and 4)
- 8 units of mathematics consisting of the four two semester blocks:
  - Space & Number (S&N)
  - Reasoning & Data (R&D)
  - Change & Approximation (C&A)
  - Extensions (Change & Approximation) (Ext. C&A)
- The Extensions (C&A) block should be undertaken at units 3 and 4 level and at least one of S&N and R&D should be undertaken at units 3 and 4 level.
- Chemistry (units 1 and 2)
- Chemistry (units 3 and 4 is highly recommended)
- approved Study Structures are not normally taken into account.

Associate Diploma entry

Persons who have completed an Associate Diploma with very good results may be eligible for up to one year's credit in the degree program. All applications will be considered individually.

Alternative entry schemes

VCE alternative entry

To be eligible for consideration under Alternative Entry, you must have satisfactorily completed your VCE or equivalent (an average of Grade D or better is required), including 6 units of mathematics consisting of the three two-semester blocks:

- Space & Number (S&N)
- Reasoning & Data (R&D)
- Change & Approximation (C&A)

At least one of the blocks should be undertaken at units 3 and 4 level. The blocks might be undertaken in various combinations of order and year.

PLUS passes in science subject at units 1 and 2 level.

The first year for students entering under the Alternative Entry Scheme commences two weeks before the Standard Entry Scheme with additional work undertaken during the year. In addition to other engineering subjects, students receive special attention in mathematics and physics as appropriate.

At the conclusion of the first year program Alternative Entry students have the same options open to them as do those entering through the Standard Entry Scheme.

Certificate of Technology

(a) For full-time degree study

Satisfactory completion of a Certificate of Technology in an engineering field. Students will undertake classes with the students selected under the VCE Alternative Entry Scheme, but may be entitled to exemption from some of the engineering subjects. Eligibility for exemption will be considered on an individual basis depending upon the particular certificate.

(b) For part-time degree study

Satisfactory completion of a Certificate of Technology in an engineering field including certificate Mathematics level 2 or additional satisfactory completion of HSC (VCE or TOP) Mathematics A or 2 units of VCE Mathematics at units 3 and 4 level. VCE Physics units 3 and 4 are recommended for students to have adequate background to successfully undertake the course.

Mature Age and Trade background

If you have several years of experience and/or a trade background, you will be considered on your individual merits, however, you will generally be required to have successfully completed VCE Mathematics A or 2 units of Mathematics at units 3 and 4 level. Full-time degree students will undertake classes with the students selected under the VCE Alternative Entry Scheme. There is no specific age limit for mature age in the Faculty of Engineering, but this category is not intended for persons who have recently completed their secondary schooling.

Application procedure

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

Full-time

With the exception of applicants seeking alternative VCE, mature-age or other alternative types of entry, applications for entry to full-time first-year courses must be made through the Victorian Tertiary Admissions Centre, 40 Park Street, South Melbourne, 3205. The closing date for VTAC applications for entry is mid-September each year.

Part-time

All engineering courses can be completed on a part-time basis although not all subjects are available as evening classes. Applicants must be admitted to part-time studies by being able to attend classes and any additional work undertaken during the year. Full-time degree students are available from the Information Office, telephone 819 8444.

The closing date is usually the middle of November.

Alternative entry

Students completing their VCE but who do not have the standard prerequisites apply through VTAC. They should also submit to Swinburne an "additional information" sheet. Mature-age, trade background and Certificate of Technology students should apply direct to Swinburne. Application forms are available from the Information Office, telephone 819 8444. The closing date for applications is usually the middle of January in the year of application.

Deferment

Applicants offered a place in first year for 1993 may apply for deferment until 1994. Applications for deferment should be made in writing and directed to the Assistant Registrar (Engineering).
Deferral will be virtually automatic for those who apply as soon as the offer of a place is made. Later applicants may be asked to give reasons for their request for deferral. Applicants who are granted a deferral will be notified in writing by the Assistant Registrar (Engineering).

If a person who has been granted a deferral undertakes a course in another faculty or another college or university, the offer of a reserved place will lapse.

Transfer between campuses
Students will normally be expected to complete their courses at the campus at which they originally enrol.

Applications from students who wish to transfer from one campus to another will be considered on their individual merit by the Courses Committee.

Factors taken into consideration when processing applications may include:
• resource implications
• academic progress
• the need to transfer to another campus.

Where a course is offered on both campuses, transfers can be made with the approval of the Faculty.

Admission to second and later years
Applicants seeking a place in second or later years of an engineering course as either full-time or part-time students must apply directly to Swinburne. Application forms are available from the Information Office, telephone 819 8444.

The closing date for applications is usually the middle of November.

Overseas students must also contact the Australian diplomatic post in their country to make the appropriate visa applications.

Admission to Graduate Diploma and Masters by coursework courses
Graduate diploma and masters by coursework courses in a range of specialist areas of importance to engineers are available. The usual entry requirements are completion of a degree or diploma in a field of engineering or applied science.

Applicants for these courses must apply directly to Swinburne. Application forms are available from the Information Office, telephone 819 8444.

The closing date for applications is usually the middle of November for the following year.

Admission to Masters (by research) and Doctor of Philosophy courses
Applicants for these courses must apply directly to Swinburne. A letter of application should be written to the Registrar. Enquiries regarding Masters' programs by research should be directed to the appropriate school in the first instance.

Admission with advanced standing

A student who has successfully completed, or partly completed, an acceptable post-secondary course may be admitted with advanced standing to an engineering course at Swinburne. The policy of the Engineering Faculty Board with regard to admission with advance standing is set out in the following regulations:

1 General

1.1 The Faculty Board believes that in general students who have completed satisfactorily, part of an engineering course at another tertiary institution in Victoria, or another comparable course, should receive credits for an equivalent part of the course for which they are enrolled at Swinburne.

1.2 In the consideration of applications for credit the following principles will be applied by the Board:
(a) A student should be brought on to a standard course as soon as possible after entry into the Higher Education Division of the University.
(b) Students should not undertake subjects in advance of the semester in which they will enter the standard course.
(c) Students who have passed a particular level of a similar course at a different institution may be admitted to the standard course at the next successive year’s level, either with or without small amounts of additional course work being required.
(d) Considerations should be given to the intention of a series of group of subjects rather than the details of the content matter of each subject within such series or group.
(e) A credit may be granted on the basis of relevant industrial experience.

2 Application

2.1 In applying this policy the Board will follow these guidelines:
(a) Except in extraordinary circumstances credits are only approved at the beginning of a course of study.
(b) Credits are to apply only to a specified course of study in the Higher Education Division of the University.
(c) A credit shall be valid for a particular course and syllabus and only for the duration of such course or syllabus.
(d) In order to qualify for an award in the Faculty of Engineering a student must complete as a minimum, an equivalent full-time year in the Faculty.

2.2 In order to request credit, students entering a course will be required to do as follows:
(a) Register their intention to seek admission with advanced standing at the time of first enrolment.
(b) Lodge supporting documentation with their department within six months of registering their intention.

Course requirements

Class timetables

The syllabus for each of the engineering courses may be found in the separate sections pertaining to the various schools of the Engineering Faculty.

 Provisional timetables for all years of engineering courses 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 faculty or school notice-board, as appropriate.

Many subjects are offered as part-time evening classes.

Enquiries regarding subjects available on a part-time basis should be directed to the Associate Dean of the relevant school.

Practical work

Practical work forms a significant part of most subjects offered by the Engineering Faculty.

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 and assessment

Various methods are used to measure student performance in subjects offered by the Engineering Faculty. These methods include the use of formal examinations; tests held during, or at the end of, each semester; project work; assignments; laboratory exercises, etc. A statement setting out the assessment and workload requirement for each subject is issued to students early in each semester. Each engineering school also maintains a record of the overall work program for students in each year group of a full-time course for student and staff information.

Students are automatically entered as candidates for all subjects in which they enrol. Students should therefore carefully check their statement of enrolment which is posted to them approximately four weeks after the commencement of each semester.

Students enrolled in subjects spread over both semesters, for example most subjects in common first-year engineering degree, should note that mid-year progress reports are displayed on faculty and school notice-boards by the end of the first week of second semester. These reports are not formally published results but are an indication of student 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.

For degree courses, with the exception of final year, the duration of each academic semester will be sixteen weeks which includes, subject to approved variations:

(a) thirteen weeks of teaching; and
(b) formal tests/examinations in the fifteenth and sixteenth weeks.

The specific weeks devoted to these activities are given in the Swinburne calendar in the front of this Handbook.

For each subject the total time for formal tests or examinations per semester will be no longer than 1/13th of the formal contact time per semester.

(Students should also refer to the section entitled 'Regulations concerning assessment' in the general section of this Handbook.)

Faculty passing scheme

The revised regulations on passing by years (faculty passing scheme) are set out below. These regulations have applied since 1 October, 1990.

1 General

The Faculty of Engineering operates a faculty passing scheme which applies to:

(a) full-time undergraduate students;
(b) part-time undergraduate students whose weekly workload is nine or more contact hours.

A part-time student is one enrolled for subjects which require a total class, tutorial and/or laboratory contact time of less than 75% of the full-time course load.

A full-time student must normally be enrolled for a complete year level of a degree program. Full-time studies may not usually be composed of subjects from various program levels unless the appropriate Associate Dean has approved a special course of study.

Students who have a full-time workload but who are not pursuing the course prescribed in the Handbook for the particular year, must have this course approved by the Associate Dean of the school concerned before becoming eligible for consideration under the faculty passing scheme.

2 Special programs of study

Applicants with 'advanced standing' who are admitted to full-time studies may be enrolled in special programs of study as interim measures until they can be enrolled in the normal groups of subjects. The rules of faculty passing will apply. Such special programs require approval by the Associate Dean of the awarding school.

3 Revised faculty passing scheme

This revised scheme has operated since 1 October, 1990 and applies for all years of undergraduate courses offered by the Faculty of Engineering, including full-time common first year engineering or technology.

3.1 Students will enrol only for their individual subjects. They will not enrol in a Faculty Result code.

3.2 For students to proceed from one full-time year to another, they must achieve a passing grade (as defined) in all subjects.

3.3 If, at the end of supplementary assessment, students do not achieve a passing grade (as defined) in a particular subject then that subject must be repeated.

3.4 A full-time student who does not pass his/her full-time year's work may be permitted by Faculty Board to repeat the year's work as a full-time student, otherwise repeat studies have to be completed on a part-time basis.

3.5 The various grades have been grouped for ease of understanding.

Passing grades are as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD</td>
<td>High Distinction</td>
</tr>
<tr>
<td>D</td>
<td>Distinction</td>
</tr>
<tr>
<td>C</td>
<td>Credit</td>
</tr>
<tr>
<td>P</td>
<td>Pass</td>
</tr>
<tr>
<td>P*</td>
<td>Pass (Marginal)</td>
</tr>
</tbody>
</table>

3.2 Second group

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP</td>
<td>Faculty Pass granted in that subject</td>
</tr>
<tr>
<td>SP</td>
<td>Passed at Supplementary Assessment</td>
</tr>
</tbody>
</table>

Grades of fail are as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N*</td>
<td>Fail (but serious attempt)</td>
</tr>
<tr>
<td>N</td>
<td>Fail (Outright)</td>
</tr>
</tbody>
</table>

3.4 Second group

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SN</td>
<td>Fail at Supplementary Assessment</td>
</tr>
</tbody>
</table>

3.5 Third group

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NWD</td>
<td>Fail due to late withdrawal</td>
</tr>
<tr>
<td>NA</td>
<td>Fail no attempt</td>
</tr>
</tbody>
</table>

3.6 Students will, prior to publication of results, be awarded preliminary grades from amongst the first group (passing or failing) results or the third group failing results, if applicable.

3.7 Subjects in which a first group passing grade or a third group failing grade preliminary result, or a deferred result, has been achieved will be published officially without further alteration (but without the asterisk, in the case of P* and N*) results.

3.8 The Engineering Courses Committee will consider special cases recommended by the appropriate School, or Sub Dean of First Year Studies.

To be eligible to be considered as a special case, a full-time student should normally have provisional results of N* in not more than two subjects, where the total hours per week for these subjects is not more than seven. For a part-time student to be eligible to be considered as a special case, the student should normally have a provisional result of N* in only one subject, where the total hours per week for that subject is not more than four.

217
Students considered in this category will normally have a positive aggregate rating as calculated by the Faculty Passing Formula as follows:

\[ A = \sum n_i \times z_i - 5 \sum n_i \]

where \( A \) is aggregate rating, \( n_i \) is the number of hours/week in the \( i \)th subject, \( z_i \) is the rating in the \( i \)th subject.

A student's rating in each subject is determined from the following table:

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD</td>
<td>9</td>
</tr>
<tr>
<td>D</td>
<td>8</td>
</tr>
<tr>
<td>C</td>
<td>7</td>
</tr>
<tr>
<td>P</td>
<td>6</td>
</tr>
<tr>
<td>P*</td>
<td>5</td>
</tr>
<tr>
<td>N*</td>
<td>4</td>
</tr>
<tr>
<td>N</td>
<td>1</td>
</tr>
</tbody>
</table>

Where a student recommended as a special case has been initially granted a failing grade, from the first group, in one or more subjects, the Committee must decide, on a subject by subject basis, which of the following actions will apply:

3.8.1 The grade stands as an "N".
3.8.2 The student will be granted a Faculty Pass in that subject. If so, the grade will be changed to, and published as, FP. The student will not be required to repeat a subject for which the grade of FP has been awarded.
3.8.3 The student will be granted supplementary assessment in that subject. If so, the grade for initial publication will be changed to "SUP" to indicate that the student has been granted supplementary assessment. The student will then undertake supplementary assessment. In the case of first year subjects, a Summer School system may be available. Details are set out below.

If the student passes the supplementary assessment, the grade will be changed to "SP" and the student will not be required to repeat the subject. If the student fails the supplementary assessment, the grade will be changed to "SN" and the student will be required to repeat the subject.

If a student chooses not to undertake the supplementary assessment granted in that subject, the result will revert to the grade awarded in the initial marking.

The supplementary assessment will not, for the purposes of exclusion, be regarded as a complete (i.e. second) attempt at a subject. See section on Exclusion from courses.

4. First Year Summer School Scheme

This revised scheme has operated since 1 October, 1990 and applies only to full-time common first year engineering or technology degree students. At the discretion of Courses Committee, the Summer School Scheme may operate in addition to the Faculty Passing Scheme. This will be decided on a yearly basis.

4.1 Students will enrol only for their individual subjects. They will not enrol in a Faculty Result code.
4.2 For students to proceed from first year to second year, they must achieve a passing grade (as defined) in all subjects.
4.3 If, at the end of Summer School (supplementary assessment), students do not achieve a passing grade (as defined) in a particular subject then that subject must be repeated.
4.4 The various grades have been grouped for ease of understanding.

Passing grades are as follows:

4.4.1 First group
- HD High Distinction
- D Distinction
- C Credit
- P Pass
- P* Pass (Marginal)

4.4.2 Second group
- FP Faculty Pass granted in that subject
- SP Passed at Supplementary Assessment

Grades of fail are as follows:

4.4.3 First group
- N* Fail (but serious attempt)
- N Fail (Outright)

4.4.4 Second group
- SN Fail at Supplementary Assessment
- SS Fail but student granted Summer School in this subject

4.4.5 Third group
- NWD Fail due to late withdrawal
- NA Fail no attempt

4.5 Students will, prior to publication of results, be awarded preliminary grades from amongst the first group (passing or failing) results or the third group failing results, if applicable.

4.6 Subjects in which a first group passing grade or a third group failing grade preliminary results has been achieved will be published officially without further alteration (but without the asterisk, if applicable).

4.7 The Engineering Courses Committee will consider special cases recommended by the Sub Dean (First Year Studies).

Where a student recommended as special case has been initially granted a first group failing grade in one or more subjects, the Committee must decide:

4.7.1 Whether the student is eligible to be considered under the provisions of the Faculty Passing Scheme.

OR

4.7.2 On a subject by subject basis, whether the student will be granted the opportunity to undertake Summer School in that subject.

If so, the published result for that subject will be changed to "SS" indicating that the student failed the subject but was granted Summer School in that subject. On the completion of the Summer School, "SS" grades will be changed to "SP" if a pass is granted for that subject and to "SN" if the result is a fail.

If, at the end of the Summer School system the student has a failing grade, the student will be required to repeat that subject.

A student will normally be permitted to undertake Summer School in a maximum of three subjects.

The Summer School assessment will not, for the purposes of exclusion, be regarded as a complete (i.e. second) attempt at a subject, however, individual students will be granted the opportunity to undertake Summer School on one occasion only.

5 Result categories and percentage scores

The relationship between result categories and normalised percentage scores 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>
</tr>
<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, irrespective of whether the students are eligible for a Faculty Pass or not. Additional grades, for which percentage scores are not applicable, may be awarded as a result of application of the Faculty Passing Scheme. These are:

- **FP** Faculty Pass
- **SP** Pass at supplementary assessment
- **SN** Fail at supplementary assessment
- **SUP** Supplementary assessment granted for this subject

### Guidelines for part-time study

With changes in the courses 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 Engineering Faculty Board has established should be used to determine the subject requirements for students undertaking courses (including conversion programs) on a part-time basis:

1. **(a)** In general, students who have not at some time discontinued their course without permission, will follow the course of study in operation at the time of their initial enrolment in the Higher Education Division of the University and as specified in the engineering section of the Handbook for that year.

2. **(b)** Despite the above, students who are undertaking a course of study which has been unduly prolonged, or who would benefit from transfer to a later course of study, may be transferred by the Engineering Faculty Board on the advice of the Associate Dean of the student's school.

3. **(c)** Students who discontinue study without permission and who later wish to renew their enrolment in the Higher Education Division of the University in the same course will be treated as new students but will receive such credit for the subjects previously passed as is determined by the Engineering Faculty Board on the advice of the Associate Dean of the student's school.

4. **(d)** Where subjects have been discontinued since students' initial enrolment, students will be required to undertake the presently operating subject equivalent subjects. Information regarding superseded subject equivalents is available from the Associate Dean of the student's school.

5. **(e)** As students will realise, there is often benefit in transferring from the course of study in operation at the time of enrolment to a later course of study. With the permission of the Engineering Faculty Board, students may transfer from the course of study for which they are enrolled to a later course 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 approximately half that of full-time students, and is typically between 10 and 12 hours of class contact per week. To enable the Faculty to accommodate as many students as possible within its quota, a minimum time commitment is necessary. This minimum time as set at 7 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 7 hours per week or more, and who subsequently withdraw from certain subjects which reduces their enrolment to below 7 hours per week, may be processed as a total withdrawal from the course.

Normally the maximum hours of class contact for a part-time undergraduate student are 14 hours per week, although special permission may be granted by the Associate Dean to study up to 16 hours per week, particularly if the increase in hours will allow the student to study on a full-time basis in the following year.

### Exclusion from courses

A student will be considered for exclusion from further study in the course in which that student is enrolled if he or she:

(a) fails any subject twice
(b) fails more than half of the subject hours in which he or she is enrolled in any academic year.

Normally a third attempt at any subject will not be permitted. A student may repeat full-time studies on a full-time basis once only during a course, unless special approval is given by the Engineering Faculty Board.

If an Associate Dean (School) considers that a prima facie case for exclusion exists, the matter will be referred to the Engineering Courses Committee sitting as an Exclusions Sub-Committee.

The procedure for considering engineering students recommended for exclusion is as follows:

1. Based on compliance with the faculty regulations on suspension from courses, the Associate Dean submits a case for the possible exclusion of a student to the Engineering Courses Committee.
2. If the Engineering Courses Committee accepts that a case exists, the student is advised that he/she status in the course concerned is to be considered at a subsequent meeting of the Committee; and that he/she may attend to present information relevant to the case.
3. The Committee may co-opt representatives when hearing a case for exclusion.

### Assessment irregularity

Cheating and plagiarism, that is the action or practice of taking and using as one's own, the thoughts, writings or other work of someone else with the intent to deceive, constitutes an irregularity under the Swinburne Assessment Regulations. Such an action is a major infringement of the University's academic values. It is essential that students understand that plagiarism or cheating shall be considered to have occurred if:

- a computer program substantially written by someone else (even another student, a previous student or the author of a publication) is presented as the student's own work;
- paragraphs, and even sentences in essays which are written by someone else are not enclosed in quotation marks, and accompanied by full reference to source;
- work of someone else is paraphrased, and is not appropriately attributed and referenced.

### Enrolment

Although the Swinburne calendar is divided into two teaching semesters, engineering 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 Engineering Faculty Office, or engineering school offices. Students should note that they must obtain the approval of the Associate Dean of their awarding school before amending their enrolment.

Applicants offered a place in an engineering course will be expected to enrol in February. Successful applicants will be offered a place.

Continuing students in engineering courses are required to present for enrolment during the times set aside for re-enrolling students in December. Students need to check University notice-boards for details which are made available
towards the end of 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 course. Enquiries regarding courses to be followed should be directed to the Associate Dean of the school.

For further information regarding enrolment see the section entitled ‘Enrolment regulations’ in the general section of this Handbook.

Continuing students
As quotas exist for entry into 2nd Year the following criteria for continuance apply:
(a) all students who pass all subjects outright will be admitted to the course of their choice
(b) those students with Faculty Passes will be admitted to a discipline but not necessarily that of their choice.

Leave of absence
Students who have enrolled in a course who wish to take leave of absence with a view to re-enrolling at the end of a specified period should apply on the Leave of Absence form.

Leave of absence is granted by the Associate Dean of the school (or his/her nominee) or Sub Dean for first year or Dean for faculty courses. Students who have been granted leave of absence will be notified in writing by the appropriate Administrative Officer. Enrolment for all subjects for the duration of the leave will be cancelled automatically. Full-time students should note that leave of absence is normally not granted after the completion of first semester. Applications submitted after first semester are considered on their merits and student progress reports are taken into account.

Approval and publication of results
1 General
(a) The Engineering Faculty Board policy is that all engineering students are informed of their progress as soon as possible after any prescribed subject has been completed.
(b) These regulations are normally applied by the Engineering Courses Committee acting as a sub-committee of the Engineering Faculty Board.
(c) In special circumstances individual student subject results may be deferred on medical grounds or other reasons of hardship. Deferral of faculty results for supplementary assessment is covered under the Faculty passing scheme. The period of deferral is determined in the light of particular circumstances.

2 Programs of study over two semesters
(a) Results for subjects completed in first semester are approved for publication as soon as possible after the end of semester.
(b) Where a subject continues over two semesters a mid-year progress report is released by the awarding school no later than the end of the first week of second semester.
(c) Results for subjects completed in second semester are approved for publication as soon as possible after the end of semester.

3 Programs of study over one semester
(a) Second year undergraduate publication of official results for first semester may, at the discretion of the Engineering Courses Committee be held over until the end of second semester. If so, a provisional result will be issued by the awarding school at the end of first semester.
(b) Results for subjects completed in first semester, including industrial experience, are approved for publication as soon as possible after the end of semester.

Awarding of honours degrees
Each year the Engineering Courses Committee will determine which graduating students should be awarded an Honours degree.

Four categories of honours will be awarded, viz:
- Honours 1
- Honours 2A
- Honours 2B
- Honours 3

Account will be taken of performance over the later years of the course. The proportion of final rankings allocated to each year will be as follows:
- 5th year 40%
- 4th year 30%
- 3rd year 30%

Overall, no more than approximately 40% of completing students will be awarded honours degrees, 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 honours degree.

Each school will submit ranking lists to the Courses Committee for its consideration.

Prizes, scholarships and awards
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 819 8456.

Co-op Scholarships
The Faculty, in conjunction with industry, offers Cooperative Scholarships to the value of $8,000 per annum to full time engineering students in second and later years of their Engineering Degree course. Interested students should apply to the Faculty Office by November for the forthcoming year.

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

The Cray Research Award
To be awarded to the student with the best academic results and who is preparing to specialise in the Computer Systems Engineering stream of the Electrical Engineering degree course. The results achieved must give the highest overall score in the student group, and be acceptable to the selection committee. $450.

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

SECV Faraday Prizes
Awarded to the students with the best academic performance in the Electrical Power and Control Engineering stream in both the final year and the penultimate year of the BEng(Elec) course. $500 each.

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 $75 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
This is awarded to the best managed final year project in Mechanical Engineering. The award consists of $150 and an engraved pewter mug.

Molyneux Medal
A silver medal and a prize of $30 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.

I.W. Shedden Prize
Awarded to the most outstanding student to complete the Master of Enterprise Innovation course. This award encompasses not only academic merit, but also personal contribution to the School of Innovation & Enterprise.

Oscar Weigel exhibitions in engineering
Applicants for these awards must be qualified to enter the second or a later year of an engineering degree course to be accepted as a candidate for the degree of Master. Value — up to $400 per year and tenable for a period not exceeding five years.

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 Associate Dean of each engineering school.

Continuing Education
Swinburne has been active since 1913 in the provision of relevant Engineering education for both undergraduate and postgraduate students. Swinburne still is a leader in the provision of part-time study, short courses, conferences, seminars and workshops.

In 1985, The Institution of Engineers, Australia adopted the policy to require that Engineers continue the learning process through their working life. To achieve this goal, The Institution requires 150 hours of Continuing Education study over any three year period. Typical courses offered recently include:
- Precision Electrical Measurements
- Designing with Composite Materials
- Design and analysis of concrete structures
- Industrial Noise Control
- Managing with Quality
- Pacific Conference on Manufacturing
- Benchmarking and Customer Satisfaction Measurement

Swinburne arranges in-house programs to assist companies in providing training for key individuals who cannot conveniently be released for off-the-job training; or for groups of employees. This arrangement can result in significant savings in cost and time. If your company does not have the number to justify in-house training activities, your organisation can form a core group allowing additional course members to be invited from within the district. Swinburne’s in-house training services can be individually tailored to suit your company’s climate, or based on our standard courses; they can augment your own training in a combined operation, designed to satisfy your particular requirements.

Further enquiries should be directed to the Manager, Continuing Education & Industrial Liaison on 819 8168.

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 Engineering Faculty 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.

Faculty of Engineering based courses
Undergraduate courses
Y050 Bachelor of Technology
This Bachelor of Technology offers a new kind of degree in the exciting areas of technological need, and an entry scheme to provide access to students who may have otherwise closed the door to careers in these areas.

Career potential
The course aims to produce graduates equipped to meet the shortage of professionals in the application of technology within business and industry and with an appropriate grounding in management education to prepare them for future roles in the management of industry and commerce.

Graduates will find employment as technologists in many areas. The excellent opportunities for management studies included in and extending onto the course will lead many graduates into technological management roles.

Duration of course
The course requires three and a half years of full-time study, or its equivalent part-time, including six months industrial experience.

Admission requirements
Entry to first year
The first year of studies is common to all areas of the Bachelor of Technology and the Bachelor of Engineering (except for minor differences for students admitted under alternative entry). Admission requirements are listed under "Admission to first-year degree courses" earlier in the Engineering Faculty section of this Handbook.

For the Bachelor of Technology courses in Aviation, Fire Technology and Building Surveying, please see the information on entrance requirements, course structure, etc. contained in the appropriate School of Engineering entry.

Progress to second year
To be eligible for admission to the second year of the 35 year course a student will be required to have satisfactorily completed the first (common) year in appropriate prerequisite subjects.

Conversion
Conversion to a Bachelor of Engineering Degree will be possible after completion of the B Tech. It will require the equivalent of at least 1 to 15 academic years of work.

Combined program with Graduate Diploma in Management
The Bachelor of Technology course and the Graduate Diploma in Management may be taken as a 'combined program' in the same manner as the Bachelor of Engineering and Graduate Diploma in Management.

Cooperative education
As with all undergraduate courses within the Faculty of Engineering, this course will be offered on a co-operative education basis.
Under this strategy of applied learning — a structured program developed and supervised by an educational institution in collaboration with an employing organisation — Industry Based Learning through relevant productive work is an integral part of a student’s regular academic program and is an essential component of the final assessment.

Professional recognition
It is expected that graduates will be eligible for membership of the Institution of Engineering and Mining. Under current rules, only after conversion to a Bachelor of Engineering degree graduates be eligible for membership of the Institution of Engineers, Australia.

Course structure
The course offers a structure radically different from the norm within technological areas. It comprises:

- A common first year of CORE studies
- ONE MAJOR STUDY and
- TWO MINOR STUDIES

At least one Industry Based Learning placement (6 months)

First year
This year is essentially the same as for students planning to undertake the Bachelor of Engineering course providing maximum course and career potential for students who elect, at the end of that first year, to proceed to the Bachelor of Engineering or to the Bachelor of Technology.

Not all first year subjects will be prerequisites for each of the majors and minors, prerequisites for commencing each will be separately defined. For each major sequence there will be specific first-year subject prerequisites.

Major studies
A major is defined as a set of related subjects totalling 40 semester hours.

Minor studies
A minor study is defined as a set of related subjects totalling 20 semester hours.

Within that overall structure two types of programs will be offered:

Structured courses
Where students wishing to obtain a qualification designated to some particular area will be required to complete certain specified minors with a particular major. The degree carries the designation appropriate to the particular study area (e.g., Bachelor of Technology (Construction)).

Non-structured courses
Where students will select majors and accompanying minors according to their preferences. The degree would carry no area designation.

The subjects areas comprising the currently defined major and minor sequences are:

Major studies are offered in the following areas:
- Air Conditioning
- Chemical Technology
- Computer Aided Design and Manufacture
- Fire Technology
- Manufacturing Technology
- Productivity Management

Minor studies supporting the majors will be offered in related areas.

School of Civil Engineering and Building
The school offers a range of tertiary courses in civil engineering, including a cooperative (sandwich) degree, a graduate diploma and the degree of Master by research. The school also conducts cooperative (sandwich) courses in building surveying.

First year
This year is essentially the same as for students planning to undertake the Bachelor of Engineering course providing maximum course and career potential for students who elect, at the end of that first year, to proceed to the Bachelor of Engineering or to the Bachelor of Technology.

Not all first year subjects will be prerequisites for each of the majors and minors, prerequisites for commencing each will be separately defined. For each major sequence there will be specific first-year subject prerequisites.

Major studies
A major is defined as a set of related subjects totalling 40 semester hours.

Minor studies
A minor study is defined as a set of related subjects totalling 20 semester hours.

Within that overall structure two types of programs will be offered:

Structured courses
Where students wishing to obtain a qualification designated to some particular area will be required to complete certain specified minors with a particular major. The degree carries the designation appropriate to the particular study area (e.g., Bachelor of Technology (Construction)).

Non-structured courses
Where students will select majors and accompanying minors according to their preferences. The degree would carry no area designation.

The subjects areas comprising the currently defined major and minor sequences are:

Major studies are offered in the following areas:
- Air Conditioning
- Chemical Technology
- Computer Aided Design and Manufacture
- Fire Technology
- Manufacturing Technology
- Productivity Management

Minor studies supporting the majors will be offered in related areas.

School of Civil Engineering and Building
The school offers a range of tertiary courses in civil engineering, including a cooperative (sandwich) degree, a graduate diploma and the degree of Master by research. The school also conducts cooperative (sandwich) courses in building surveying.

The undergraduate degree course leads to a professional qualification in civil engineering which is recognised by the Institution of Engineers, Australia. The graduate diploma enables graduate engineers to undertake further specialised studies in construction technology. The degree of Master provides specialist research training in a selected topic in civil engineering, usually of importance to, and funded by industry. Continuing education courses for professional engineers are provided from time to time in selected subjects by way of short courses. The building surveying courses meet the academic requirements for professional membership of the Australian Institute of Building Surveyors.

The school operates a mentor scheme to facilitate contact between staff and students and to provide guidance to individual students as they progress through the course. Mentors are all experienced staff members.

The school also undertakes applied research and consulting. Enquiries should be directed to the Associate Dean or School Administrative Officer.

Courses offered
- C050 Degree of Bachelor of Engineering (Civil)
- C051 Degree of Bachelor of Technology (Building Surveying)
- C044 Diploma of Building Surveying
- C082 Graduate Diploma in Civil Engineering Construction
- C092 Degree of Master of Technology (Construction)
- C096 Degree of Master of Engineering
- C006 Degree of Doctor of Philosophy

Career potential
Civil engineering offers a creative career for men and women in many differing areas of service to the community. Graduates work as planners, designers, administrators, research engineers and consultants in a wide range of specialist fields, including:

- structural and bridge engineering
- foundation engineering, geology, soil and rock mechanics
- water engineering
- transportation engineering
- construction engineering
- municipal engineering
- environmental engineering and urban planning

Their work is interesting, rewarding and challenging and offers opportunities for both indoor and outdoor work, in Australia and overseas.

Civil engineers qualify professionally by completing a tertiary course recognised by the Institution of Engineers, Australia, followed by three years of suitable professional experience. The twelve months of cooperative work experience is counted as six months of postgraduate experience for this purpose. Swinburne civil engineering graduates find employment with consulting firms, private industry, public authorities, and state government departments and municipalities.

Other careers
Although most graduates enter the civil engineering profession, intending students should realise that a civil engineering course also provides an excellent basis for a successful career in many other areas of industry and management.
C050 Bachelor of Engineering (Civil)

This course of study is undertaken by a cooperative (sandwich) education program extending over four-and-a-half years and including two semesters spent working with professional civil engineers in industry. The course is a general one which gives a good grounding in civil engineering. Some specialisation occurs in the later years of the course when students choose electives from a range of specialist topics available.

Part-time study

The course may be completed by part-time study. A few subjects are available as evening subjects.

Structure of degree course

The degree course consists of seven academic semesters at Swinburne and two semesters in industry. The total length of the course is four-and-a-half years.

In the third and fourth years, students spend one semester of each year at Swinburne and the remainder working in industry. For cooperative employment arranged by Swinburne, 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.

The fifth year, which consists of only one eighteen week semester, is spent at Swinburne.

Course structure (1990 syllabus)

<table>
<thead>
<tr>
<th>Hear 1</th>
<th>Hours per week</th>
<th>Sem 1</th>
<th>Sem 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE115</td>
<td>Engineering Science — Solid Mechanics</td>
<td>3</td>
<td>4</td>
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<tr>
<td>*EE188</td>
<td>Engineering Science — Electronics and Computing</td>
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<td>5</td>
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<tr>
<td>*MM120</td>
<td>Engineering Science — Energy and Processes</td>
<td>65</td>
<td>75</td>
</tr>
<tr>
<td>*EF199</td>
<td>Engineering Graphics and Communications</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SM199</td>
<td>Engineering Mathematics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>**</td>
<td>215</td>
<td>235</td>
</tr>
</tbody>
</table>

* Part-time students may undertake these subjects in their component parts — see subject outline for details.

C051 Bachelor of Technology in Building Surveying

The course is intended to prepare students for the profession of building surveying. The course was introduced at the request of the AIBS and was designed to enable future members of the profession to cope with anticipated changes in building technology, materials and statutory regulations.
The course is co-ordinated by the School of Civil Engineering and Building. It is interdisciplinary in nature, with a teaching input from a number of departments.

**Career potential**

At present, about eight of every ten graduates in building surveying enter the municipal sphere and the others are absorbed in the building industry.

The building surveyor in a municipality is the council's technical officer in matters pertaining to buildings. Duties include the giving of 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 of plans and computations submitted for council approval and for the carrying out of inspections of buildings during construction, alteration and demolition.

**Regulations pertaining to the course**

Regulations relating to the course are as for other engineering undergraduate courses and are set out at the beginning of this book.

**Structure of the course**

The Bachelor of Technology in Building Surveying is structured on a cooperative (sandwich) basis, and consists of six academic semesters at Swinburne and two semesters in industry. The total length of the full-time course is four years.

First and second years are spent full-time at Swinburne. In third year, students spend the entire year working in industry. This cooperative (sandwich) 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 but subjects are not available in the evening. Students should consult with staff to plan a part-time program of day classes from the required subjects of the course.

**Eligibility to apply for entry**

Successful completion of VCE or equivalent including a grade of E or better in English (units 1, 2, 3 and 4) and 6 units of Mathematics (at least two as units 3 and 4), Physics (units 1 and 2), and Chemistry (units 1 and 2). Bonus points will be awarded for additional units (3 and 4) in Mathematics, Physics and Chemistry.

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.

Persons who do not hold the qualifications stated above, or their equivalent, may be required to sit for a special entry test to determine eligibility. This test is normally held early in February.

An interview may be required for the persons who do not hold the qualifications stated above.

Persons who complete a science/engineering VCE(TOP) course at Swinburne College of TAFE which includes subjects equivalent to the prerequisite and recommended Group 1 subjects are given guaranteed entry.

### Course structure (1992 syllabus)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>War 1</td>
</tr>
<tr>
<td>CE114</td>
<td>Applied Mechanics</td>
<td>3</td>
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<tr>
<td>CE173</td>
<td>Construction</td>
<td>6</td>
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<tr>
<td>CE192</td>
<td>Statutory Control</td>
<td>5</td>
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<tr>
<td>CE196</td>
<td>Communications</td>
<td>2</td>
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<tr>
<td>MM189</td>
<td>Services</td>
<td>3</td>
</tr>
<tr>
<td>MM180</td>
<td>Construction Materials</td>
<td>—</td>
</tr>
<tr>
<td>SM193</td>
<td>Mathematics</td>
<td>3</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td></td>
<td>War 2</td>
</tr>
<tr>
<td>CE204</td>
<td>Computer Application</td>
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<td>CE243</td>
<td>Land Surveying</td>
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<td>CE256</td>
<td>Structural Design</td>
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<td>CE276</td>
<td>Construction</td>
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<td>CE277</td>
<td>Temporary Structures</td>
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</tr>
<tr>
<td>CE283</td>
<td>Geomechanics</td>
<td>—</td>
</tr>
<tr>
<td>*CE294</td>
<td>Statutory Control</td>
<td>5</td>
</tr>
<tr>
<td>CE297</td>
<td>Management</td>
<td>2</td>
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<tr>
<td>MM269</td>
<td>Services</td>
<td>—</td>
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<tr>
<td>MP280</td>
<td>Construction Materials</td>
<td>3</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>War 3</td>
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<tr>
<td>CE399</td>
<td>Industry Based Learning</td>
<td>48</td>
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<tr>
<td></td>
<td></td>
<td>War 4</td>
</tr>
<tr>
<td>CE404</td>
<td>Computer Applications</td>
<td>2</td>
</tr>
<tr>
<td>CE454</td>
<td>Structural Design</td>
<td>4</td>
</tr>
<tr>
<td>CE470</td>
<td>Services</td>
<td>2</td>
</tr>
<tr>
<td>*CE477</td>
<td>Construction</td>
<td>3</td>
</tr>
<tr>
<td>CE478</td>
<td>Fire Technology</td>
<td>2</td>
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<tr>
<td>CE490</td>
<td>Construction Management</td>
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<td>*CE496</td>
<td>Statutory Control</td>
<td>7</td>
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<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>*Part-time students may undertake these subjects in their component parts — see subject outline for details.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note: Students who commenced first year studies in 1989 (1985 Syllabus and who would be entering fourth year in 1993 will undertake the fourth year course set out below:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fourth year</td>
<td>Sem 7</td>
</tr>
<tr>
<td>BS400</td>
<td>Administration 2</td>
<td>4</td>
</tr>
<tr>
<td>CE403</td>
<td>Professional Projects</td>
<td>2</td>
</tr>
<tr>
<td>CE422</td>
<td>Urban Planning 2</td>
<td>2</td>
</tr>
<tr>
<td>CE452</td>
<td>Structural Design 3</td>
<td>4</td>
</tr>
<tr>
<td>CE474</td>
<td>Building Structures 4</td>
<td>3</td>
</tr>
<tr>
<td>CE475</td>
<td>Fire Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CE482</td>
<td>Geomechanics 2</td>
<td>3</td>
</tr>
<tr>
<td>CE493</td>
<td>Building Law and Contracts</td>
<td>3</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

**C082 Graduate Diploma in Civil Engineering Construction**

This course can be undertaken by attending components of the Master of Technology (Construction). Details are available from the School.

**C092 Master of Technology (Construction)**

The main aim of the course is to provide graduates of proven academic ability 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:

(a) Skill at allocation, organisation and direction of manpower and material resources.

(b) Awareness of and ability to apply modern construction technology.
(c) Understanding of the financial considerations of project funding.
(d) Understanding of human resource management on construction sites.
(e) Knowledge of the bidding process and other aspects of economic decision making.
(f) Appreciation of contractual obligations and risks.
(g) Quality Management.

Duration of program
This course has been designed to take place over a one and a half year period on a full-time basis. Students may commence their studies in either the first or second semesters of any year and spend the first two semesters engaged in course work. The course can also be undertaken part-time over six semesters.

Prerequisites
Candidates for the Degree of Master of Technology shall:

i) have completed the degree of Bachelor of Engineering, or equivalent qualifications

or

ii) have completed successfully a four year degree in Building, or Architecture

(iii) have qualifications and experience which, in the opinion of the Engineering Faculty Board, are of a satisfactory standard and are a suitable preparation for study in the Masters program

and

(iv) preferably have appropriate experience.

Management Topics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE690</td>
<td>Civil Eng. Project Control</td>
<td>S1 4, S2 2, S3 0</td>
</tr>
<tr>
<td>CE693</td>
<td>Building Admin. &amp; Law</td>
<td>S1 2, S2 2, S3 0</td>
</tr>
<tr>
<td>CE691</td>
<td>Civil Eng. Management</td>
<td>S1 4, S2 4, S3 4</td>
</tr>
<tr>
<td>CE692</td>
<td>Communications</td>
<td>S1 4, S2 4, S3 4</td>
</tr>
<tr>
<td>CE792</td>
<td>Health &amp; Safety in Construction</td>
<td>S1 2, S2 2, S3 0</td>
</tr>
<tr>
<td>CE793</td>
<td>Contract &amp; Law</td>
<td>S1 3, S2 3, S3 3</td>
</tr>
<tr>
<td>CE794</td>
<td>Financial Management</td>
<td>S1 3, S2 3, S3 3</td>
</tr>
<tr>
<td>CE791</td>
<td>Construction Management</td>
<td>S1 2, S2 2, S3 0</td>
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</table>

Either:

Minor Strand (Civil Engineering Construction)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per week</th>
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</thead>
<tbody>
<tr>
<td>CE670</td>
<td>Construction Technology</td>
<td>S1 4, S2 4, S3 4</td>
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<tr>
<td>CE772</td>
<td>Construction Technology</td>
<td>S1 4, S2 4, S3 4</td>
</tr>
<tr>
<td>CE773</td>
<td>Research Project</td>
<td>S1 16, S2 16, S3 16</td>
</tr>
<tr>
<td>Sub Total</td>
<td></td>
<td>S1 16, S2 16, S3 16</td>
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</tbody>
</table>

Total for Management & Construction Technology

| Hours | 16 16 16 |

or

Minor Strand (Building Construction)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE671</td>
<td>Building Construction</td>
<td>S1 2, S2 2, S3 2</td>
</tr>
<tr>
<td>CE774</td>
<td>Building Construction</td>
<td>S1 2, S2 2, S3 2</td>
</tr>
<tr>
<td>CE672</td>
<td>Scaffolding</td>
<td>S1 2, S2 2, S3 2</td>
</tr>
<tr>
<td>CE775</td>
<td>Building Regulations</td>
<td>S1 2, S2 2, S3 2</td>
</tr>
<tr>
<td>CE773</td>
<td>Research Project</td>
<td>S1 16, S2 16, S3 16</td>
</tr>
<tr>
<td>Sub Total</td>
<td></td>
<td>S1 16, S2 16, S3 16</td>
</tr>
</tbody>
</table>

Total for Management and Building Technology

| Hours | 16 18 16 |

School of Electrical Engineering
Electrical engineering is concerned with any form of plant, system or device operated by electrical or electronic means, and includes specialties, such as electronics, communications, computer hardware and software, control, electrical power and machines.

The school offers courses leading to professional qualifications in electrical power and control engineering, communication and electronic engineering and computer systems engineering. In addition, continuing education courses in selected subjects for professional engineers are provided from time to time.

Modern laboratory facilities are available for undergraduate teaching, research and consulting. Separate laboratories are devoted to electronic, communications, control systems and computing, electrical machines, power systems, advanced computing systems, and student design projects. New computer systems laboratories provide facilities for the computer systems engineering stream.

A mentor scheme is operated by the school to facilitate contact between staff and students and to provide guidance to individual students, as they progress through the course. Mentors are all experienced staff members.

The school undertakes applied research and consulting and staff members are available for consultation individually or as members of a team on group projects. Enquiries should be directed to the Associate Dean.

Courses offered

- **E050** Degree of Bachelor of Engineering (Electrical Power and Control, Communication and Electronic, Computer Systems)
- **E085** Graduate Diploma in Computer Systems Engineering
- **Y097** Degree of Master of Engineering by research
- **Y006** Doctor of Philosophy

Career potential
Graduates from Swinburne are qualified for appointment to professional engineering positions in Commonwealth and State Government departments and instrumentalities, in private industry, or the armed services.

The types of engineering employment available include the investigation, design, manufacture, testing, development, installation, maintenance or sales of all types of electrical, communication, electronic and computer plant and equipment.

The various fields of electrical engineering activity include those of electric power supply and utilisation, electrical machines and appliances, electric traction, illumination engineering, communication systems, automatic control systems, electronic equipment, analogue and digital computers and applications, and medical electronics.
The introduction of the computer systems engineering stream which commenced in 1986, provides graduates with the software skills to enable them to be employed in the computer industry and to apply computer systems and equipment to engineering applications and industrial processes.

The degree course qualification merits full exemption from the entrance examinations of The Institution of Engineers, Australia and the Institute of Radio and Electronic Engineers.

**Bachelor of Engineering (Electrical Power and Control, Communication and Electronic, Computer Systems)**

* Hear enrolment codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y057</td>
<td>Common first year</td>
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</tr>
<tr>
<td>E050</td>
<td>Later years (unstreamed)</td>
<td></td>
</tr>
<tr>
<td>E054</td>
<td>Computer Systems Engineering Stream</td>
<td></td>
</tr>
<tr>
<td>E055</td>
<td>Electrical Power and Control Stream</td>
<td></td>
</tr>
<tr>
<td>E056</td>
<td>Communication and Electronic Stream</td>
<td></td>
</tr>
</tbody>
</table>

The degree course is a general electrical engineering program for the first three years with students choosing one of the three streams offered in year four, these being the Computer Systems Engineering Stream, Electrical Power and Control Engineering Stream and the Communication and Electronic Stream. These are carried on into the fifth year of study.

**Course structure (1990 Syllabus)**

**First year Y057**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Sem 1</th>
<th>Sem 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE115 Engineering Science - Solid Mechanics</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>*EE188 Engineering Science - Electronics and Computing</td>
<td>5</td>
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</tr>
<tr>
<td>*MM120 Engineering Science - Energy and Processes</td>
<td>65</td>
<td>75</td>
</tr>
<tr>
<td>*EF199 Engineering Graphics and Communication</td>
<td>4</td>
<td>4</td>
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<tr>
<td>SM199 Engineering Mathematics</td>
<td>3</td>
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</table>

**Second year E050**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Sem 1</th>
<th>Sem 2</th>
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</thead>
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<tr>
<td>EE254 Electrical Design</td>
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<tr>
<td>EE258 Electrical Machines</td>
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<tr>
<td>EE263 Computer Systems Engineering</td>
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</tr>
<tr>
<td>EE282 Communication Principles</td>
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<td>2</td>
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<tr>
<td>EE283 Electrical Circuits</td>
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<tr>
<td>EE287 Electronics</td>
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<tr>
<td>SM294 Engineering Mathematics</td>
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<tr>
<td>SP294 Engineering Physics</td>
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**Third year E050**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Sem 1</th>
<th>Sem 2</th>
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<tr>
<td>EE300 Industrial Experience</td>
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<td>EE363 Computer Systems Engineering</td>
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<td>EE383 Electromagnetic Fields</td>
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<td>EE384 Electrical Power &amp; Machines</td>
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<td>EE389 Linear Systems &amp; Control</td>
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<td>SM394 Engineering Mathematics</td>
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**Fourth year**

**Computer Systems Engineering Stream E054**

<table>
<thead>
<tr>
<th>Subject</th>
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</thead>
<tbody>
<tr>
<td>EE402 Management Fundamentals</td>
<td>3</td>
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</tr>
<tr>
<td>EE459 Electrical Design</td>
<td>3</td>
<td></td>
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<tr>
<td>EE465 Engineering Systems Software</td>
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<td>EE467 Computer Communications</td>
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<td>EE474 Computer Systems Engineering</td>
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<td>EE489 Control Systems</td>
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<td>SM494 Engineering Mathematics</td>
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**Electrical Power and Control Engineering Stream E055**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Sem 1</th>
<th>Sem 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE402 Management Fundamentals</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EE456 Electrical Design</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EE465 Engineering Systems Software</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EE475 Electrical Power and Machines</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>EE476 Electronics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EE489 Control Systems</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SM494 Engineering Mathematics</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**Communication and Electronic Engineering Stream E056**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Sem 1</th>
<th>Sem 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE402 Management Fundamentals</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EE458 Electrical Design</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EE465 Engineering Systems Software</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EE482 Communications</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EE483 Electronics</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EE489 Control Systems</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SM494 Engineering Mathematics</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**Fifth year**

**Computer Systems Stream E054**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Sem 1</th>
<th>Sem 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE502 Management Practice 1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EE556 Project</td>
<td>4**</td>
<td></td>
</tr>
<tr>
<td>EE561 Computer Systems Engineering</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>EE562 Computer Electronics</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EE563 Advanced Computer Techniques</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EE598 Digital Systems &amp; Control</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

* Part-time students may undertake these subjects in their component parts. See subject outline for details.

* Subjects common to all streams.

**Done externally while on Industrial Experience.**

**Management**

**Industrial Experience**

24 weeks
Electrical Power and Control Engineering Stream E055

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE502</td>
<td>Management Practice 1</td>
<td>3*</td>
</tr>
<tr>
<td>EE556</td>
<td>Project</td>
<td>4**</td>
</tr>
<tr>
<td>EE559</td>
<td>Electrical Machine Drives</td>
<td>5</td>
</tr>
<tr>
<td>EE576</td>
<td>Electronics</td>
<td>3</td>
</tr>
<tr>
<td>EE597</td>
<td>Electrical Power Systems</td>
<td>5</td>
</tr>
<tr>
<td>EE598</td>
<td>Digital Systems and Control</td>
<td>2*</td>
</tr>
</tbody>
</table>

Communication and Electronic Engineering Stream E056

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE502</td>
<td>Management Practice 1</td>
<td>3*</td>
</tr>
<tr>
<td>EE544</td>
<td>Electronic Communications System</td>
<td>3</td>
</tr>
<tr>
<td>EE545</td>
<td>Electronics</td>
<td>4</td>
</tr>
<tr>
<td>EE548</td>
<td>Communications</td>
<td>6</td>
</tr>
<tr>
<td>EE556</td>
<td>Project</td>
<td>4**</td>
</tr>
<tr>
<td>EE598</td>
<td>Digital Systems &amp; Control</td>
<td>2*</td>
</tr>
</tbody>
</table>

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* Common to all streams.
** Project time is 4 hours/week for 14 weeks and 22 hours/week for 4 weeks.

With the approval of the Associate Dean of the School, students may be permitted to undertake an additional subject from the Arts or Business Faculties as an optional non-technical elective during the course.

E085 Graduate Diploma in Computer Systems Engineering

This part-time course is intended to produce graduates with a set of computer systems engineering skills, based soundly on engineering and computer science principles.

There is a demand for continuing professional education in this field from qualified engineers, who require enhancement of skills in computer science and from computer professionals who require skills in disciplines such as electronics, communications and control.

Some diversity is offered in the common second year by the opportunity to choose elective subjects and individual design projects.

To gain admission to the course, applicants must have a degree, diploma or equivalent qualification, together with relevant experience.

The course will only be available on a part-time basis, over four semesters.

Course structure (1993 Syllabus)

First year

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE641</td>
<td>Fundamentals of Computing</td>
</tr>
<tr>
<td>EE642</td>
<td>Data Structure</td>
</tr>
</tbody>
</table>

Semester 2

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE643</td>
<td>Computer Systems Software</td>
</tr>
<tr>
<td>EE644</td>
<td>Computer Systems Design</td>
</tr>
</tbody>
</table>

Second year

Semester 1

Students should choose one of the following pairs of subjects:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE741</td>
<td>Computer Systems and Software Engineering</td>
<td>4</td>
</tr>
<tr>
<td>EE742</td>
<td>Computer Communications and Control</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td>EE745 High-Performance Computer Architectures</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td>EE746 Parallel Programming Techniques</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td>EE747 Discrete Time Control Systems</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td>EE748 Computer Control of Dynamic Systems</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td>EE749 Communication Networks</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td>EE750 Digital Spectral Estimation</td>
<td>4</td>
</tr>
</tbody>
</table>

Semester 2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE744</td>
<td>Design and Project</td>
<td>8</td>
</tr>
</tbody>
</table>

Y097 Master of Engineering

Y007 Doctor of Philosophy

Graduates who hold a Bachelor’s degree and who have shown a high standard of academic achievement in that course may be admitted to candidate for the degree of Master of Engineering or 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 an approved industrial, governmental, educational or research organisation.

Copies of the Statute for the degree of Master and PhD and application forms are available from the Registrar’s Office.

School of Innovation & Enterprise

The School of Innovation & Enterprise was established in 1991 and is the newest School in the Faculty.

The School is designed as a self-contained entity dedicated to excellence in innovative education. The School is currently housed within the Faculty of Engineering. This strategic alliance adds value to students’ learning experiences by exposing them to current technologies, and to the opportunities at the forefront of Australian science and technology.

The School has built its own pool of full and part-time professional educators dedicated to teaching the management of innovation to practising managers. A key feature of all its programs is the use of ‘pracademia’ (team teaching between a practitioner and an academic).

The School’s aims are to provide its students with the necessary skills and understanding to start and grow businesses, and for existing corporations to introduce an innovative culture.

There are currently a number of students undertaking PhDs and Masters by research, and the School has an active consultancy division.
Courses offered

Y081 Graduate Diploma in Management (by coursework)
Y082 Graduate Diploma in Entrepreneurship & Innovation (by coursework)
Y091 Master of Enterprise Innovation (by coursework)
Y095 Master of Enterprise Innovation (by research)
Y001 Doctor of Philosophy

Y081 Graduate Diploma in Management

Career potential

The course is designed to prepare professionals who, being more extensively knowledgeable in enterprise and innovation, are able to take up management positions more quickly after graduation, become more innovative in their leadership of Australian enterprise, have and achieve heightened goals, are more able to improve their individual professional practices and hence are more likely to contribute significantly to their work, their profession, the economy and society.

Studies include the environmental and social impacts of successful professional practice, personal skills such as speaking, negotiating, communicating, team working and leadership as well as the more conventional business, financial and marketing studies.

The course work and the case studies at graduate level relates management principles and practice particularly to the technology learnt during an undergraduate course.

In its combined mode, the course will offer a 'fast-track' to management education for graduates of the Engineering Faculty at Swinburne.

Admission requirements

(a) The completion of the Bachelor of Engineering or Bachelor of Technology degree offered by the Faculty of Engineering at Swinburne undertaken on a cooperative education basis incorporating integrated periods of industrial experience.

(b) The completion of another Bachelor of Engineering degree together with at least one year of relevant work experience at a suitable level of responsibility within an engineering field after completion of the degree.

(c) The completion of any other bachelors degree together with at least two years' industrial experience.

(d) Students enrolled in either the Bachelor of Engineering or the Bachelor of Technology course at Swinburne may be admitted to a combined course program.

(e) 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 engineering work.

Applications close 15 November for the following year.

Duration of course

The course is undertaken by one year of full-time study or 2½ years of part-time study. The course, when combined with the Bachelor of Engineering, or Bachelor of Technology, requires only a further six months full-time after the completion of the 4½ year degree.

In the combined course mode, students are required to undertake 60% of the total course content after completing the requirements of the Bachelor of Engineering or Bachelor of Technology. In addition they are required to have completed subjects equivalent in both content and philosophy to the subjects of the first semester of the full-time program in their undergraduate course.

Course structure

Wherever possible session presentations maximise application of "Pracademia" where subjects are team-taught by academics and practitioners to ensure focus is squarely fixed on current management practice.

The course is broken into three distinctive groups: introductory, extending and integrating. Under normal circumstances, Swinburne Bachelor of Engineering/Technology graduates are exempt from the introductory group, but must complete the extending and integrating groups of subjects.

Introductory group

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs per wk</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF611</td>
<td>Management Fundamentals (1 sem)</td>
<td>4</td>
</tr>
<tr>
<td>EF614</td>
<td>Management Practice (1 sem)</td>
<td>4</td>
</tr>
<tr>
<td>EF612</td>
<td>Engineering Management (2 sem)</td>
<td>2</td>
</tr>
<tr>
<td>EF613</td>
<td>Industrial Engineering (2 sem)</td>
<td>2</td>
</tr>
</tbody>
</table>

Extending group

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs per wk</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF620</td>
<td>Human Aspects (1 sem)</td>
<td>2</td>
</tr>
<tr>
<td>EF621</td>
<td>Financial and Legal Aspects (1 sem)</td>
<td>3</td>
</tr>
<tr>
<td>EF623</td>
<td>Marketing (1 sem)</td>
<td>3</td>
</tr>
</tbody>
</table>

Two chosen from:
- EF622 Engineering Management
- EF625 Computing — Business Applications and Systems
- EF626 Computing — Engineering Applications and Systems
- EF629 Sales Management
- EF630 Manufacturing Management
- EF631 Physical Distribution Management
- EF632 Corporate Communications
- EF633 Energy Management
- EF634 Civil Engineering Management
- EF635 Construction Technology
- ME660 Risk Management
- ME675 Maintenance Management
- ME676 Property and Production Risk Management
- ME678 Health & Safety Management

or other approved subject

Each elective runs for 2 hours per week for 1 semester. Electives can run in either semester and are dependent on demand.

Integrating group

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs per wk</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF641</td>
<td>Management Practice1 (1 sem)</td>
<td>2</td>
</tr>
<tr>
<td>EF624</td>
<td>Management Practice2 (1 sem)</td>
<td>2</td>
</tr>
</tbody>
</table>

1 Offered full-time in semester 2 only.

2 Only available to participants with at least three years full-time work experience; offered part-time in semester 1 only.

The course will, essentially, take a problem based approach, the learning being "end" rather than "means" driven.

The extensive use of Australian and relevant international case studies throughout the program will ensure that subjects are seen as opportunities to explore in more depth the analysis of various aspects of management science.

Y082 Graduate Diploma in Entrepreneurship and Innovation

This course recognises the need to train specialists in the skills required to bring an invention, original product or process from the stage of conception to that of full commercial utilisation, through innovation and enterprise.

Business and Government initiatives for future technological development should be enhanced as a result of:

(a) more inventions or service concepts commercialised and developed in Australia and with export potential;

(b) the training of young technocrats to be proactive in the search for change; for the seeking out of ideas and the subsequent development of those which appear promising; and

(c) the retention of venture capital in Australia.

The main aim is to train graduates from diverse disciplines in the theoretical and practical aspects of the commercial-
isation of an invention beginning with a valid prototype or adequate conceptual model.

The course should be of interest not only to potential entrepreneurs but also to "entrepreneurial professionals" and "friends of entrepreneurs". This includes people with an entrepreneurial outlook who wish to stay within an organisation and practise entrepreneurship therein. Students are taught to identify "what business area they are in" and to evaluate "whether the opportunity will result in a profitable business". This is achieved through an integrated program of subjects.

**Admission requirements**

All applicants should comply with one of the following:

(a) The completion of a degree or diploma in any discipline with experience in new business creation.

(b) A limited number of applicants not meeting the requirements 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 the course, the course convener takes into consideration the balance of skills required for team participation and hence attendance at an interview may be required.

Applications close 15 November for the following year.

**Duration of course**

The course is designed to be completed after two years of part-time study.

Classes are held in the evening and the usual requirement for attendance is 2 nights per week.

Team teaching is used in most subjects as well as extensive input from specialist industry personnel.

Course structure (1991 syllabus)

<table>
<thead>
<tr>
<th>First year (1991 syllabus)</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF710 Entrepreneurship &amp; New Ventures</td>
<td>3</td>
</tr>
<tr>
<td>EF711 Product Development &amp; Life Cycles</td>
<td>3</td>
</tr>
<tr>
<td>EF712 Opportunity &amp; Feasibility Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second year</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF810 New Venture Marketing</td>
</tr>
<tr>
<td>EF811 New Venture Financial Planning</td>
</tr>
<tr>
<td>EF812 Entrepreneurship, Law &amp; Ethics</td>
</tr>
<tr>
<td>EF700 The Business Plan</td>
</tr>
</tbody>
</table>

**Y091 Master of Enterprise Innovation**

The call for a new kind of education program for senior management has been rising in Australia over the past few years. This Master's Degree by coursework provides a fresh approach.

This course is built upon the Faculty's pioneering work in Enterprise Innovation through its educational initiatives, its involvement in the Victorian Innovation Centre and the Victorian Enterprise Workshop program.

The course aims to prepare students currently engaged in, or about to embark upon, careers in senior management, with the skills necessary to take their organisations into new areas of activity. It will provide the student with an in-depth knowledge of management, but will have an outward looking aspect. The graduate will not be the mere administrator of a business, but will be equipped with the specialist management and administrative skills necessary to effectively manage a productive commercial enterprise, and also to lead it into new fields.

**Admission requirements**

Applicants should comply with one of the following:

(a) have completed a degree in a professional field at a recognised University or College preferably at Honours level;

(b) have completed the Graduate Diploma in Entrepreneurship & Innovation or the Graduate Diploma in Management, at Distinction level or above;

(c) have such other qualifications or experience which, in the opinion of the selection committee, are of a satisfactory standard and are suitable preparation for entry to the program.

In selecting students for the course, the selection committee will take into consideration the balance of skills required for team participation and hence attendance at an interview may be required.

Applications close 15 November for the following year.

**Admission with advanced standing**

Students who have completed Swinburne's Graduate Diploma in Entrepreneurship & Innovation or the Graduate Diploma in Management will be given full credit for one year of the program.

**Duration of course**

The course is designed to be completed after three years of part-time study. Continuing students from the Graduate Diploma in Entrepreneurship & Innovation or the Graduate Diploma in Management will complete the program with an additional two years of part-time study.

**Course structure**

Essentially the course will take a problem-based approach, the learning being 'end' rather than 'means' driven. The range of subjects included has been chosen to satisfy the educational needs of those who will manage for growth. Australian case studies form a major part of the teaching and learning techniques as will preparation of Business Plans.

All subjects are conducted on an interdisciplinary, team teaching basis with heavy input from industry personnel and a number of units in the later years are block taught.

<table>
<thead>
<tr>
<th>First year (in conjunction with Graduate Diploma in Entrepreneurship &amp; Innovation or the Graduate Diploma in Management)</th>
<th>Hours per semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF710 Entrepreneurship &amp; New Ventures</td>
<td>3</td>
</tr>
<tr>
<td>EF711 Product Development &amp; Life Cycles</td>
<td>3</td>
</tr>
<tr>
<td>EF712 Opportunity &amp; Feasibility Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EF810 New Venture Marketing</td>
<td>3</td>
</tr>
<tr>
<td>EF811 New Venture Financial Planning</td>
<td>3</td>
</tr>
<tr>
<td>EF812 Entrepreneurship, Law &amp; Ethics</td>
<td>3</td>
</tr>
<tr>
<td>EF700 The Business Plan</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second year (all students)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF810 New Venture Marketing</td>
</tr>
<tr>
<td>EF811 New Venture Financial Planning</td>
</tr>
<tr>
<td>EF812 Entrepreneurship, Law &amp; Ethics</td>
</tr>
<tr>
<td>EF700 The Business Plan</td>
</tr>
<tr>
<td>EF920 Managing the Growing Business</td>
</tr>
<tr>
<td>EF921 Financing Entrepreneurial Ventures</td>
</tr>
<tr>
<td>EF922 Entrepreneurial Project</td>
</tr>
<tr>
<td>EF930 Innovation &amp; New Ventures</td>
</tr>
<tr>
<td>EF931 Entrepreneurial in Corporations</td>
</tr>
<tr>
<td>EF932 Entrepreneurial Project</td>
</tr>
</tbody>
</table>

**Y095 Master of Enterprise Innovation**

By research and thesis. Enquiries should be made to the Registrar.
School of Mechanical and Manufacturing Engineering

The school offers courses leading to professional qualifications in mechanical and manufacturing. The manufacturing engineering degree program provides major study strands in production and chemical engineering. The degree courses provide a thorough education in engineering science principles and applications. With these principles the course combines a broad span of studies, such as economics, psychology, human engineering, administration, and communication techniques, important to a professional engineer.

Students work in modern buildings where the facilities available include laboratories, design rooms, seminar rooms, library study areas, engineering workshop and digital, analogue and hybrid computers. There is a strong emphasis on the teaching approach and use of tutorial laboratory work.

The undergraduate courses in mechanical and manufacturing engineering are cooperative programs which enable a student to gain some industrial experience during the course. To quality for the degree, each student must complete two periods of approved industrial experience supervised by both Swinburne engineering staff and engineers in industry. This is arranged in the third and fourth years of study. The experience gained is of great value in gaining opportunities to learn from engineers and in helping to consolidate the more formal theoretical work undertaken at Swinburne. The School of Mechanical and Manufacturing Engineering gratefully acknowledges the assistance of engineers in many companies and government departments whose support has greatly enhanced the value of these periods of industry based learning.

Master of Engineering degree programs are available by research in selected areas of study and by coursework in the area of Computer Integrated Manufacturing. Graduate diploma courses are conducted in Air-Conditioning, Chemical Engineering, Biochemical Engineering, CAD/CAM, CIM, Maintenance Engineering, Manufacturing Technology and Risk Management.

In addition to the complete courses of study above, the school is responsible for teaching Energy Systems, Engineering Management, Engineering Drawing and Engineering Materials in engineering undergraduate courses conducted by other schools. Continuing education courses are provided from time to time in selected areas.

Courses offered

M055 Bachelor of Technology (Aviation)

PO50 Degree of Bachelor of Engineering (Manufacturing)
PO51 Degree of Bachelor of Engineering (Mechanical)
PO52 Graduate Diploma in Air-Conditioning
PO53 Graduate Diploma in CAD/CAM
PO56 Graduate Diploma in Chemical Engineering
PO57 Graduate Diploma in CIM
MO51 Graduate Diploma in Maintenance Engineering
PO81 Graduate Diploma in Manufacturing Technology
PO83 Graduate Diploma in Risk Management
PO93 Degree of Master of Technology (Computer Integrated Manufacture)
PO96 Degree of Master of Engineering (Computer Integrated Manufacture) by coursework and thesis
YO98 Degree of Master of Engineering (Manufacturing) by research
YO99 Degree of Master of Engineering (Mechanical) by research
YO08 Degree of Doctor of Philosophy

Career potential

Mechanical engineering

Mechanical engineering may be defined as a profession in which a knowledge of mathematical and natural sciences gained by study, experience and practice is applied, with judgement and regard for the conservation of natural order, to develop ways to use the material and energy resources available, for the benefit of mankind.

Although, in Australia, it is a relatively new area of employment for women those entering the field of mechanical engineering have found it offers excellent career opportunities.

Manufacturing/Production/Chemical engineering

Manufacturing engineers are engaged in a wide variety of industries and organisations including manufacture of aircraft, automobiles, appliances, chemicals, food, plastics, ceramics, textiles and clothing. They are also involved in goods distribution and retailing organisations.

Their activities are wide-ranging: factory management; operations and production planning; quality control; design of tools, products and processes; materials handling; research and development.

The undergraduate programs leading to the award of the degree of Bachelor of Engineering (Manufacturing) are designed to prepare the student for a professional career in any field of manufacturing.

Developments in Australian industry, particularly towards increased productivity and the use of more sophisticated manufacturing techniques and control systems, including the use of computer-based systems, indicates that for many years the demand for manufacturing engineers will exceed the number available.

M055 Bachelor of Technology (Aviation)

This three year full-time degree course prepares students for careers in the aviation industry as either professional pilots or in other professional capacities. Skill training and education processes are weighted equally in this course where there is need to provide a high level of both flying prowess and the ability to solve problems through the application of methodical and rational thinking.

The course incorporates the theory subjects required by the Australian Civil Aviation Authority (CAA) 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).

The objectives of this course are to provide professional, tertiary training for the aviation industry in general, and for pilots in particular. During the three year duration of the course, adequate time and facilities are provided to enable students to undertake the flying training necessary to reach Commercial Pilot Standard. Additional flying training to suit particular needs, such as instructor, instrument or agricultural ratings is also available.

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.
**Faculty of Engineering**

### First year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME110</td>
<td>Flight Rules &amp; Procedures 1</td>
<td>3 3</td>
</tr>
<tr>
<td>MF120</td>
<td>Navigation &amp; Meteorology 1</td>
<td>3 3</td>
</tr>
<tr>
<td>MF130</td>
<td>Applied Aerodynamics 1</td>
<td>2 -</td>
</tr>
<tr>
<td>MF140</td>
<td>Theoretical Aerodynamics</td>
<td>- 4</td>
</tr>
<tr>
<td>MF150</td>
<td>Occupational Health &amp; Safety</td>
<td>2 2</td>
</tr>
<tr>
<td>MF160</td>
<td>Propulsion and Aircraft Systems</td>
<td>3 3</td>
</tr>
<tr>
<td>MF170</td>
<td>Aviation Mathematics &amp; Computing</td>
<td>4 4</td>
</tr>
<tr>
<td>MF180</td>
<td>Aviation Electronics</td>
<td>- 2</td>
</tr>
<tr>
<td>MF190</td>
<td>Communication Skills</td>
<td>3 -</td>
</tr>
</tbody>
</table>

**TOTAL HOURS EXCLUDING FLYING:** 20 21

### Second year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF210</td>
<td>Flight Rules &amp; Procedures 2</td>
<td>2 2</td>
</tr>
<tr>
<td>MF220</td>
<td>Navigation &amp; Meteorology 2</td>
<td>3 3</td>
</tr>
<tr>
<td>MF230</td>
<td>Applied Aerodynamics 2</td>
<td>2 2</td>
</tr>
<tr>
<td>MF240</td>
<td>Advanced Aerodynamics</td>
<td>3 -</td>
</tr>
<tr>
<td>MF250</td>
<td>Human Factors &amp; Performance</td>
<td>3 3</td>
</tr>
<tr>
<td>MF260</td>
<td>Advanced Propulsion &amp; Aircraft Systems</td>
<td>2 2</td>
</tr>
<tr>
<td>MF270</td>
<td>Aircraft Materials &amp; Structures</td>
<td>3 3</td>
</tr>
<tr>
<td>MF280</td>
<td>Avionics and Electronics</td>
<td>2 3</td>
</tr>
<tr>
<td>MF290</td>
<td>Aviation Business Management</td>
<td>- 3</td>
</tr>
</tbody>
</table>

**TOTAL HOURS EXCLUDING FLYING:** 20 21

### Third year

Although the general outline of year 3 of this course has been accredited, changes to the Civil Aviation Authority material are currently underway which impinge heavily on the course. Details of year 3 will be published as soon as they are to hand.

* The subjects shown with an asterisk will be provided at Moorabbin Aviation Academy and integrated with the flying component of the course.

**PO50 Bachelor of Engineering (Manufacturing)**

The course is a cooperative (sandwich) education program of four-and-a-half years' duration and is designed to provide integrated academic and industrial training.

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.

The course is accredited by The Institution of Engineers, Australia. Completion of the course gives full exemption from the requirements for admission as a graduate member.

In the second and subsequent years of the course students specialise in either:

- Production Engineering and Design
- Chemical Engineering and Design.

The special study subjects are denoted (P) and (C) respectively in the details of the course structure.

### Course structure (1990 syllabus)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE115</td>
<td>Engineering Science — Solid Mechanics</td>
<td>3 4</td>
</tr>
<tr>
<td>*EE188</td>
<td>Engineering Science — Electronics and Computing</td>
<td>5 5</td>
</tr>
<tr>
<td>*EF199</td>
<td>Engineering Graphics and Communications</td>
<td>4 4</td>
</tr>
<tr>
<td>*MM120</td>
<td>Engineering Science — Energy and Processes</td>
<td>6.5 75</td>
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<tr>
<td>SM199</td>
<td>Engineering Mathematics</td>
<td>3 3</td>
</tr>
</tbody>
</table>

**TOTAL HOURS EXCLUDING FLYING:** 215 235

* Part-time students may undertake these subjects in their component parts. See subject outlines for details.

**Second year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM220</td>
<td>Energy Systems</td>
<td>4 -</td>
</tr>
<tr>
<td>MM230</td>
<td>Engineering Materials</td>
<td>2 2</td>
</tr>
<tr>
<td>MM240</td>
<td>Electronics and Measurement Systems</td>
<td>2 2</td>
</tr>
<tr>
<td>MM241</td>
<td>Applied Mechanics</td>
<td>4 -</td>
</tr>
<tr>
<td>MM250</td>
<td>Design for Industry</td>
<td>2 2</td>
</tr>
<tr>
<td>MM270</td>
<td>Manufacturing/CAD</td>
<td>2 2</td>
</tr>
<tr>
<td>MM280</td>
<td>Introduction to Management</td>
<td>2 2</td>
</tr>
<tr>
<td>MM297</td>
<td>Professional Computing</td>
<td>1 1</td>
</tr>
<tr>
<td>SM299</td>
<td>Mathematics</td>
<td>3 3</td>
</tr>
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</table>

**Production Option**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM271</td>
<td>Manufacturing Technology</td>
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</tr>
<tr>
<td>MM272</td>
<td>Manufacturing Practices</td>
<td>- 4</td>
</tr>
</tbody>
</table>

**Chemical Option**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
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</thead>
<tbody>
<tr>
<td>MM210</td>
<td>Industrial Processes</td>
<td>- 4</td>
</tr>
<tr>
<td>MM211</td>
<td>Introduction Chemical Eng'g</td>
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</table>

**Third year**

**Core subjects**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
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<tbody>
<tr>
<td>MM309</td>
<td>Industry Based Learning</td>
<td>24 -</td>
</tr>
<tr>
<td>MM330</td>
<td>Advanced Materials</td>
<td>1 -</td>
</tr>
<tr>
<td>MM380</td>
<td>Productivity Improvement</td>
<td>2 -</td>
</tr>
<tr>
<td>MM381</td>
<td>Managerial Economics</td>
<td>2 -</td>
</tr>
<tr>
<td>MM396</td>
<td>Computer Science</td>
<td>2 -</td>
</tr>
<tr>
<td>SM395</td>
<td>Mathematics</td>
<td>3 -</td>
</tr>
</tbody>
</table>

**Production Stream**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM340</td>
<td>Applied Mechanics</td>
<td>3 -</td>
</tr>
<tr>
<td>MM350</td>
<td>Design for Manufacture</td>
<td>4 -</td>
</tr>
<tr>
<td>MM370</td>
<td>Manufacturing Technology</td>
<td>5 -</td>
</tr>
</tbody>
</table>

**Chemical Stream**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM312</td>
<td>Unit Operations</td>
<td>4 -</td>
</tr>
<tr>
<td>MM315</td>
<td>Heat Transfer</td>
<td>5 -</td>
</tr>
<tr>
<td>MM321</td>
<td>Fluid Mechanics</td>
<td>3 -</td>
</tr>
</tbody>
</table>

---

231
### Course structure (1990 syllabus)

<table>
<thead>
<tr>
<th>Year</th>
<th>Subjects</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Core Subjects</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MM441 Control Systems</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>MM470 Computer Interfacing</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>MM471 Numerical Engineering</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>MM480 Facilities Planning and Design</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MM481 Decision Analysis</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>MM482 Manufacturing Operations Management</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Production Stream</strong></td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>MM450 Design for Manufacture</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MM472 Manufacturing Technology</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Chemical Stream</strong></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>MM414 Stagewise Processes</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>MM415 Mass Transfer</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MM409 Industry Based Learning</td>
<td>24 weeks</td>
</tr>
<tr>
<td></td>
<td><strong>Fifth year</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Core Subjects</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MM500 Project (includes 3 full-time weeks)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>MM583 Industrial Management</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MM582 World Class Manufacturing</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Production Stream</strong></td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>MM550 Design for Manufacture</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>MM570 Manufacturing Technology</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>MM581 Manufacturing Systems Modelling</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Chemical Stream</strong></td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>MM510 Combined Heat and Mass Transfer</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>MM511 Chemical Engineering Design</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>MM556 Reactor Design</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Fourth Year</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MM420 Energy Systems</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>*MM440 Mechanics and Machine Systems</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>MM451 Design for Industry</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MM460 Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MM483 Engineering Management</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>SM499 Engineering Mathematics</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>MM409 Industry Based Learning</td>
<td>24 weeks</td>
</tr>
</tbody>
</table>

*Part-time students may undertake these subjects in their component parts. See subject outline for details.*

**Degree course revision**

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) 1990 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.

---

**Bachelor of Engineering (Mechanical)**

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. 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 year cooperative education program.

**Fourth Year**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM441 Control Systems</td>
<td>2</td>
</tr>
<tr>
<td>MM470 Computer Interfacing</td>
<td>2</td>
</tr>
<tr>
<td>MM471 Numerical Engineering</td>
<td>2</td>
</tr>
<tr>
<td>MM480 Facilities Planning and Design</td>
<td>3</td>
</tr>
<tr>
<td>MM481 Decision Analysis</td>
<td>2</td>
</tr>
<tr>
<td>MM482 Manufacturing Operations Management</td>
<td>2</td>
</tr>
<tr>
<td><strong>Production Stream</strong></td>
<td>13</td>
</tr>
<tr>
<td>MM450 Design for Manufacture</td>
<td>4</td>
</tr>
<tr>
<td>MM472 Manufacturing Technology</td>
<td>5</td>
</tr>
<tr>
<td><strong>Chemical Stream</strong></td>
<td>9</td>
</tr>
<tr>
<td>MM414 Stagewise Processes</td>
<td>5</td>
</tr>
<tr>
<td>MM415 Mass Transfer</td>
<td>4</td>
</tr>
<tr>
<td>MM409 Industry Based Learning</td>
<td>24 weeks</td>
</tr>
<tr>
<td><strong>Fifth year</strong></td>
<td></td>
</tr>
<tr>
<td>MM500 Project (includes 3 full-time weeks)</td>
<td>6</td>
</tr>
<tr>
<td>MM583 Industrial Management</td>
<td>4</td>
</tr>
<tr>
<td>MM582 World Class Manufacturing</td>
<td>2</td>
</tr>
<tr>
<td><strong>Production Stream</strong></td>
<td>12</td>
</tr>
<tr>
<td>MM550 Design for Manufacture</td>
<td>5</td>
</tr>
<tr>
<td>MM570 Manufacturing Technology</td>
<td>5</td>
</tr>
<tr>
<td>MM581 Manufacturing Systems Modelling</td>
<td>2</td>
</tr>
<tr>
<td><strong>Chemical Stream</strong></td>
<td>12</td>
</tr>
<tr>
<td>MM510 Combined Heat and Mass Transfer</td>
<td>5</td>
</tr>
<tr>
<td>MM511 Chemical Engineering Design</td>
<td>5</td>
</tr>
<tr>
<td>MM556 Reactor Design</td>
<td>2</td>
</tr>
<tr>
<td><strong>Fourth Year</strong></td>
<td></td>
</tr>
<tr>
<td>MM420 Energy Systems</td>
<td>4</td>
</tr>
<tr>
<td>*MM440 Mechanics and Machine Systems</td>
<td>5</td>
</tr>
<tr>
<td>MM451 Design for Industry</td>
<td>4</td>
</tr>
<tr>
<td>MM460 Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>MM483 Engineering Management</td>
<td>4</td>
</tr>
<tr>
<td>SM499 Engineering Mathematics</td>
<td>2</td>
</tr>
<tr>
<td>MM409 Industry Based Learning</td>
<td>24 weeks</td>
</tr>
</tbody>
</table>

*Part-time students may undertake this subject in parts a, b, c.*
**Faculty of Engineering**

**Graduate Diploma in Chemical Engineering**

The purpose of the course 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.

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.

The proposed course 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 course could be completed in one year of full-time study. Some day time classes are available and these are timetabled as blocks to cause as little inconvenience as possible. Other subjects may be available as evening classes.

Subjects involved in this course are classified as either schedule A or schedule B subjects. Schedule A subjects provide the basic chemical engineering information whilst schedule B subjects offer topics more peripheral to the chemical engineering aspects of the course. To obtain the qualification, a minimum of 448 hours (32 semester hours) is required. Choice of subjects is restricted so that a minimum of 280 hours (20 semester hours) of schedule A subjects is included. The remaining hours can be taken from either schedule A or schedule B.

**Schedule A subjects:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP713</td>
<td>Chemical Engineering Design</td>
<td>4</td>
</tr>
<tr>
<td>MP714</td>
<td>Stagewise Processes</td>
<td>5</td>
</tr>
<tr>
<td>MP717</td>
<td>Mass Transfer</td>
<td>4</td>
</tr>
<tr>
<td>MP729</td>
<td>Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>MP715</td>
<td>Heat Transfer</td>
<td>5</td>
</tr>
<tr>
<td>MP712</td>
<td>Unit Operations</td>
<td>4</td>
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<tr>
<td>MP751</td>
<td>Design Applications</td>
<td>5</td>
</tr>
<tr>
<td>MP724</td>
<td>Chemical Engineering Design</td>
<td>5</td>
</tr>
<tr>
<td>MM756</td>
<td>Chemical Engineering Design</td>
<td>2</td>
</tr>
<tr>
<td>EA411</td>
<td>Non-Newtonian Technology</td>
<td>4</td>
</tr>
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</table>

**Schedule B subjects:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours per week</th>
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<tbody>
<tr>
<td>MM611</td>
<td>Introduction to CAD</td>
<td>2</td>
</tr>
<tr>
<td>MM614</td>
<td>Automation and Machining Systems</td>
<td>2</td>
</tr>
<tr>
<td>MM617</td>
<td>Introduction to CIM</td>
<td>2</td>
</tr>
<tr>
<td>MM620</td>
<td>Computers and Interfacing</td>
<td>2</td>
</tr>
<tr>
<td>MM621</td>
<td>Mathematics</td>
<td>2</td>
</tr>
<tr>
<td>MM618</td>
<td>Introduction to Robotics</td>
<td>2</td>
</tr>
<tr>
<td>MM612</td>
<td>CAD Practice</td>
<td>4</td>
</tr>
<tr>
<td>MM613</td>
<td>Micro CAD</td>
<td>2</td>
</tr>
<tr>
<td>MM622</td>
<td>Advanced Computer Techniques</td>
<td></td>
</tr>
<tr>
<td>MM615</td>
<td>Manufacturing Automation</td>
<td>2</td>
</tr>
<tr>
<td>MM623</td>
<td>Computing Based Management Systems</td>
<td>2</td>
</tr>
<tr>
<td>MM624</td>
<td>Management of CAD/CAM</td>
<td>2</td>
</tr>
<tr>
<td>MM616</td>
<td>Manufacturing Automation</td>
<td>2</td>
</tr>
<tr>
<td>MM619</td>
<td>NG Project</td>
<td>4</td>
</tr>
</tbody>
</table>

**P083 Graduate Diploma in Chemical Engineering**

This part-time course is designed for those who have a qualification such as a diploma or degree in engineering or applied science, and who wish to take advanced studies based on applied thermodynamics and controls. The course consists of six subjects which are usually taken by evening attendance over a period of two years.

**Course structure (1988 syllabus)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
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</tr>
<tr>
<td>ME621</td>
<td>4</td>
</tr>
<tr>
<td>ME622</td>
<td>4</td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>ME721</td>
<td>4</td>
</tr>
<tr>
<td>ME722</td>
<td>3</td>
</tr>
</tbody>
</table>

**P085 Graduate Diploma in CAD/CAM**

The aim of the course is to prepare graduates, mainly from Engineering and the Physical Sciences for future roles in the application of Computer Aided Design and/or Computer Aided Manufacture in the Australian manufacturing industry.

**Entrance requirements**

Candidates for the graduate diploma should:

- have completed a degree or diploma in Engineering or Science at a recognised university or college;
- have other qualifications or experience which, in the opinion of the Chairman of the School of Mechanical and Manufacturing Engineering, are of a satisfactory standard, and are suitable preparation for the graduate diploma program.

**Schedule A subjects:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP713</td>
<td>Chemical Engineering Design</td>
<td>4</td>
</tr>
<tr>
<td>MP714</td>
<td>Stagewise Processes</td>
<td>5</td>
</tr>
<tr>
<td>MP711</td>
<td>Mass Transfer</td>
<td>4</td>
</tr>
<tr>
<td>MP729</td>
<td>Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>MP715</td>
<td>Heat Transfer</td>
<td>5</td>
</tr>
<tr>
<td>MP712</td>
<td>Unit Operations</td>
<td>4</td>
</tr>
<tr>
<td>MP751</td>
<td>Design Applications</td>
<td>5</td>
</tr>
<tr>
<td>MP724</td>
<td>Chemical Engineering Design</td>
<td>5</td>
</tr>
<tr>
<td>MM756</td>
<td>Chemical Engineering Design</td>
<td>2</td>
</tr>
<tr>
<td>EA411</td>
<td>Non-Newtonian Technology</td>
<td>4</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 and some restrictions apply as shown below. The final
choice of subjects will be made with significant consultation
between the student and the lecturers involved.

**Group 1 Risk Engineering Group**

Students to choose a maximum of two subjects.

<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Semester offered</th>
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</thead>
<tbody>
<tr>
<td>ME762 Risk Engineering</td>
<td>4</td>
</tr>
<tr>
<td>ME664 Risk Engineering</td>
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</tr>
<tr>
<td>ME765 Risk Engineering (H&amp;S)</td>
<td>3</td>
</tr>
<tr>
<td>ME764 Risk Control Practices and Technology</td>
<td>4</td>
</tr>
</tbody>
</table>

**Group 2 Environmental Studies Group**

Students to choose a maximum of two subjects.

<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP717 Industrial Processes and Pollution Control</td>
<td>4</td>
</tr>
<tr>
<td>MP719 Occupational Health &amp; Safety</td>
<td>4</td>
</tr>
<tr>
<td>or ME742 Health and Hygiene</td>
<td>4</td>
</tr>
<tr>
<td>EA491 Biochemical Engineering</td>
<td>4</td>
</tr>
</tbody>
</table>

**Group 3 Management and Economic Evaluation Group**

<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM755 Equipment Life Cycle</td>
<td>2</td>
</tr>
</tbody>
</table>

**Group 4 Instrumentation & Control**

<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM740 Instrumentation &amp; Measurement Systems</td>
<td>2</td>
</tr>
<tr>
<td>MM741 Control Engineering</td>
<td>2</td>
</tr>
</tbody>
</table>

**P087 Graduate Diploma in Computer Integrated Manufacture (CIM)**

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 proven 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**

(a) Normal entry

Completion of an approved Bachelor's Degree in Engineering.

(b) Other applicants

Applicants are considered on their individual merits but must
have qualifications and experience which, in the opinion of the
Engineering Faculty Board, are a suitable preparation for study in the Graduate Diploma program.

**Duration of course**

The Graduate Diploma in CIM is a one year full time program.

<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM617 Introduction to CIM</td>
<td>2</td>
</tr>
<tr>
<td>MM620 Computers and Interfacing</td>
<td>2</td>
</tr>
<tr>
<td>MM632 Computer Aided Design</td>
<td>2</td>
</tr>
<tr>
<td>MM614 Automation and Machining</td>
<td>2</td>
</tr>
<tr>
<td>MM625 Machine Systems</td>
<td>2</td>
</tr>
<tr>
<td>MM626 Advanced Mathematics</td>
<td>2</td>
</tr>
<tr>
<td>MM627 Manuf. Management Systems</td>
<td>2</td>
</tr>
<tr>
<td>MM628 Control Systems and Devices</td>
<td>2</td>
</tr>
</tbody>
</table>

Total hours per week 16

<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM629 Computers and Interfacing</td>
<td>2</td>
</tr>
<tr>
<td>MM615 Manufacturing Automation</td>
<td>2</td>
</tr>
<tr>
<td>MM630 Mathematics and Computing</td>
<td>2</td>
</tr>
<tr>
<td>MM633 Advanced CAD</td>
<td>4</td>
</tr>
<tr>
<td>MM622 Advanced Computer Techniques</td>
<td>2</td>
</tr>
<tr>
<td>MM631 Machine Systems</td>
<td>2</td>
</tr>
<tr>
<td>MM623 Computer Based Mgt. Systems</td>
<td>2</td>
</tr>
</tbody>
</table>

Total hours per week 16

**M081 Graduate Diploma in Maintenance Engineering**

This part-time course is designed for those who have a qual-
ification such as a diploma or degree in engineering or applied
science, and who wish to take advanced studies based on
maintenance engineering, maintenance management and its
interaction with industry in general. Course content comprises
common core material with the Graduate Diploma in Risk Management, emphasising maintenance engineering's place
as a major sub-set of business risk management activity, complemented by specialist subjects relating to the practice
of maintenance engineering. The course will usually spread
over two years.

**Course structure (1989 syllabus)**

<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>First War</td>
<td></td>
</tr>
<tr>
<td>ME560 Risk Management</td>
<td>2</td>
</tr>
<tr>
<td>ME661 Risk Engineering 1</td>
<td>2</td>
</tr>
<tr>
<td>ME627 Risk Psychology</td>
<td>1</td>
</tr>
<tr>
<td>ME629 Risk Social Science</td>
<td>1</td>
</tr>
<tr>
<td>ME651 Risk Philosophy</td>
<td>1</td>
</tr>
<tr>
<td>ME652 Occurrence Analysis</td>
<td>1</td>
</tr>
<tr>
<td>SM741 Statistics and Reliability</td>
<td>2</td>
</tr>
<tr>
<td>BS625 Health and Safety Law</td>
<td>1</td>
</tr>
<tr>
<td>ME675 Maintenance Management</td>
<td>2</td>
</tr>
</tbody>
</table>

8 6

**Second War**

<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second War</td>
<td></td>
</tr>
<tr>
<td>ME776 Maintenance Engineering Science</td>
<td>3</td>
</tr>
<tr>
<td>ME774 Maintenance Practices and Technology</td>
<td>2</td>
</tr>
<tr>
<td>ME777 Maintenance Management</td>
<td>2</td>
</tr>
<tr>
<td>ME780 Major Project</td>
<td>3</td>
</tr>
</tbody>
</table>

7 7

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.
P081 Graduate Diploma in Manufacturing Technology

This course is designed to increase the effectiveness of engineers, scientists and technologists who, by virtue of their position in industry or the Public Service, find themselves ill-equipped to function in a modern manufacturing operation. This may be due to the nature of their original training (qualification), or simply to the rapid changes in technology and the industrial environment.

Entrance requirements

All applicants should comply with the following:
- The completion of a relevant degree or diploma in Engineering, Science or Applied Science.

Under special circumstances, a limited number of applicants not meeting the above, may be admitted after interviews on the basis of considerable relevant experience and level of responsibility in manufacturing.

Duration

The course is equivalent to one year full-time study and is normally undertaken by part-time study over two and a half years. (Students must be able to attend at least one half day session during normal day time hours.)

Course structure (1989 syllabus)

Semester 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM607</td>
<td>Manufacturing Technology</td>
<td>5</td>
</tr>
<tr>
<td>MM608</td>
<td>Manufacturing Technology</td>
<td>5</td>
</tr>
<tr>
<td>MM606</td>
<td>Design for Manufacture</td>
<td>4</td>
</tr>
</tbody>
</table>
| MM614       | Automation and Machining        | 2            | 7

Semester 2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM606</td>
<td>Manufacturing Technology</td>
<td>5</td>
</tr>
<tr>
<td>MM604</td>
<td>Design for Manufacture</td>
<td>4</td>
</tr>
</tbody>
</table>
| MM615       | Manufacturing Automation        | 2            | 7
| MM616       | Manufacturing Automation        | 2            |
|             | Elective                        | 3            |

A minimum of 3 semester hours of electives must be taken from the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Units</th>
</tr>
</thead>
</table>
| MM622       | Advanced Computer Techniques     | 2            | 7
| MM613       | Micro CAD                        | 2            |
| MM617       | Introduction to CIM              | 2            | 7
| MM620       | Computers and Interfacing        | 2            |
| MM612       | CAD Practices                    | 4            | 7

M083 Graduate Diploma in Risk Management

This course provides further studies for graduates in all branches of engineering, applied science and business, to gain more specialised knowledge in risk management. This 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 spread over two years.

Course structure (1989 syllabus)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME660</td>
<td>Risk Management</td>
<td>2</td>
</tr>
<tr>
<td>ME661</td>
<td>Risk Engineering</td>
<td>2</td>
</tr>
</tbody>
</table>
| ME627       | Risk Psychology                  | 1            | 1
| ME629       | Risk Social Science              | 1            |
| ME651       | Risk Philosophy                  | 1            |
| ME652       | Occurrence Analysis              | 1            |
| SM741       | Statistics and Reliability       | 2            |
| BS625       | Health and Safety Law            | 1            |
|             | Do one of:                        |              |
| ME678       | Health and Safety Management     | 2            | 2
| ME676       | Property and Production Risk Management | 1 |
| ME675       | Maintenance Management           |             | 7

Second Year (Do stream of choice)

Health and Safety stream

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Units</th>
</tr>
</thead>
</table>
| ME780       | Major Project                    | 3            | 7
| ME641       | Ergonomics                       | 3            |
| ME743       | Health and Safety Practices      | 1            |
| ME765       | Risk Engineering (H&S)           | 3            | 7
| ME742       | Health and Hygiene               | 4            |

Plant and Property stream

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Units</th>
</tr>
</thead>
</table>
| ME780       | Major Project                    | 3            | 7
| ME664       | Risk Engineering                 | 3            |
| ME762       | Risk Engineering                 | 4            |
| ME764       | Risk Control Practices and Technology | 4 |

Maintenance (Production Risks) stream

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Units</th>
</tr>
</thead>
</table>
| ME780       | Major Project                    | 3            | 7
| ME776       | Maintenance Engineering Science   | 3            |
| ME774       | Maintenance Practices and Technology | 2 |
| ME777       | Maintenance Management           | 2            | 7

P093 Master of Technology (Computer Integrated Manufacture)

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 proven 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

(a) Normal entry

A four year degree in engineering or equivalent qualification.
entrance requirements

(a) Normal entry
A four year degree at a good second class honours level in engineering or equivalent qualification.

(b) Other applicants
Other applicants with a professional qualification, depending upon their postgraduate experience, will be required to undertake suitable preliminary studies approved by the Engineering Faculty Board.

students who have completed the coursework for the Graduate Diploma in Computer Integrated Manufacture at an average grade of 'C' may be admitted to the program with advanced standing.

A person who has been awarded a Graduate Diploma in Computer Integrated Manufacture may not be awarded the Master of Technology (CIM) i.e. A person who has been awarded the Graduate Diploma must relinquish the Graduate Diploma before being eligible for the award of the Master of Technology.

Duration of course
The course is a two year equivalent full time program incorporating the academic program for the Graduate Diploma in Computer Integrated Manufacture. The minimum period of enrolment for the Master of Engineering program is three semesters. The full time program normally extends over four semesters. 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM617 Introduction to CIM</td>
<td>2</td>
</tr>
<tr>
<td>MM620 Computers and Interfacing</td>
<td>2</td>
</tr>
<tr>
<td>MM622 Advanced Computer Techniques</td>
<td>2</td>
</tr>
<tr>
<td>MM623 Computer Based Mgt. Systems</td>
<td>2</td>
</tr>
<tr>
<td>MM624 Machine Systems</td>
<td>2</td>
</tr>
<tr>
<td>MM625 Machine Systems</td>
<td>2</td>
</tr>
<tr>
<td>MM626 Advanced Mathematics Systems</td>
<td>2</td>
</tr>
<tr>
<td>MM627 Manufacturing Automation</td>
<td>2</td>
</tr>
<tr>
<td>MM628 Control Systems and Devices</td>
<td>2</td>
</tr>
<tr>
<td>Total hours per week</td>
<td>16</td>
</tr>
<tr>
<td>MM629 Mathematics and Computing</td>
<td>2</td>
</tr>
<tr>
<td>MM630 Manufacturing Automation</td>
<td>2</td>
</tr>
<tr>
<td>MM631 Advanced CAD</td>
<td>4</td>
</tr>
<tr>
<td>MM632 Advanced Computer Techniques</td>
<td>2</td>
</tr>
<tr>
<td>MM633 Advanced CAD</td>
<td>2</td>
</tr>
<tr>
<td>MM634 Advanced Computer Techniques</td>
<td>2</td>
</tr>
<tr>
<td>MM635 Machine Systems</td>
<td>2</td>
</tr>
<tr>
<td>MM636 Advanced Mathematics Systems</td>
<td>2</td>
</tr>
<tr>
<td>MM637 Manufacturing Automation</td>
<td>2</td>
</tr>
<tr>
<td>MM638 Control Systems and Devices</td>
<td>2</td>
</tr>
<tr>
<td>Total hours per week</td>
<td>16</td>
</tr>
<tr>
<td>MM639 Project - Part A</td>
<td>8</td>
</tr>
<tr>
<td>Total hours per week</td>
<td>13</td>
</tr>
<tr>
<td>MM640 Project - Part B</td>
<td>12</td>
</tr>
<tr>
<td>Total hours per week</td>
<td>19</td>
</tr>
</tbody>
</table>

P091 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 proven 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.
Y098/Y099 Master of Engineering
Y008/Y009 Doctor of Philosophy

Graduates who hold a Bachelors degree and who have shown a high standard of academic achievement in that course may be admitted to candidature for the degree of Master of Engineering or 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 and application forms are available from the Registrar's Office.

Engineering subject details

This section contains a brief description of the various subjects in all engineering degree courses, the diploma course in building surveying, and all graduate diploma courses.

It should be noted that details of subjects taught by engineering schools to students in other courses (e.g. environmental health which is offered by the Applied Science Faculty) are given in the chapter of the faculty offering the course.

Subjects in this section are grouped in numerical order within the following codes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Department, School or Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB</td>
<td>Faculty of Arts</td>
</tr>
<tr>
<td>BS</td>
<td>Faculty of Business</td>
</tr>
<tr>
<td>CE</td>
<td>Civil Engineering and Building</td>
</tr>
<tr>
<td>EA</td>
<td>Manufacturing Engineering</td>
</tr>
<tr>
<td>EE</td>
<td>Electrical Engineering</td>
</tr>
<tr>
<td>EF</td>
<td>Faculty of Engineering</td>
</tr>
<tr>
<td>MM</td>
<td>Mechanical and Manufacturing Engineering</td>
</tr>
<tr>
<td>ME</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>MP</td>
<td>Manufacturing Engineering</td>
</tr>
<tr>
<td>SA</td>
<td>Applied Science Faculty</td>
</tr>
<tr>
<td>SC</td>
<td>Chemistry</td>
</tr>
<tr>
<td>SK</td>
<td>Computer Science</td>
</tr>
<tr>
<td>SM</td>
<td>Mathematics</td>
</tr>
<tr>
<td>SP</td>
<td>Physics</td>
</tr>
</tbody>
</table>

Students should note the following definitions with regard to reading material prescribed for engineering subjects:

Preliminary reading

Introductory material which students are expected to read before classes commence.

Textbooks

Materials essential to the subject.

References

Materials that will be referred to throughout the duration of the subject.

Unless otherwise specified, students are advised not to purchase textbooks or references until classes commence.

BS400 Administration 2

Four hours per week for one semester

Subject aims and description

A final-year subject in the Diploma of Building Surveying which further develops student's understanding of administration and management principles.

The focus will be on the interpersonal skills required for successfully developing a career to supervisor level management within the local government setting. Experiential learning activities will be used to develop these skills. The Staffing Process within organisations will also be used as one framework for focusing on these skills with a particular emphasis on personal development for students about to enter the professional workforce.

References


CE114 Applied Mechanics

Three hours per week for two semesters

Prerequisites: nil

Method of Teaching: Lectures, tutorials, field inspections, drafting classes

Method of Assessment: Examination 80%, reported work 20%

Subject aims and description

A first-year subject in the Degree in Building Surveying designed to develop in students an understanding of the basic principles of mechanics and their application to the behaviour of loaded members and simple systems. Basic concepts of structural mechanics are covered together with stress and strain, behaviour of simple structural members and basic deflection.

References


CE115 Engineering Science — Solid Mechanics

Three hours per week for first semester and four hours per week for second semester

Method of Assessment: Examination 75%, assessed work 25%

A common first-year subject in the Bachelor of Engineering.

Subject aims

To introduce students to the fundamentals of engineering mechanics and materials behaviour.

Subject description

**Applied Mechanics**

Basic concepts: forces and force systems, loads, equations of equilibrium, reactions for statically determinate beams, frame and truss systems. Analysis of pin-jointed trusses. Shear force and bending moment concepts and diagrams.

**Stress and Strain**: types of stress, general stress-strain relationships, linear elastic parameters.

**Performance of Loaded Members and Simple Connections**: behaviour of compound members, short and long columns, circular shafts. Stress and deflections in statically determinate beams. Deflection by integration to the elastic line. Elementary beam design concepts.

**Introduction to Hydrostatics**: hydrostatic pressure, pressure measurement, hydrostatic thrust, pressure vessels.

**Introduction to Structural Behaviour**: structural forms and their behaviour under load, stability, structural failures.

**Properties of Materials** (to include 2 x 2 hour laboratory experiments)

**Standard Specifications**: material standards in design and specifications.

**Mechanical Testing of Materials**: tensile testing, impact testing and hardness testing.

**Modes of Failure**: ductile/brittle fracture, fatigue, creep fracture.

**Strengthening Mechanisms**: work hardening, solid solution hardening, precipitation hardening, quench hardening, Corrosion.

**Textbooks**


CE192 Statutory Control
This subject has two components.
CE192A Statutory Control/Plan Checking 1
Three hours per week in first semester
Five hours per week in second semester
Prerequisites: nil
Method of Teaching: Lectures, tutorials, software, with verification by approximate analysis
Method of Assessment: Examination 80%, Assessed work 20%

Subject aims and description
A first year subject in the Degree of Building Surveying, intended to provide students with an understanding of the role and duties of a building surveyor and an introduction to their legal and ethical responsibilities. This subject covers topics such as Australian Building and Planning Terms. Regulations, Codes and Standards. 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
Plan checking of domestic type applications.

Textbooks
Victorian Building Regulations
Building Control Act
Building Code of Australia

CE192B Introduction to Construction Law
Two hours per week for one semester
Prerequisites: nil
Method of Teaching: Lectures, tutorials
Method of Assessment: Examination 80%, Assessed work 20%

Subject aims and description
A first year subject in the Degree of Building Surveying, intended 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.

Plan checking
Plan checking of domestic type applications.

Textbooks

References
Legal Resources Book. Fitzmy Legal Services

CE196 Communications
Two hours per week for two semesters
Prerequisites: nil
Method of Teaching: Lectures, tutorials
Method of Assessment: Assessed work 100%

Subject aims and description
A first year subject in the Degree of Building Surveying intended to introduce the students to techniques for developing basic skills in written and oral communications as well as an understanding of social and urban issues relevant to building surveyors.

References
Building Surveyor. Editor D. Wadsworth
Other references to be advised during lectures

CE204 Computer Application
Two hours per week for one semester
Prerequisites: nil
Method of Teaching: Lectures, tutorials, software, with verification by approximate analysis
Method of Assessment: Examination 70%, Assessed work 30%

Subject aims and description
A second year subject of the Degree in Building Surveying designed to enable students to understand the role and use of computers in industry. The subject covers: introduction to microcomputers, operating systems, language over views, hardware and applications packages.

Reference

CE211 Structural Mechanics
Three hours per week for two semesters
Method of Assessment: Examinations/Laboratory

Subject aims
To develop an understanding of structural behaviour in statically determinate and indeterminate systems and to introduce computer methods of structural analysis.

Subject description

Computational methods: development of the slope deflection equations and the matrix stiffness method of analysis. Trusses and continuous beams, introduction to plastic analysis of continuous beams.

Computer applications: modelling and analysis of a range of structures using frame analysis software, with verification by approximate methods.

Stress analysis: biaxial loading, torsion of circular and thin-walled closed sections, shear centre, skew bending, analysis of composite sections.

Textbook

Reference

CE231 Hydraulics
Three hours per week for two semesters
Method of Assessment: Examination 70%, Tutorials/Assignments/Lab work 30%

Subject aims
To enable students to apply the concepts of continuity, conservation of momentum, and energy losses to the flow of fluid, and to analyse a wide range of simple reservoir, pipe and channel systems.

Subject description
Statics: pressure, thrust, bouyancy, stability of floating vessels.
Fluid concepts: continuity, the one-dimensional energy equation, orifices, weirs, sluices, differential head meters. Momentum, forces on fittings, jet impact.

Model analysis: Reynolds and Froude models.

Flow: Darcy-Weisbach and Colebrook-Wh formulas, some empirical formulas
Analysis of pipe-reservoir systems.

Channel flow: Manning formula, part-full pipes, specific energy, Froude number, hydraulic jump.
Pumps: classification and principles of operation, pump and system characteristics.
Practical work: a series of short experiments designed to:
(a) demonstrate principles of fluid flow
(b) introduce simple flow measurement methods and equipment
(c) develop skills in handling and measuring water
(d) develop organisating and presenting skills

CE241 Surveying
Two hours of theory per week for two semesters and three hours of practical work for twenty weeks.
Method of Assessment: Examination (2) 80%, Practical surveying 20%

Subject aims
To develop a basic knowledge of surveying theory and practice in the use of levels, theodolites, electronic distance measurement, engineering survey drafting and computations with both calculators and microcomputer software.

Subject description
Setting out of circular curves, introduction to cadastral surveying.

CE243 Land Surveying
Four hours per week for one semester.
Prerequisites: nil
Method of Teaching: Lectures, tutorials, fieldwork
Method of Assessment: Examination: 70%, Assessed work: 30%

Subject aims and description
A second-year subject of the Degree in Building Surveying, designed to enable students to understand basic land surveying techniques and legal aspects of surveys as related to building surveying practice. Principles and types of surveys and plans. Distance measurement, levelling, angle measurement, setting out. Cadastral surveying and laws related to surveying, cadastre, fieldwork; surveys, old law, transfer of ownership. Land Act 1958 and title office procedures.

References

CE255 Structural Design
Three hours per week for two semesters.
Method of Assessment: Examination/Assignment/Laboratory

Subject aims
To introduce concepts and methods of structural design. To apply these principles to the design of structural elements in steel and concrete. To provide practice in the application of these principles.

Subject description
Design theory: Design theories: the design process, load versus strength, limit states of stability, strength and serviceability, permissible stress design, deformed to comply provisions.
Loads on structures: types of load, loading codes and building regulations, load paths in structures, conversion to loads on elements, modelling of structural forms.
Design of steel members subject to axial tension, compression, bending and combined bending and compression.
Design of simple steel welded and bolted connections — axially loaded single and double angles, beam and cantilever end connections, structural bases. Design of simple steel elements.
Analysis and design of plain and reinforced concrete elements, limited to statically determinate structures — including requirements of durability and fire resistance.
Concrete technology: characteristics of concrete and components, design of concrete mixes, additives, factors affecting performance.
Steel technology: deformation and fracture, heat treatment in relation to welding practice, welding processes, corrosion.

References
AS3600-1988 Concrete Structures
AS4100-1990 SAA Steel Structures Code

CE261 Road Engineering
Three hours per week for one semester.
Prerequisites: CE114 Applied Mechanics, SM193 Mathematics
Method of Teaching: Lectures, tutorials
Method of Assessment: Examination 70%, Assessed work: 30%

Subject aims and description
A second-year subject of the Degree in Building Surveying, intended 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.

References
AS4100 Steel Structures Code
AS1720 Timber Engineering Code
AS1684 Timber Framing Code
AS1298 Glazing in Buildings

CE276 Construction
Five hours in first semester.
Three hours in second semester.
Prerequisites: CE173 Construction
Method of Teaching: Lectures, tutorials, drafting classes, fieldwork
Method of Assessment: Examination 70%, Diary, Reports. Research Projects, Follof work: 30%

Subject aims and description
A second-year subject of the Degree in Building Surveying, designed 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 student to architectural and engineering detailing related to buildings.

References
Building Code of Australia
Concrete Code
Brickwork Code
Trade Catalogues
Ferguson, BJ. Reinforcement Detailing Handbook. Concrete Institute of Australia, 1988
CE277 Temporary Structures
Three hours per week for two semesters
Prerequisite: CE173 Construction
Method of Teaching: Lectures, tutorials, practical work, field work
Method of Assessment: Examination 70%, Reports 30%

Subject aims and description
A second-year subject of the Degree in Building Surveying, designed to give students an understanding of the general principles, structural details of scaffolding, falsework and formwork.

The subject is made up of three major sections:
- Part A Scaffolding A
- Part B Scaffolding B
- Part C Formwork and false work

This section covers the temporary structures used in the construction of buildings.

Textbooks
Scaffolding Act 1971
Scaffolding Regulations 1974

References
Formwork Code
Scaffolding Code

CE281 Geomechanics
Three hours per week for two semesters

Subject aims and description
A subject in the second year of the Degree in Civil Engineering which aims to develop an understanding of the fundamental principles of geology and soil mechanics, and apply these to simple engineering problems.

Geology: Significance of geology in civil engineering. Principles of mineralogy and petrology. Structural geology including deformed rocks. Geomorphology including ground water and weathering. Victorian stratigraphy. Engineering geology including site investigation. Practical and field work including mineral and rock identification, geological mapping, excavations.

Soil Mechanics: Soil types and physical properties. Classification and soil description. Geostatic stresses and the effective stress law. Soil hydraulics including permeability, flow nets, and anisotropic flow. Shear strength of coarse and fine grained soils including total and effective stress. Shear strength testing. Earth pressure theory for rigid and flexible retaining walls. Bearing capacity of shallow foundations.

Practical work including index tests, soil permeability and construction of flow nets, undrained triaxial test and direct shear test. Field work including a simple site investigation.

CE283 Geomechanics
Three hours per week for one semester

Method of Teaching: Lectures, tutorials, laboratory work, field excursions

Method of Assessment: Examination 70%, Reports 30%

Subject aims and description
A second-year subject of the Degree in Building Surveying, designed to provide a building surveyor with the necessary knowledge of geomechanics to enable him to perform his duties of inspection and approval of foundations and other earth works properly.

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.

References
Residential Footings Code
Site Investigations Code

CE294 Statutory Control
This subject consists of
CE294A Statutory Control/Plan Checking 2
CE294B Town Planning

CE294A Statutory Control/Plan Checking 2
Three hours per week for two semesters
Prerequisite: CE192 Statutory Control
Method of Teaching: Lectures, tutorials
Method of Assessment: Examination 70%, Assessed work 30%

Subject aims and description
A second-year subject of the Degree in Building Surveying, intended to give students an understanding of the major requirements and underlying principles in the regulations and acts pertaining to building control. This subject covers: administration aspects, functions of buildings surveyors, acts and regulations together with plan checking related to industrial and commercial buildings.

Textbooks
Victoria Building Regulations
Building Control Act 1981
Building Code of Australia

References
Relevant Australian standards

CE294B Town Planning
Two hours per week for one semester
Prerequisite: CE192 Statutory Control
Method of Teaching: Lectures, tutorials
Method of Assessment: Examination 70%, Assessed work, Assignments 30%

Subject aims and description
A second-year subject of the Degree in Building Surveying, which introduces students to problems in planned development in urban and rural environments.

The planning process: the purpose of planning, historical development of urban settlements, social effects of built environment, Administration of planning schemes, Residential planning standards. Basic surveys of planning, the use of remote sensors in urban planning. Introduction to data bases for planning purposes.

References

CE295 Engineering Management
Three hours per week for one semester

Method of Assessment: Written work 40%, Oral presentation 40%. Activity participation 20%

Subject aims
To introduce students to autonomous learning, problem solving, communication and basic management skills. To facilitate students' practice of these skills.

Subject description
Management practice

Students will be encouraged, through active participation, to acquire and develop the following basic management skills:
- problem analysis and problem solving,
- (independent) learning,
- time management,
- material comprehension and critical assessment of information: asking questions, reading drawings, reading technical information, note taking, listening,
- library information sources, teamwork and individual contributions, written and oral communications, preparation for and review of lecture material, interviews.

Management theory
- introduction to industrial organisations and organisation management systems,
- engineering in the junction with business management, people management and personal values.
CE297 Management
Two hours per week for two semesters
Prerequisite: CE196 Communications
Method of Teaching: Lectures, tutorials and field work
Method of Assessment: Examination 70%, Assessed work 30%

Subject aims and description
A second-year subject of the Degree in Building Surveying, which introduces students to accounting, financial reports and project evaluation. This subject includes: introduction to accounting and interpretation of financial reports, cost accounting, project evaluation, financial analysis techniques applicable to projects.

References
Swibbourne Institute of Technology and Royal Institute of Technology. Introductory Accounting and Finance for Management, 1985

CE301 Engineering Computing
Two hours per week for one semester
Method of Assessment: Assignments/Laboratory exercises

Subject aims
To develop an understanding of the operation and use of microcomputer systems in an engineering environment.
To introduce students to structured BASIC and Fortran languages.

Subject description
Introduction to microcomputers: basic architecture microprocessors, microcomputer systems peripherals, local area networks. Operating systems: role and function, review of MSDOS and windows. Languages: programming in structured BASIC, variables, flow control, procedures, arrays, scientific subroutines, simple I/O, file handling, introduction to Fortran.

References
Microsoft CD-ROM. Microsoft Programmers Library. Microsoft, 1989

CE311 Structural Mechanics
Three hours per week for one semester
Method of Assessment: Examination/Laboratory exercises

Subject aims
To develop an understanding of structural behaviour in skeletal frame systems with an emphasis on computer methods, balanced with approximate methods of analysis.

Subject description
Statically determinate structures: deflections by virtual work methods due to axial force, bending, shear and torsion. Statically indeterminate structures: flexibility method of analysis, applied to structures of one and two degrees of statical indeterminacy, moment distribution method applied to continuous beams and no-sway frames, effects of temperature, support settlement, mistfit of members, approximate analysis, matrix analysis by the general stiffness method. Plastic analysis of structures: applications to beams and frames. Elastic stability: fundamentals; stability of members (columns, lateral buckling of beams, beam-columns).
Introduction to structural dynamics: one degree of freedom systems.

Textbook

References

CE324 Urban Planning
Two hours per week for one semester
Method of Assessment: Examination/Assignments

Subject aims
To introduce students to urban planning and the role of the civil engineer in urban planning.

Subject description
Land use planning: the purpose of planning, history of settlements, urban and regional structure, land use planning models, housing, planning schemes, residential planning standards, physical and social surveys, planning legislation, landscape planning, shopping trends, inner city development.
Transport planning: transport planning models, local area traffic planning schemes, bicycle planning, parking, public transport, freight transport, pedestrian traffic management.

CE331 Water Engineering
Three hours per week for one semester

Subject aims
To apply the hydraulic principles presented in CE321 to the development of theory governing pipeline, channel and pump design and performance.
To introduce students to the science of hydrology with particular emphasis on the rainfall-runoff process.

Subject description
Steady closed conduit flow: pipe friction formulae, hydraulic energy grade lines, equivalent pipes to replace pipes in series and parallel, branching pipe systems, pipe networks, solution by Hardy-Cross method, surges in pipelines, pump and pipeline systems.
Hydrology: meteorological phenomena producing precipitation, measurement and analysis of precipitation, streamflow and stream routing, the run-off process in the hydrologic cycle, rainfall intensity-duration curves, determination of flood discharge.
Hydraulics of open channel flow: steady non-uniform flow phenomena, concepts of specific energy and critical depth of non-rectangular cross-sections, gradually varied flow, control sections and their use, direct step method of profile computation, numerical integrating method, classification of surface profiles, transitions, venturi flumes.

CE343 Surveying (Elective)
Three hours per week for one semester
Methods of Assessment: Assignment/Laboratory

Subject aims
To extend basic survey techniques for municipal engineering survey projects related to the use of total stations with data collectors for the production of plans with microcomputers.

Subject description
Trigonometrical and horizontal control surveys: introduction to map projections and the Australian Map Grid. Tacheometric surveys using EDM and total station techniques using microcomputer software for the production of enhanced computer generated contoured plans of engineering surveys.

References
GEOCOMP software manual by Survey Computing Consultants (publishers and authors), 1989

CE351 Structural Design
Six hours per week for one semester
Method of Assessment: Examination 60-70%, Assessment by consultation 30-40%

Subject aims
To extend students’ knowledge of the principles of structural design in steel and reinforced concrete. To introduce principles of timber design and prestressed concrete. Provide practice in the application of these principles.

Subject description
Design theory
Design principles appropriate to steel, timber, reinforced concrete and prestressed concrete, including tiered design methods and live load reduction and intensification.
Introduction to wind load code (AS 1170.2.1989).
Steel: design of beams, requiring detailed design of stiffeners and lateral restraints.
Steel: design of columns requiring consideration of no-sway and sway cases and baseplate details.
Timber: design of beams and columns, including their nailed and/or bolted end-connections.
Reinforced concrete: design of parts of a structure including beams, flat slabs, one-way and two-way footings, slender columns and walls. Reinforcement detailing.
Precast concrete: introduction to prestressed concrete, limited to determinate elements.
Design practice: Exercises in loads on structures and structural steel and concrete design.
Computer software may be used to assist the design process where appropriate.

CE355 Structural Engineering (Elective)
Three hours per week for one semester
Method of Assessment: Examination 50%, Laboratory and assignments 50%
Subject aims
To develop a high level of competence in the analysis and design of structures.
Subject description
Methods of structural analysis: first order linear, second order linear and non-linear analysis, with particular reference to codes of practice.
Elastic stability of frames, stability functions, geometric element stiffness matrix.
Design of steel structures: fabrication, erection, corrosion and fire protection, resistance to lateral loads, bracing systems, action under non-gravity loads.
Design of timber structures: glulam and LVL members, joint displacements, plate connections and multi-nail connections.
Design of concrete structures: modelling and analysis of three dimensional forms such as stairs, combined footings and flat slab systems, reinforcement detailing.

CE395 Engineering Management
Three hours per week for one semester
Method of Assessment: Examination 70%, Assignments and submitted work 30%
Subject aims
To introduce management fundamentals in business and construction management
Subject description
Management Fundamentals (28 hours)
General introduction to classical management theory.
Organisation: the nature of management, organisation structure, management structure, management functions, key function areas.
Finance: introduction to business finance, sources of funds, financial accounting, double entry bookkeeping through to trial balance, management accounting, costing capital investment, working capital.
Human aspects: introduction to human aspects and industrial relations, basic psychology, working groups, informal organisation, status, motivation, human resources management, industrial legislation affecting arbitration, employment, working conditions, introducing change.
Construction Management (14 hours)
Site organisation: organisation, procedures, duties and responsibilities of the client's and contractor's representatives.
Site safety: regulations and acts, safety precautions, codes of practice.
Operations analysis: time and motion studies, time lapse techniques, sampling of operations, queuing theory in determining economic haulage system.

CE403 Professional Projects
Two hours per week for one semester
Subject aims and description
A final-year subject in the Diploma in Building Site Surveying, designed to consolidate and integrate the various strands of the course and to develop students' self-education and communication skills further.
A written report or material submitted for a building permit or their preparation and assembly of documents to be submitted for a building permit.
Preparation of a written report on an approved project topic relevant to the course. Students are required to deliver a summary of their reports to their peers, academic staff and guests as a part of their assessment.

CE404 Computer Applications
Two hours per week for one semester
Prerequisite: CE204 Computer Applications
Method of Teaching: Lectures, laboratory work
Method of Assessment: Assessed work 100%
A final-year subject of the Degree of Building Surveying designed to enable students to be aware of and use common programs for administrative and technical areas of building surveying.
The subject covers external data bases, administrative software, technical and decision support software: awareness and use of systems such as BCAIDER, on-line enquiry systems. Major vendor installation: awareness and understanding of what is available from major vendors.
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.
Reference
Zwart, P.R. Microcomputers in Local Government. 1986. ACADS Code of Practice. CPR.

CE406 Water and Transport Engineering (Elective)
Four hours per week for one semester
Method of Assessment: Examination 70%, Assignments and laboratory 30%
Subject aims
To extend students' knowledge and skills in the areas of transport engineering and water engineering.
Subject description
Transport Engineering (28 hours)
Road traffic: flow theories, human performance, vehicle characteristics. Arterial road traffic management.
Signals: saturation flow of opposed turns, traffic detection, filter turns, layout of hardware.
Road materials: properties of and tests for mastic building materials, rheology of bitumens, skid resistance.
Railway engineering: conventional railway track, track design and sign at geometry, track construction. High speed railways. per rail railways.
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
Five hours per week for one semester
Method of Assessment: Examination 50%, Assessment by consultation 30%, Laboratory and assignments 20%
Subject aims
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.
Subject description
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.
CE416 Structural Engineering (Elective)
Four hours per week for one semester
Method of Assessment: Assignments 100%

Subject aims and description
- To introduce advanced topics in structural engineering analysis and design with a particular emphasis on computer application.

Subject aims
To introduce advanced topics in structural engineering analysis and design with a particular emphasis on computer application.

Subject description
- 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.

CE422 Urban Planning
Two hours per week for one semester

Subject aims and description
An final-year subject in the Diploma in Building Surveying, which further develops students' understanding of the planning process.

Subject aims
To enable students to apply principles of hydraulics to the design of water engineering systems.

Subject description
- 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:
    - (a) the meaning of key water quality parameters
    - (b) simple procedures suited to field measurement and monitoring.
- Hydraulic experiments to demonstrate the performance of stormwater structures.

CE452 Structural Design
Four hours per week for one semester

Subject aims and description
A final-year subject in the Diploma in Building Surveying designed to familiarise students with the relevant codes of practice for concrete and masonry structures and to highlight important design requirements by considering selected case histories of structural failures.

Subject aims
To familiarise students with the relevant codes of practice for concrete and masonry structures.

Subject description
- Discussion of the major regulations and their underlying principles for codes and regulations for the following:
  - Concrete structures, structural brickwork, prestressed concrete.
  - Structural failures: brief case histories chosen to illustrate design criteria.
  - Practical work: checking of selected structural design.

CE454 Structural Design
Four hours per week for one semester
Prerequisite: CE256 Structural Design
Method of Teaching: Lectures, tutorials
Method of Assessment: Examination 60%, Assessed work 40%

Subject aims and description
A final-year subject of the Degree of Building Surveying, designed to familiarise students with the relevant codes of practice for concrete structures and for masonry structures.

Subject aims
To familiarise students with the relevant codes of practice for concrete structures and for masonry structures.

Subject description
- The main topics covered are structural design: loads on structures, analysis methods, Design methods, Steps in the checking of structural design, Checks of structural drawings — an overview. Concrete structures code. Masonry code.

References
- AS3600 Concrete Structures Code
- AS3700 Masonry Code

CE461 Transport Engineering
Three hours per week for one semester
Method of Assessment: Examination 80%, Assignment 20%

Subject aims
To enable students to become proficient in the areas of traffic engineering, flexible pavement design, and road geometry.

Subject description
- Theory:
  - Traffic engineering: design, analysis and presentation of results for twelve types of traffic surveys. Highway capacity, uncontrolled capacity, saturation flow for signalised intersections (no opposite turns). Design of al-grade intersections.
  - Flexible intersections: principles, analysis, design. Design of sprayed seal, design of asphalt base and top seal.
  - Road geometry: speed parameters, sight distance, horizontal curves, vertical curves, auxiliary lanes.
  - Practical work and field experience:
    - One traffic survey and its analysis.

CE470 Services
Two hours per week for one semester
Prerequisite: MM269 Services
Method of Teaching: Lectures, field excursions
Method of Assessment: Examination 60%, Assessed work 40%

Subject aims
A final-year subject of the Degree of Building Surveying dealing 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 drainage hydrology: surface and subsurface drainage: elements of hydrology, application to roof and site drainage, Groundwater. Hydraulics of pressure conduits: total energy line, hydrants hydraulic grade line, energy components, graphical representation, pipe friction formulae, minor losses, pump selection.

References
- Relevant Australian Standards and Codes of Practice.

CE474 Building Structures
Three hours per week for one semester

Subject aims and description
A final-year subject in the Diploma in Building Surveying, designed to extend students' knowledge of structural behaviour and demolition techniques, and to give them an appreciation of storm water drainage.

Subject aims
To extend students' knowledge of structural behaviour and demolition techniques.

Subject description
- Structural systems: principles of structural action and methods of construction for precast and prefabricated structures, shells, folded plate structures, cable and membrane structures, air-inflated structures, highrise post-tensioned structures, etc.
- Cranes and lifting devices.
Demolition: regulations, methods, equipment, shoring, design for demolition, demolition of prestressed buildings.

Stormwater drainage: hydraulics, surface and subsurface drainage, elements of hydraulics, applications to roof and site drainage. Groundwater. Hydraulics of pressure conduits: total energy line, hydraulic grade line, energy components, graphical representation, pipe friction formulae, minor losses, pump selection.

CE475 Fire Engineering
Three hours per week for one semester

Subject aims and description
A final year subject of the Diploma of Building Surveying, designed to give students an appreciation of the general principles, structural details of special structures, and methods of construction for fireproof and fire resisting structures, shells, folded plate structures, cable and membrane structures, high-rise post-tensioned structures, and other structural and insulations of appropriate sites.

Performance of structural materials: structural members and structural systems under fire. Measures to provide elements and structures with fire resistance. Australian Fire Test Standards. Overseas tests and Standards. Site inspection of fire damaged structures. Fire reports.

CE476 Construction Engineering (Elective)
Four hours per week for one semester Method of Assessment: Assignments 50%, Oral presentations 50%

Subject aims
To introduce students to engineering practice in a range of construction activities.

Subject description
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, survey operation, stabilisation of subgrades. Roller compaction, paver, block pavement, geotechnics, layout of road works, administration of road works.

Concrete: production, delivery and inspection, crushed aggregate and sand, concrete, cement, 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.

CE477 Construction
This subject has three components

CE477A Construction 3
Three hours per week for one semester

Prerequisite: CE276 Construction
Method of Assessment: Examination 60%, Reports 40%

Subject aims and description
A final-year subject of the Degree of Building Surveying designed to give students an appreciation of the general principles and structural details for multi-storey structures.


References
Economic Steel AISC
Various Australian Standards

CE477B Construction 4
Three hours per week for one semester

Prerequisite: CE276 Construction, CE477A Construction 3
Method of Assessment: Examination 60%, Reports 40%

Subject aims and description
A final-year subject of the Degree of Building Surveying designed to give students an appreciation of the general principles, structural details of special structures. The topics are principles of structural action, materials, structural systems, fire resisting structures, high-rise post-tensioned structures, and other structural and insulations of appropriate sites.

References
To be advised.

CE477C Foundation Systems
Three hours per week for one semester

Prerequisite: CE276 Construction
Method of Teaching: Lectures, laboratory work, field excursions
Method of Assessment: Examination 60%, Reports 40%


Textbooks
AS2870-1 Residential Footing Code Standards — Australia

References
Das, B.M. Principles of Geotechnical Engineering
Site Investigations Code

CE478 Fire Technology
Two hours per week for two semesters

Prerequisite: CE276 Structural Design
Method of Assessment: Lectures, tutorials, field excursions
Method of Assessment: Examination 60%, Assessed work 40%

Subject aims and description
A final-year subject of the Degree of Building Surveying which 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.

The subject covers: causes of fire, products of fire, fire and smoke detection, fire 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.

References
AS1668 Mechanical Ventilation and Air Conditioning
Butcher and Purnell. Design for Fire Safety


CE481 Geomechanics
Three hours per week for one semester

Method of Assessment: Examination Laboratory

Subject aims
To enable students to design simple foundations considering both soil strength and settlement characteristics, to estimate the stability of soil slopes, and to apply the basic principles of site investigation.

Subject description
Performance of shallow foundations including raft and consolidation settlement, bearing capacity for inclined eccentric loads.
loads, and at tensions. Deep foundations including the settlement of single piles and pile groups. Slope stability: slopes in cohesiveless soils, cohesive soils, total and effective stress analysis including friction circle method, 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, in situ tests.

References
AS1726-1981 SAA Site Investigation Code
AS2870-1986 Residential Slabs and Footings
AS2169-1987 SAA Piling Code
Das, B.M Principles of Geotechnical Engineering. PWS Kent

**CE495 Engineering Management**
Three hours per week for one semester
Method of Assessment: Examination 40%, Assignments 40%, Class participation 20%

**Subject aims**
To develop an understanding of some aspects of the theory and practice of business management and construction techniques.

**Subject description**
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.

**References**
Relevant Australian Standards

**CE496 Statutory Control**
This subject has three components

**CE496A Statutory Control/Plan Checking 3**

**CE496B Statutory Planning**

**CE496C Professional Projects**

**CE496A Statutory Control/Plan Checking 3**
Five hours per week for one semester
Prerequisite: CE294 Statutory Control
Method of Teaching: Lectures, tutorials
Method of Assessment: Examination 60%, Reports 40%

**Subject aims and description**
A final-year subject of the Degree of Building Surveying, intended to further develop students' understanding of the principles underlying the relevant regulations, acts, codes and standards and their application to major projects.

The subject covers: 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 acts 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.

**Textbooks**
Building Code of Australia
Building Control Act
Victoria Building Regulations

**References**
Relevant Australian Standards

**CE496B Statutory Planning**
Two hours per week for one semester
Prerequisite: CE294 Statutory Control
Method of Teaching: Lectures, tutorials, field work
Method of Assessment: Project work 100%

**Subject aims and description**
A final-year subject of the Degree of Building Surveying, which deals with the regulatory and statutory aspects of urban planning.
Topics covered are:

References
Appropriate Planning: Acts and Regulations

CE496C Professional Project
Six hours per week for one semester
Prerequisites: CE294 Statutory Control
CE496A Statutory Control/Plan Checking 3
CE496B Statutory Planning
Method of Teaching: Project work
Method of Assessment: Oral presentation 30%, Final report 70%

Subject aims and description
A final-year subject of the Degree of Building Surveying, intended to develop students' initiative and self-education skills through work in an investigation project in an area relevant to the course.

References
As per other Statutory Control subjects

CE505 Investigation Project
Four hours per week for one semester
Method of Assessment: Poster paper and oral presentation 10%, Final report 90%

Subject aims
To develop students' initiative and self-education skills through work on an investigation project in an area relevant to the course.

CE507 Municipal and Transport Engineering (Major Elective)
Five hours per week for one semester
Method of Assessment: Assignments/Laboratory Work

Subject aims
To extend students' knowledge and skills in the areas of transport engineering, water engineering and municipal engineering, including environmental considerations.

Subject description
Transport Engineering (28 hours)
Freight transport: shipping, harbours, dredging, cargo containers, inland waterways, belt conveyors, air freight, solids pipelines.

CE533 Water Engineering (Minor Elective)
Three hours per week for one semester
Method of Assessment: Examination 60%, Assignments 40%

Subject aims
To extend students' knowledge and skills into unsteady, non-uniform flow phenomena. On completion, students should be able to apply these principles to the solution of practical problems.

Subject description
Flood estimation methods, flood routing through reservoirs and retarding storage, routing, graphical methods, application of computers in analysis and design.

CE553 Structural Design (Minor Elective)
Three hours per week for one semester
Method of Assessment: Examination 60%, Assignments 40%

Subject aims
To extend students' knowledge and skills into unsteady, non-uniform flow phenomena. On completion, students should be able to apply these principles to the solution of practical problems.

Subject description
A selection of more advanced structural design projects chosen to emphasise the interpretation of current design codes and the current design practices.

CE555 Civil Design
Five hours per week for one semester

Subject aims
To develop students' abilities to apply theoretical knowledge to a range of practical design situations.

Subject description
A range of designs will be chosen from structural and civil engineering areas of the course. Assignments which require creative solutions will be included. Design solutions may be in the form of written reports, design computations, drawings and models, as appropriate.

In addition, all students will be given a series of lectures in the design process aimed at coordinating activities involved. Particular reference will be made to legal processes and statutory requirements, permits and regulations.
CE576 Construction Engineering (Major Elective)

Five hours per week for one semester

Subject aims
To develop students' knowledge and skills in the construction area.

Subject description
The construction industry: organisation, economy and opportunities, entrepreneurial construction activities, types of contract, design and construct contracts, project management, fast track. Plant: output and performance of bulldozers, tractor scrapers, excavators, truck cycles.

Road construction: quarry operation, selection, performance and price of road plant; quality control, stabilisation of bituminous, roller compacted pavements, block pavements, geotextile road surfaces and other construction requirements. Structures: construction of precast and prestressed concrete elements. Tunneling: soft ground and rock tunneling, 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. 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.

CE582 Geomechanics (Minor Elective)

Three hours per week for one semester

Method of Assessment: Assignments/Laboratory work 100%

Subject aims
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.

Subject description
Earth pressure problems, braced excavations, tie-back walls and soil anchors: introduction to soil dynamics; introduction to rock mechanics; further selected topics in soil engineering and engineering geology.

CE596 Engineering Management

Five hours per week for one semester

Subject aims
To make students aware of the role of the engineer in society and of the effects of man on the environment. To extend basic management concepts introduced earlier in the course into specific areas of manufacturing and operations, and to give students a background into some common and important construction practices.

Subject description
The engineer and society

The role of the engineer in society, professional institutions, professional ethics.

Environmental engineering

Global ecology, conservation and sustainable use of renewable resources, control of use of waste resources, values of natural systems, wilderness and landscape, environmental impact assessment, environmental rehabilitation.

Project management


Formwork: design and certification of formwork.

Finance

Budget: 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 laws: acts and legislation relevant to major projects.

CE670 Construction Technology

Four hours per week for one semester

Teaching Method: Lectures/Tutorial/Discussion

Assessment: by assignment work

Subject aims
To develop a knowledge of a technological resource available for the execution of a construction project.

Subject description
Planning of construction programs, resource allocation, plant and equipment, soil investigation and data interpretation, construction materials, and techniques.

Textbooks


References


Practical work

Site visit; training films on plant handling, syndicate discussion or plant choice etc.

CE690 Civil Engineering Project Control

Four hours per week for one semester

Teaching Method: Lecture/Tutorial/Discussion

Assessment: by assignment work

Subject aims
To introduce the techniques for establishing and maintaining control of a project.

Subject description

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.

Textbooks


References


CE691 Civil Engineering Management

Four hours per week for one semester
Teaching Method: Lecture/Tutorial/Discussion
Assessment: by assignment work

Subject aims
To develop an awareness of efficient site management techniques.

Subject description
Theories of project management; responsibilities of project manager; responsibilities of site engineers; construction site organisation; site office procedures; contractor principal relations; industrial arbitration; company structures; personnel management; negotiations; arbitration and conciliation.

Textbooks

References
Grant, J.V. and Smith, G. Personnel Administration and Industrial Relations. 3rd edn, London: Longman, 1984
Hyman, R. Strikes. Fontana, 1984

Practical work
Site visits.

CE692 Communications

Four hours per week for one semester
Teaching Method: Lecture/Tutorial/Discussion
Assessment: written reports and class presentations

Subject aims
To develop the students' understanding and practice of communication both written and verbal.

Subject description
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 communication 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.

Textbook

References

Practical work
Participation in class discussions is required.

CE693 Introduction to Contract Law

Teaching Method: Lectures/Tutorials
Assessment: by assignment work

Subject aims
A subject in the Master of Technology (Construction) 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.

Subject description
Contract types, construction documents, conditions of contract, choice of contract type relating to risk and financial considerations, site documentation, computer applications for site administration of contracts.

Textbooks

References

CE770 Construction Engineering

Four hours per week for two semesters
A subject in the Graduate Diploma in Civil Engineering Construction reviewing construction techniques for civil engineering projects.

Construction techniques for highways, bridges, railways, airports, tunnels, pipelines, foundations, buildings, dams, water supply structures, sewers.

CE771 Construction Project Control

Four hours per week for one semester
A subject in the Graduate Diploma in Civil Engineering construction which introduces students to a critical study of all aspects of a construction project.

Case studies of construction projects by report and discussion.

CE772 Construction Technology

Teaching Method: Lectures/Tutorials
Assessment: Assignment work

Subject aims
To develop an understanding of construction and building systems and their most efficient use.

Subject description
Construction and building systems: prediction of performance; cost of production; system optimisation; computer based system modelling; maintenance and safety.

Textbooks
Harris, F. and McCafer, R. Modern Construction Management. 2nd edn, London: Granada, 1983

Practical work
Computer modelling of systems.

CE773 Research Project

Teaching Method: Practical work requiring regular meetings with supervisors.
Assessment: by written reports, thesis and presentations
A subject in the Master of Technology (Construction).

Subject aims
To develop students' knowledge, initiative and self education skills through work on a research project in an area relevant to the course.

Subject description
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.
CE790 Financial Project Control
Four hours per week for one semester

Subject aims and description
A subject in the Graduate Diploma in Civil Engineering Construction which introduces financial concepts that are important in evaluating projects, in financing projects, and in determining the profitability of projects. Cost control; financial control; determination of profitability; evaluation of projects; evaluation of sources of finance.

CE791 Human Resource Management
Teaching Method: Lectures/Tutorials/Seminars
Assessment: Assignment work and seminar papers

Subject aims
To make the student aware of the technique of human resource management.

Subject description
Client — contractor, sub-contractor relations; safety, personnel administration; individual and group psychology; industrial psychology, structure and role of the trade unions; human resource management.

Textbooks

References

Practical work
Visit arbitration court.

CE792 Health and Safety in Construction
Teaching Method: Lectures/Tutorials/Seminars
Assessment: Assignment work and seminar papers

Subject aims
To make the student aware of the effect of construction work on society and the environment.

Subject description
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.

Textbook
Ashfield, C.R. Industrial Safety and Health Management

References
Hoyos, CC. Occupational Safety and Accident Prevention, Amsterdam: Elsevier, 1988

Practical work
Assignment work and seminar papers. Inspection of site work.

CE793 Construction Law
Teaching Method: Lectures/Tutorials/Seminars
Assessment: Assignment work and seminar papers

Subject aims
To give the student an appreciation of the legal and contractual responsibilities within construction operations.

Subject description

Textbooks

References
Carter, J.W. Guidebook to Contract Law in Australia. 4th edn, North Ryde, N.S.W.: CCH Australia, 1991

CE794 Financial Management
Teaching Method: Lectures/Tutorials/Seminars
Assessment: Assignment work and seminar papers

Subject aims
To give the student knowledge of the financial consideration of company operations from site level to financial strategy.

Subject description
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.

Textbooks

References
Falls Management Institute, Financial Management For Contractors, McGraw-Hill, 1981
Gobourne, J. Site Cost Control in the Construction Industry, Butterworths, 1982

Practical work
Computer modelling.

EA411 Non-Newtonian Technology
Four hours per week for two semesters
Assessment: Laboratory work and examination

A subject in the Graduate Diploma in Chemical Engineering.

Subject aims
To provide the student with a thorough understanding of Non-Newtonian flow and heat transfer.

Subject descriptions
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.

References
EA491 Biochemical Engineering

Four hours per week (including practical work) for two semesters.
Assessment: by examination.
A subject in the Graduate Diploma in Chemical Engineering.

Subject aims
To give students a grounding in the theory and practice of biological processes used in engineering.

Subject description
Requirements for growth in biological material: variations in microorganisms; 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.

References

EE188 Engineering Science, Electronics and Computing

Five hours per week for two semesters.

A first year subject in all engineering degree courses. Part-time students may undertake this subject in separate components as follows:

**EE188A**
Electronics — 3 hour per week for 2 semesters.

**EE188B**
Physics — 2 hour per week for 1st Semester.

**EE188C**
Computing Systems — 2 hours per week for 2nd Semester.

Subject aims and description

**Electronics**

Semester 1

- DC Circuits (Physics): $\epsilon$, $\delta$, $\psi$, series and $\epsilon$, $\delta$, $\psi$, parallel.$\text{ conductivity, temperature }$.
- Ideal Circuit Elements (Electronics): Resistance, Inductance, Capacitance, voltage sources, current sources, energy storage and energy dissipation.
- Atomic Physics (Physics): Photo electric effect. Atomic model: Bohr atom, energy levels, light emission and absorption, spectra of hydrogen. X-rays: production, characteristics, Bremsstrahlung.

Semester 2

- Energy Transfer and Utilization: Power calculations: instantaneous average power, reactance power and volatamps, power factor, apparent power and power triangle. Power, voltage current, and energy measurement.
- Electromagnetic Energy Conversion: The elements of a power generation and distribution system.

Computing Systems

Semester 2

Brief history of computing, introduction to computer systems, the disk operating system (DOS) and the Turbo Pascal development environment. Introductory Pascal including syntax diagrams, fundamental elements of structured programming, control structures, elementary types, $\text{void}$, $\text{void}$, $\text{arrays}$, procedures, functions, variables and variable types, pre-defined functions, identifier scope, enumerated types, sets, records, with statements, text files. Elementary input/output interface techniques using Pascal.

Prescribed texts

Reference texts

EE254 Electrical Design

Two hours per week for two semesters.

Prerequisites: EE188 Electronics, Circuits and Computing.

Method of instruction: Lectures/Tutorials/Laboratory

A second-year subject in the Degree of Electrical Engineering.

**Subject aims**
To introduce the principles of coil design, heating and cooling, DC power supply design, printed circuit board design, amplifier design and programmable logic controllers.

**Subject description**
Introduction to electrical design: electrical, magnetic and physical properties of materials.
- Coil design: series and shunt coils. Winding area, space factor, temperature rise and power dissipation. Project.
- DC power supplies: transformers, rectifiers, regulators and IC regulators. Split supply project.
- Printed circuit board design: track sizing, standards, construction methods and software tools.
- Amplifier design: BJT amplifiers, bias conditions and small signal models. Two stage amplifier design project. Software tools. Introduction to programmable logic controllers.

Texts/References

EE258 Electrical Machines

Four hours per week for two semesters.

Prerequisites: EE188 Electronics, Circuits and Computing.

Method of instruction: Lectures/Tutorials/Laboratory

Method of assessment: Examination/Assignment

A second-year subject in the Degree of Electrical Engineering.
Subject aims
To introduce the principles of magnetic circuits, electromechanical energy conversion, transformers, induction machines and power electronics.

Subject description


References

EE263 Computer Systems Engineering
Three hours per week for two semesters
Prerequisites: EE188 Engineering Science, Electronics and Computing
Method of Instruction: Lectures/Laboratory
Method of Assessment: Examination/Assignment Laboratory

A second-year subject in the Degree in Electrical Engineering

Subject aims
For students to demonstrate a sound understanding of data abstraction and structured programming in PASCAL, and basic computer organisation.

Subject description
Data structures: PASCAL pointer types, lists, stacks, queues, trees, directed and undirected graphs and algorithms for the manipulation of these structures, file types and organisations.


Internal representation of data types. Integer and floating point arithmetic.

References

EE282 Communication Principles
Two hours per week for two semesters
Prerequisites: EE188 Electronics. Circuits and Computing
Method of Instruction: Lecture/Tutorials/Laboratory
Method of Assessment: Examination/Assignment

A second-year subject in the Degree in Electrical Engineering

Subject aims
To introduce the principles and applications of communication systems.

Subject description

Texts

References
Stenema, W. Digital Analog and Data Communications. Reston, 1982

EE283 Electrical Circuits
Three hours per week for two semesters
Prerequisites: EE188 Electronics. Circuits and Computing
Method of Instruction: Lecture/Tutorial/Laboratory
Method of Assessment: Examination/Assignment Laboratory

A second-year subject in the Degree in Electrical Engineering

Subject aims
The aim of this subject is to consolidate the circuit theory topics dealt with in previous subjects and to give students a firm foundation of circuit analysis techniques used in electrical engineering.

Subject description
Circuit elements: review R, L and C as element showing relations between v and i for each including response to sinusoid (complex numbers). Dependent sources. Non-linear elements in circuits.

Circuit analysis: revision of SUPERPOSITION, THEVENIN, and NORTON (includes dependent sources). Tee-πi transformations. Formation of MESH and NODAL equations (dc and ac circuits) to the stage of writing equations in matrix form. INTRODUCTION to maximum power transfer for dc and ac circuits. Locus diagrams.

Three phase circuits: introduction to 3 phase voltage generation. PHASOR diagrams. 3 phase connections and solution to problems. Power and power measurement. VAR correction.

Mutual inductance: concepts of common flux, flux linkages and induced voltages. Treatment as a circuit element in mesh and nodal equations.

Two port networks: parameters used for 2 port networks inc. Z, Y, cascade and hybrid, showing how the connection of the networks will decide on which parameters are to be used. Defining π and calculating their values.

Non-sinusoidal Waveforms: this topic examines the response of linear networks to various periodic non-sinusoidal waveforms, and non-periodic inputs. The Fourier series and integral Fourier Transform is used as a tool for this analysis. The Fast Fourier Transform is also introduced.

Faculty of Engineering
Electrical transients:
(a) Classical approach: the response of first order circuits (R-L & R-C) and second order circuits (RC series or parallel) to step and sinusoidal excitations will be studied using the differential equation approach.
(b) Laplace techniques: these techniques will be applied to more general circuits and excitations by transforming the circuit and writing circuit equations in terms of the Laplace operator “s” before inverting to the time domain.


Texts

References
Benson and Harrison. Electric Circuit Theory. 621.31921 BBN: E

Suggested work book

EE287 Electronics
Three hours per week for two semesters
Prerequisites: EE188 Electronics, Circuits and Computing
Method of Instruction: Lectures/Laboratory
Method of Assessment: Examinations/Assignments

A second-year subject in the Degree in Electrical Engineering.

Subject aims
To provide an introduction to the operation and analysis of electronic devices, both analog and digital.

Subject description
Solid state devices: non-linear and linear electrical models, for BJTs, JFETs, and MDSFETs, and their use in analysis of switching and analog signal processing applications.

Basic integrated circuit logic technologies: TTL and CMOS electrical characteristics, ECL and MOS overview.

Combinational logic: SSI, MSI, common gate, standard symbols and behavioral descriptions. System design techniques using MSI, ROMs, and PLAs.

Sequential logic: analysis of bistable and monostable circuits, behavior of latch, master-slave and edge triggered flip-flops. MSI registers and counters.

Synthesis of system controllers using finite state machine behavioral descriptions using MSI and PLDs.

Text/References

EE336 Computer Systems Engineering
Four hours per week for one semester
Prerequisites: EE287 Electronics
Method of Instruction: Lectures/Laboratory
Method of Assessment: Examination/Assignment

A third-year subject in the Degree in Electrical Engineering.

Subject aims
To develop a sound understanding of the basic elements of software engineering.

Subject description
Introduction to software engineering including, software life-cycle and the design process using appropriate graphical representations.

Comparison of single-process, multi-process and real-time operating systems introducing such basic concepts as script files, scheduling and resource allocation.

Brief introduction to C language building upon familiarity with PASCAL.

Computer architecture including representative microprocessor architectures and in particular the Motorola M680XX family architecture; the Intel I80XXX architecture will be briefly compared with the Motorola architecture. Programmer’s model (register set, memory structure, addressing model). Instruction set overview.

Suitability of a machine architecture to support high-level languages. Interrupts and asynchronous I/O processing.

Physical implementation of memory, bus structure, memory elements, address decoding, memory read/write cycles, timing diagrams and access timing. Peripheral devices. Interrupt hardware.

Programming will emphasise the use of high-level languages as a first choice with the techniques for the selective use of machine code for time-critical program regions.

Texts

EE338 Electromagnetic Fields
Two hours per week for one semester
Prerequisites: SP294 Engineering Mathematics, SP294 Engineering Physics
Method of Instruction: Lectures/Tutorials
Method of Assessment: Examination/Assignment

A third-year subject in the Degree in Electrical Engineering.

Subject aims
To review the basic laws of electromagnetism, and to extend the application of these laws to transmission line performance and to free space propagation.

Subject description
Magnetic flux and flux linkage; Ampere's law, Faraday's law.

Field conditions at material interfaces. Poisson’s equation; Laplace’s equation.

Solution of electrostatic field problems; solutions of Laplace’s equation.

Application of image and finite difference methods. Two terminal representation. Multiple conductor systems; calculation of partial and total capacitances.

Solution of magnetostatic field problems: magnetic vector potential. Mutual inductance, internal and external self inductance.

Electromagnetic waves: time varying fields; magnetic induction, displacement current. TEM waves in free space, phase velocity, intrinsic impedance.

Transmission lines: field and circuit analysis of transmission lines; propagation constant, characteristic impedance. Discontinuities in and termination of lossless transmission lines; reflections and standing waves, input impedance, impedance matching; steps and pulses on lines.


Refraction, total internal reflection. Guided waves between dielectric-dielectric and dielectric-conductor interfaces.
EE384 Electrical Power and Machines

Three hours per week for one semester
Prerequisites: EE256 Electrical Machines
Method of Instruction: Lectures/Tutorials/Laboratory
Method of Assessment: Examination/Assignments

A third-year subject in the Degree in Electrical Engineering.

Subject aims
To extend the treatment of transforms to the three phase case; to extend the treatment of the induction motor to a full consideration of steady state behaviour; to introduce the step motor and the brushless d.c. motor. To extend the work in power electronics.

Subject description
Power electronics: devices. Extension of work to cover the thyristor family of devices.

Power transistors: power bipolar junction transistor, power MOSFET and the insulated gate bipolar transistor. Applications A.C. to D.C. conversion using a lagging power factor load including the D.C. motor. Fully and partly controlled conversion, generation of harmonic and power factor control. D.C. to A.C. conversion. The use of power transistors in inverter circuits as applied to an uninterruptible power supply and the variable frequency control of the speed of an induction motor. Battery technology and alternative energy sources.


References

EE386 Electronics

Three hours per week for one semester
Prerequisites: EE287 Electronics
Method of Instruction: Lecture/Tutorial/Laboratory
Method of Assessment: Examination/Assignments

A third-year subject in the Degree in Electrical Engineering.

Subject aims
To develop the principles of negative feedback amplifiers, and digital/analog system interfacing.

Subject description

EE388 Communications

Three hours per week for one semester
Prerequisites: EE282 Communication Principles
Method of Instruction: Lectures/Laboratory
Method of Assessment: Examination/Assignments

A third-year subject in the Degree in Electrical Engineering.

Subject aims
To present an introduction of the basic analysis tools and techniques of digital processing of signals outlining advantages and drawbacks and limitations.

Subject description
Principles and applications of discrete systems.
- Basic concepts of signals and discrete systems, including the sampling theorem.
- Discrete models for linear time invariant systems and analysis techniques.
- Sinusoidal steady state analysis of discrete systems, inclusive of the frequency response and some fundamentals of digital filtering.
- Applications of the Z-transform to discrete system analysis.
- The discrete Fourier series and its use.
- Introduction to the Fast Fourier Transform and its uses.

References

EE389 Linear Systems and Control

Four hours per week for one semester
Prerequisites: EE283 Electrical Circuits, EE256 Electrical Machines, SM294 Engineering Mathematics
Method of Instruction: Lecture/Laboratory
Method of Assessment: Examination/Assignments

A third-year subject in the Degree in Electrical Engineering.

Subject aims
To introduce the concept of feedback in a linear system and to develop analytical techniques to solve linear control systems problems.

Subject description


Analysis of linear systems: the linear single input continuous signal system. Use of classical time domain, transfer functions and frequency response techniques. The second order system. Stability criteria; S plane and frequency response. Analogue computer techniques. Analysis of an electromechanical systems.

Control concepts: control strategies. Open and closed loop systems and feedback. Classification of control systems.

Control system representation: formulation of mathematical models. Transfer functions and block diagrams. Graphical representation of systems — the S plane, the root locus plot, the frequency plot of transfer functions. Stability and steady state performance.

References
SM394 Engineering Mathematics

Three hours per week for one semester
Prerequisites: SM299 Engineering Mathematics
Method of Instruction: Lectures/Tutorials
Method of Assessment: Examination/Assignments

A third-year subject in the Degree in Electrical Engineering.

Subject aims
To provide the fundamental numerical techniques and the tools of d i mathematics which are indispensable to the modern engineer.

Subject description
Numerical methods — numerical solution of linear and non linear algebraic equations; introduction to finite difference methods for ordinary and partial differential equations, applications.

Z transforms — an introduction to the Z-transforms and its properties.
Discrete mathematics — mathematical logic, counting methods, recurrence relations, applications.

Prescribed course material

References

EE403 Engineering Project Management

Prerequisites: Nil
Method of Instruction: Seminars
Method of Assessment: Assignment

A fourth-year core subject in the Degree in Electrical Engineering. This subject is to be taken during the students’ 2nd industrial period. There will be no formal lectures for this subject. Students will work from a text and submit a combination assignment.

Subject aims
To provide students with an understanding of engineering project management in both personnel and plant management.

Subject description
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, planned approach, developing schedules and measurable milestones, planning, software for computer-assisted resource scheduling and program planning.
Control of technical work; available software, optimizing resources, measurement of performance, tools for measurement and reporting.

Project management methodology; definition phase, planning phase, scheduling phase, control phase, advantages of project management.

Textbook

EE456 Electrical Design

Three hours per week for one semester
Prerequisites: EE384 Electrical Power and Machines, EE386 Electronics
Method of Instruction: Lectures
Method of Assessment: Assignment

A fourth-year subject in the electrical power and control engineering stream of the Degree in Electrical Engineering.

Subject aims
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.

Subject description

Electrical materials: mechanical and electrical properties of conductors and insulators.

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 sup Students are expected to carry out the preliminary design pro up to the stage of the costs and to complete the final stage of the process as their final year.

Text/References
To be advised.
EE458  Electrical Design
Three hours per week for one semester
Prerequisites: Completion of the 3rd year of the Degree in Electrical Engineering
Method of Instruction: Lectures
Method of Assessment: Examination/Assignment
A fourth-year subject in the communications and electronics stream of the Degree in Electrical Engineering.

Subject aims
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.

Subject description
The process of design, functional partitioning, hardware description languages, basic features of VHDL, design entities, architectural bodies, block diagrams, statements, 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 simulation in parallel, human engineering, reliability considerations, maintainability, documentation. Preparation of a research project and a technical poster.

Text/References
To be advised.

EE459  Electrical Design
Three hours per week for one semester
Prerequisites: EE363 Computer Systems Engineering
Method of Instruction: Lectures
Method of Assessment: Test/Assignment
A fourth-year subject in the computer systems engineering stream of the Degree in Electrical Engineering.

Subject aims
For students to develop and demonstrate a sound understanding of the various aspects of digital system design.

Subject description
Aspects of digital system design including a formal treatment of design for testability including observability sequences including self test and automatic fault isolation and the smallest replaceable component. Redundancy schemes, ECC in memory systems. Algorithms for simulation, partitioning, placement and muting. An introduction to hardware description languages and automatic synthesis.

Students select a design topic and carry out a formal design study which may be completed in the fifth year of the course as their design project.

Texts/References
IEEE Design and Test of Computers Magazine
IEEE Transactions on Computers
Proceedings of Design Automation Conferences

EE465  Engineering Systems Software
Four hours per week for one semester
Prerequisites: EE363 Computer Systems Engineering
Method of Instruction: Lectures/Computer laboratory tutorials
Method of Assessment: Examination/Assignments
A fourth-year subject in all streams in the Degree in Electrical Engineering.

Subject aims
To complement the Pascal-oriented skills learned earlier and to round off formal computing for all but the Computer Systems Engineering stream students by presenting in some depth another programming language, together with several practical aspects of computer technology.

Subject description
Principles of software engineering including requirement analysis, specifications, design, verification and quality assurance. Operating systems including the internal structure and operation of the UNIX operating system using MINIX as a case study.

Text/References

References
Mimic, T. Programming and Designing with the 68000 Family. Prentice-Hall, 1991
IEEE "Micro" (various papers)
IEEE "Computer" (various papers)
EE475  Electrical Power and Machines
Five hours per week for one semester
Prerequisites: EE258 Electrical Machines, EE384 Electrical Power and Machines
Method of Instruction: Lectures/Tutorials/Laboratory
Method of Assessment: Examination/Assignments
A fourth-year subject in the electrical power and control engineering stream of the Degree in Electrical Engineering.

Subject aims
To introduce the principles of loadflow,metrical and economic operation. To build on concepts of power systems. Dower electronics and electrical machines.

Subject description
Part A - Power Systems
Part B - Electrical machines
The single phase induction motor, origin of equivalent circuit, operating characteristics.
The brushless d.c. machine, construction and applications.
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 application in VFPS and AC machine drives.

Texts/References
Part A
Part B
Part C

EE476  Electronics
Three hours per week for one semester
Prerequisites: EE384 Electronics
Method of Instruction: Lectures/Tutorials/Laboratory
Method of Assessment: Examination/Assignment
A fourth-year subject in the electrical power and control engineering stream of the Degree in Electrical Engineering.

Subject aims
To cover the analysis of analog integrated circuits and the hardware aspects of the microprocessor.

Subject description
Analog electronics:
Current sources, DC power amplifiers with resistive load, driver thermal behaviour, pseudo-dc switching amplifier, smoothing, AC power factor, AC power factor, non-linear behaviour of classical AC power amplifiers, universal non-linearity, Basing of AC power amplifiers, effects of device fatigue and healing.

Microprocessor electronics:
Interfacing and I/O programmation of 8086/8088 microprocessors. Hardware and software interrupts, peripheral chips: keyboard scanners, display drivers, UARTs, DMA controllers, disk controllers, bus timing, memory interfacing, virtual addressing and memory management unit. Bus timing.

Testing techniques.

Texts/References

EE482  Communications
Four hours per week for one semester
Prerequisites: EE386 Computer Systems Engineering, EE388 Electronics, EE389 Communications
Method of Instruction: Lectures/Tutorials/Laboratory
Method of Assessment: Examination/Assignments
A fourth-year subject in the communication and electronics stream of the Degree in Electrical Engineering.

Subject aims
To introduce students to the basic concepts and techniques of information theory, data communications, computer networks and layered protocols.

Subject description
Part A:
Information theory basics, source entropy, source encoding, channel capacity, noise and error rates.
Digital modulation techniques.

Part B:
Data communication networks and open system standards. Electrical interface.
Data transmission.
Protocol basics.
Data link control protocols.
Local area networks. Wide area networks.

References
Part A
Haber. F. An Introduction to Information and Communication Theory. Reading, Mass.: Addison Wesley
Part B:

EE483  Electronics
Four hours per week for one semester
Prerequisites: EE386 Electronics
Method of Instruction: Lectures/Tutorials/Laboratory
Method of Assessment: Examination/Assignments
A fourth-year subject in the communication and electronics stream of the Degree in Electrical Engineering.

Subject aims
To cover the analysis of analog integrated circuits and the hardware aspects of the microprocessor.

Subject description
Microprocessor Electronics:
Interfacing an I/O port, of 8086/8088 microcomputers. Hardware and software interrupts, peripheral chips: keyboard scanners, display drivers, UARTs, DMA controllers, disk controllers, bus timing, memory interfacing, virtual addressing and memory management unit.

Digital signal processing:
Nonrecursive digital filter design (using the Fourier series method), recursive digital filter design (using the Bilinear Transform method).

References
Godfrey, IBM Microcomputer Assembly Language. New York: Prentice Hall, 1989

EE489 Control Systems
Three hours per week for one semester
Prerequisites: EE384 Electrical Power and Machines, EE389 Linear Systems and Control, SM394 Engineering Mathematics
Method of Instruction: Lectures/Laboratory
Method of Assessment: Examination/Assignment

A four-year subject in all streams of the Degree in Electrical Engineering.

Subject aims
To introduce the analytical technique of state variable analysis and to show that classical techniques to design control systems, linear or non linear, meet a set of specifications. To analyse a set of discrete time control systems.

Subject description

State variable method of analysis of continuous and discrete time systems. Multivariable control systems. State models output equation feedback equations and de-coupling.

Design of control systems from a classical approach using compensators PI, PD, controllers and state feedback.

Introduction to non-linearities and their effect on the system.

Describing functions.

References
Dorf, R.C. Modern Control Systems. 6th edn. Reading, Mass.: Addison-Wesley, 1992

SM494 Engineering Mathematics
Two hours per week for one semester
Prerequisites: SM395 Engineering Mathematics
Method of Instruction: Lectures/Tutorials
Method of Assessment: Examination/Tutorial assignment

A four-year subject in all streams of the Degree in Electrical Engineering.

Subject aims
To develop the skills and analytical thinking used in the more advanced engineering subjects.

Subject description
Complex variables: geometry of the complex plane, conformal mapping, potential problems, evaluation of real integrals and inversion of Laplace transforms. Curve-linear coordinates: revision of potential theory; general coordinate surfaces, coordinate 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, quadratic forms and matrices. Liapunov's method, linearisation of non-linear systems.

Prescribed course material
SM494 Mathematics for Electrical Engineering, Department of Mathematics, Swinburne Institute of Technology, 1992

EE502 Management Practice
Three hours per week for one semester
Prerequisites: EE402 Management Fundamentals
Method of Instruction: Lectures/Tutorials/Seminars
Method of Assessment: Examination/Assignment/Class participation

A final-year subject in all streams of the Degree in Electrical Engineering.

Subject aims
To provide students with a satisfactory understanding of the subject matter in so far as it affects the practice of management.

Subject description

Total quality management
Achieving a quality culture
Using quality as a competitive strategy:
- Supervision and leadership.
- Project teams and task forces.

References

Additional references will be provided by the lecturers for their topics.

EE544 Electronic Communication Systems
Three hours per week for one semester
Prerequisites: EE383 Electromagnetic Fields, EE388 Communications, EE465 Engineering Systems Software
Method of Instruction: Lectures
Method of Assessment: Examination/Assignment

A final-year subject in the communications and electronic stream of the Degree in Electrical Engineering.

Subject aims
To introduce the concepts of spectral analysis, classical and modern spectrum estimation techniques, high resolution algorithms for array processing, and performance of spectrum estimators.

Subject description
- Spectral analysis problems and applications
- Approaches of spectrum estimation
- Random processes
- High resolution algorithms for array processing
- Computer simulation studies
- Performance studies of spectrum estimators

References
Lecturer's handouts

Faculty of Engineering
EE545 Electronics
Four hours per week for one semester
Prerequisites: EE483 Electronics
Method of Instruction: Lectures/Laboratory
Method of Assessment: Examination/Assignment

A final-year subject in the communications and electronics stream of the Degree in Electrical Engineering.

Subject aims
To introduce students to algorithmic state machine, the design and synthesis of modern integrated digital systems including VLSI design rules and performance estimation.

Subject description
Part A:
Digital system design with programmable logic.
Synthesis of algorithmic state machines using PLDs and FPGA's, Array Logic busced cellular array, array logic structures, use of synthesis and verification tools in digital design.

Part B:
VLSI Design.
Basic CMOS circuit blocks, layout design rules, circuit characterisation and performance estimation, system design.

Texts/References

EE548 Communications
Six hours per week for one semester
Prerequisites: EE482 Communications
Method of Instruction: Lectures/Tutorials/Laboratory
Method of Assessment: Examination/Assignment/Laboratory

A final-year subject in the communication and electronics stream of the Degree in Electrical Engineering.

Subject aims
To gain insight into the behaviour of telecommunicationand computer networks, with particular emphasis on performance analysis and optimisation.

Subject description
Teletraffic Engineering — random processes, traffic, the Erlang loss function, simulation methods.
Network topological structures and performance.
Routing and flow control in circuit switched networks.
Message switches network performance.
Routing and flow control in message switched networks.
Token ring and random access protocols and their performance.
Cellular mobile networks. Integrated voice and data networks (ISDN, BISDN) and their performance.

References
Girard, A. Routing and Dimensioning in Circuit-Switched Networks. Addison Wesley, 1990

EE559 Electrical Machine Drives
Five hours per week for one semester
Prerequisites: EE474 Electrical Power and Machines, EE476 Electronics, EE489 Control Systems, SM494 Engineering Mathematics
Method of Instruction: Lectures/Laboratory
Method of Assessment: Examination/Assignments

A final-year subject in the electrical power and control engineering stream of the Degree in Electrical Engineering.

Subject aims
To study the latest industrial machine drives from the point of view of steady state performance, dynamic performance and their interaction with the power system.

Subject description
Drive review of the types of variable speed drives. In particular the Ward Leonard at a closed loop speed control. Semiconductor controlled converters with regenerative braking.
Steady state with and without state feedback. Design of variable speed drives to meet a specification.
Generation of line harmonics, harmonic filters and voltage notching. Regulations.
Design of low power variable speed drives using permanent magnet d.c. motors and brushless d.c. motors.
AC machine transients: space phasor description of machines. The synchronous machine — winding,transformations, the d,q,y model. Short circuit analysis. Three phase induction motor, starting and reconnection transients. Fault current contributions.
Machine windings: characteristics and physical layouts. Fractional coil and harmonic suppression. Fractional slot windings. Harmonic content of generated EMF.

Texts/References
Leonard, W. Control of Electrical Drives. Springer Verlag, 1985
ASTM, General Requirements for Rotating Electrical Machines. Standards Association of Australia

EE561 Computer Systems Engineering
Six hours per week for one semester
Prerequisites: EE465 Engineering Systems Software, EE474 Computer Systems Engineering
Method of Instruction: Lectures/Practical sessions
Method of Assessment: By assignment

A final-year subject in the computer systems engineering stream of the Degree in Electrical Engineering.

Subject aims
To study elements of computer systems engineering covering operating systems, computer architectures and software engineering.

Subject description
Unit 1: Real-time Operating Systems
Unit 2: Advanced Computer Architecture
Unit 3: Performance Modelling of Distributed Systems

References
IEEE and ACM journals and magazines
EE562 Computer Electronics
Four hours per week for one semester
Prerequisites: EE459 Electrical Design
Method of Instruction: Lectures/Tutorials/Laboratory
Method of Assessment: Examination/Assignment

A final-year subject in the computer systems engineering stream of the Degree in Electrical Engineering.

Subject aims
To provide a grounding in digital systems design with programmable logic, and CMOS VLSI design at the system level.

Subject description
Digital systems design with programmable logic: algorithmic state machines, map-entered variables method, synthesis of ASM-based designs. ROM, PAL, PLA and synthesis by programmable devices using CPLDs and FPGA.
CMOS VLSI design: MOS transistor theory, basic CMOS circuit blocks, the CMOS process and layout design rules, circuit characterisation and performance estimation, and system design and design methods.

Text/References
Green, D. Modern Logic Design. Addison-Wesley, 1986

EE563 Advanced Computer Techniques
Three hours per week for one semester
Prerequisites: EE467 Computer Communications
Method of Instruction: Lectures/Laboratory
Method of Assessment: Assignment/Laboratory

A final-year subject in the computer systems engineering stream of the Degree in Electrical Engineering.

Subject aims
To introduce advanced computer engineering concepts and techniques in the areas of computer software, hardware, and computer applications.

Subject description
Material presented in this subject reflects the current research interests of computer systems engineering lecturers. Students choose three units, examples of which include:
- Parallel computer systems
- Database systems
- Hardware description languages
- Comparative languages
- Image processing
- Compilation techniques
- Digital signal processing architectures

Each unit is allocated one hour per week. Availability of units will depend on student demand and staff.

Texts/References
IEEE and ACM transactions and magazines
Other references as advised by unit lecturers

EE567 Electronics
Three hours per week for one semester
Prerequisites: EE476 Electronics
Method of Instruction: Lectures/Tutorials/Laboratory
Method of Assessment: Examination/Assignment

A final-year subject in the electrical power and control engineering stream of the Degree in Electrical Engineering.

Subject aims
To extend the principles learned in earlier years of microcontroller power electronics and optoelectronics, with applications in the power areas.

Subject description
Part A: Microcontrollers
The application of single chip microcontrollers to electrical engineering. AID and DIA conversion. Data communications and interfacing.

Part B: Power electronics

EE569 Electrical Power Systems
Five hours per week for one semester
Prerequisites: EE475 Electrical Power and Machines
Method of Instruction: Lectures/Tutorials/Laboratory
Method of Assessment: Examination/Assignment

A final-year subject in the electrical power and control engineering stream of the Degree in Electrical Engineering.

Subject aims
To introduce the principles of the major areas of modern electrical power systems engineering design, protection, circuit interruption and high voltage engineering.

Subject description


Power systems analysis

References

EE598 Digital Systems and Control
Two hours per week for one semester
Prerequisites: EE489 Control Systems, SM494 Control Systems.
Method of Instruction: Lectures/Laboratory
Method of Assessment: Examination/Assignment

A final-year subject in all streams of the Degree in Electrical Engineering.

Subject aims
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.

Subject description

Advanced topics of adaptive control and optimisation.
EE641 Fundamentals of Computing

Four hours per week for one semester
Prerequisites: Satisfactory completion of 3 year engineering/science degree or equivalent industrial experience
Method of Instruction: Lecture/Laboratory
Method of Assessment: Examination/Laboratory exercises

A first-year subject in the Graduate Diploma in Computer Systems Engineering.

Subject aims
To introduce the fundamental concepts of computing, familiarity with PCs and some proficiency in the use of the PASCAL language for constructing solutions to engineering problems.

Subject description
Historical context of computing;
Binary numbers;
Introduction to computer systems including PCs;
DOS operating system;
Turbo PASCAL program development environment;
Fundamental development of algorithms and structured programming techniques;
Introduction to PASCAL
- syntax diagrams
- control structures
- elementary and user-defined data types
- procedure and functions with value and variable parameters
- identifier scope
- arrays, strings, text files, sets and records;
Elementary input/output interfacing techniques using PASCAL.

References

EE642 Data Structures

Four hours per week for one semester
Prerequisites: Satisfactory completion of a 3 year engineering/science degree or equivalent industrial experience
Method of Instruction: Lecture/Laboratory
Method of Assessment: Examination/Laboratory exercises

A first-year subject in the Graduate Diploma in Computer Systems Engineering.

Subject aims
The aim of this subject is to develop a sound understanding of:
- data structures and their manipulation;
- single-register, multiple-register and hierarchical addressing;
- mapping PASCAL to assembly language instruction sets;
- modular programming and program design;
- floating-point and integer arithmetic.

Subject description
Data structures: PASCAL pointer types, lists, stacks, queues, trees, directed and undirected graphs and algorithms for the manipulation of these structures, file types and organisations.
Elementary computer organisation using PASCAL as the descriptive language. The Von Neumann fetch-execute cycle, simple single register architectures, their constraints and evolution to multiple register architectures (immediate, direct, register, register-indirect and indexed addressing modes). PASCAL to assembly language mappings for a multiple-register architecture. Informal treatment of parser construction from a language's syntax using assembly language as an example. The assembly process. The fetch, decode and execution process for the multiple-register machine.
Internal representation of data types. Integer and floating-point arithmetic.

References

EE643 Computer Systems Software

Four hours per week for one semester
Prerequisites: EE641 Fundamentals of Computing, EE642 Data Structures
Method of Instruction: Lecture/Laboratory
Method of Assessment: Examination/Laboratory exercises and Assignment

A first-year subject in the Graduate Diploma in Computer Systems Engineering.

Subject aims
The aim of this subject is for students to develop a sound understanding of:
i) the basic elements of software engineering;
ii) the basic concepts underlying operating systems;
iii) how minimal microprocessor systems are organised;
iv) the basic considerations of the logical and electrical interconnections of devices in microprocessor systems;
v) mechanism for external exceptions or interrupts.

Subject description
Introduction to software engineering including, software life-cycle and design process using appropriate graphical representations (6 hours).
Comparison of single-process, multi-process and real-time operating systems introducing such basic concepts as script files, scheduling and resource allocation (4 hours).
Brief introduction to the C language building upon familiarity with PASCAL (2 hours).

Computer architecture including representative microprocessor architectures and in particular the Motorola M68000 family architecture; the Intel 8086/8088 architecture will be briefly compared with the Motorola architecture. Programmer's model (register set, memory structure, addressing model). Instruction set overview (3 hours).
Suitability of a machine architecture to support high-level languages (2 hours).
Interrupts and asynchronous I/O processing (2 hours).
Decoding, memory read/write cycles, timing diagrams and access timing. Peripheral devices. Interrupt hardware (7 hours).
Programming will emphasise the use of high-level languages for input/output intensive applications including selective optimisation at the assembly language level for time critical applications.

References
EE644 Computer Systems Design
Four hours per week for one semester
Prerequisites: EE641 Fundamentals of Computing, EE642 Data Structures
Method of Instruction: Lecture/Tutorial
Method of Assessment: Report/Oral examination

A first-year subject in the Graduate Diploma in Computer Systems Engineering.

Subject aims
To reinforce the programming and software engineering skills and techniques gained in the other graduate diploma subjects.

Subject description
The students will be asked to undertake the design and coding of a significant software task. The students will undertake this work in small groups so as to highlight the need for co-ordination of the design and programming components of the task. The lecturer will provide the initial program specification and give direction to the development of each stage.

EE741 Computer Systems and Software Engineering
Four hours per week for one semester
Prerequisites: Satisfactory completion of the first year of the graduate diploma course in computer systems engineering or a 4 year degree in engineering science
Method of Instruction: Lecture/Laboratory
Method of Assessment: Laboratory exercises/Assignments/Tests

A second-year subject in the Graduate Diploma in Computer Systems Engineering.

Subject aims
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; introduce the fundamental elements of operating systems as a base for advanced studies in real-time systems.

Subject description
Principles of software engineering including requirement analysis, specification, design, verification and quality assurance.
Operating systems including the internal structure and operation of the UNIX operating system using MINIX as a case study.

Texts

References
IEEE Software Magazines

EE742 Computer Communications
Four hours per week for one semester
Prerequisites: Satisfactory completion of the first year of the Graduate Diploma in Computer Systems Engineering or a 4 year degree in engineering science
Method of Instruction: Lecture/Laboratory
Method of Assessment: Laboratory/Tutorial exercises/Test

A second-year subject in the Graduate Diploma in Computer Systems Engineering.

Subject aims
To introduce students to the basic concepts and techniques of data communications, computer networks and layered protocols.

Subject description
Review of basic concepts used in data communications: modulation, multiplexing, codecs and modems.
Data transmission: media, waveforms, impairments, intersymbol interference.
Coding and framing: PCM, source coding, synchronous and asynchronous transmission, error checking and control, interfaces, computer transmission.

Overview of data switching: circuit switching, message switching, packet switching, event timing, network control routing, flow control.
Networks: topologies, point-to-point networks, switched exchanges, packet switched services.

Protocols: layering, ISO standard, communication layers, LAN protocols, IEEE802, transport layer, application layer.

Overview of integration of digital services: ISDN, electronic messaging, MAP, TCIP.

References

EE744 Design and Project
Four hours per week for one semester
Prerequisites: Satisfactory completion of the first year of the Graduate Diploma in Computer Systems Engineering or a 4 year degree in engineering science
Method of Instruction: Supervision of project/Seminars
Method of Assessment: Minor thesis/Seminars

A second-year subject in the Graduate Diploma in Computer Systems Engineering.

Subject aims
After completing this unit the student should be able to implement and document a computer system design.

Subject description
The student may choose any appropriate computer systems engineering project. Work related projects are encouraged. The project may include both hardware and software components.
The student will have a nominated supervisor who approves the initial project specification and gives advice on the approach and method being used. The student is responsible for setting attainable targets and deadlines and achieving them.
The student will be required to present his project results in a seminar.

EE745 High Performance Computer Architectures
Four hours per week for one semester
Prerequisites: Satisfactory completion of the first year of the Graduate Diploma in Computer Systems Engineering or a 4 year degree in engineering science
Method of Instruction: Lecture/Laboratory
Method of Assessment: Laboratory/Tutorial exercises/Tests

A second-year subject in the Graduate Diploma in Computer Systems Engineering.

Subject aims
The aim of the subject is for students to develop a sound understanding of the available computer architectures and their application areas.

Subject description
The topics to be covered in this subject are:

- historical perspective
- taxonomy
- MIMD architectures
- SIMD architectures
- pipelining techniques
- memory organisation
- communication networks
EE746 Parallel Programming Techniques
Four hours per week for one semester
Prerequisites: Satisfactory completion of the first year of the Graduate Diploma in Computer Systems Engineering or a 4 year degree in engineering science.
Method of Instruction: Lecture/Video presentations/Laboratory
Method of Assessment: Laboratory exercises and assignments/tests.

A second-year subject in the Graduate Diploma in Computer Systems Engineering.

Subject aims
The aim of the subject is for students to develop a sound understanding of the parallel computing and its application to diverse areas.

Subject description
The topics to be covered in this subject are:
- implicit and explicit parallel programming
- vectorisation
- parallel decomposition
- memory allocation
- communication/computation tradeoffs
- optimising for pipelined scalar processors
- visualisation tools and debugging techniques.

References

EE747 Discrete Time Control Systems
Four hours per week for one semester
Prerequisites: Satisfactory completion of the first year of the graduate diploma course in computer systems engineering or a 4 year degree in engineering science.
Method of Instruction: Lecture/Tutorials/Laboratory
Method of Assessment: Laboratory exercises and assignments/tests.

A second-year subject in the Graduate Diploma in Computer Systems Engineering.

Subject aims
The aim of the subject is to reinforce the fundamental principles of closed loop control systems and to introduce the concept of discrete time control. To develop time and frequency domain techniques for the analysis of continuous and discrete time systems and to study the criteria for stability.

Subject description
System modelling:
- Derivation of a differential equation to describe the dynamic behaviour of a continuous-time system.
- Use of transfer function techniques and state variable techniques to analyse the performance of a system.
- Use of time domain and frequency domain techniques to describe the behaviour of a discrete-time system.
- Use of Z-transforms and state variable techniques as analysis tools.

Closed loop control:
- Use of frequency domain and root locus techniques to study the performance of a closed loop control system.
- Stability criteria and steady state error analysis using the above analysis tools.
- Use of similar techniques for the analysis of discrete time control systems.

Textbook

EE748 Computer Control of Dynamic Systems
Four hours per week for one semester
Prerequisites: Satisfactory completion of the first year of the graduate diploma course in computer systems engineering or a 4 year degree in engineering science.
Method of Instruction: Lecture/Tutorials/Laboratory
Method of Assessment: Laboratory exercises and assignments/tests.

A second-year subject in the Graduate Diploma in Computer Systems Engineering.

Subject aims
To review the design techniques used to design a closed loop control system to meet a set of specifications. To extend the design techniques to discrete time control systems and to develop computer software to emulate real time compensators and filters.

Subject description
Specification of performances from a time domain and frequency domain point of view. Steady state error and parameter sensitivity.
Classical and state space techniques for designing lead, lag and PID controllers, or feedback compensators, including low pass filters for reduction of the noise content of signals.
The above techniques applied to a discrete time control system. Software compensators to perform the PID task and to behave as a low pass filter.
Modern application of digital control of an induction motor driven by a variable frequency inverter.

References

EE749 Communication Networks
Four hours per week for one semester
Prerequisites: Satisfactory completion of the first year of the graduate diploma course in computer systems engineering or a 4 year degree in engineering science.
Method of Instruction: Lecture/Tutorials/Laboratory
Method of Assessment: Laboratory exercises and assignments/tests.

A second-year subject in the Graduate Diploma in Computer Systems Engineering.

Subject aims
The aim of this subject is for students to develop a sound understanding of:
- the basic nature of traffic in voice, data and integrated services networks;
- performance parameters used in network design;
- issues involved in realising required system performances;
- resource management and optimal use of resources;
- the influence of integrated services on computer and communications networks.

Subject description
Teletraffic engineering: the nature of traffic and its demand for network resources.
Network topological structures.
Routing and flow control in circuit switched networks.
Message switched networks.
Routing and flow control in packet switched networks.
Token ring protocols.
Random access protocols.
Integrated voice, data and video networks.
Network management and optimal use of resources.
Mobile communications networks overview.
Propagation, static and dynamic channel assignment, traffic control.
Mobility issues in integrated services networks.
Intelligent network services overview.

Textbook

References
EE750 Digital Spectral Estimation

Four hours per week for one semester

Prerequisites: Satisfactory completion of the first year of the graduate diploma course in computer systems engineering or a 4 year degree in engineering/science

Method of Instruction: Lecture/Tutorial/Laboratory

Method of Assessment: Assignment/Project/Tests

A second-year subject in the Graduate Diploma in Computer Systems Engineering.

Subject aims

To introduce the principles and techniques used in performing digital power spectral estimation.

Subject description

The following topics will be covered:

- principles of multirate digital signal processing
- estimation of spectra from finite-duration observation of signals
- nonparametric methods for power spectrum estimation
- parametric methods for power spectrum estimation
- minimum variance spectral estimation
- eigenanalysis algorithms for spectrum estimation.

References

Printed lecture material.


EF199 Engineering Graphics and Communications

Four hours per week for two semesters

Subject aims and description

Part-time students may undertake this subject in separate components as follows:

EF198 Graphics and CAD

EF199 Communications and Engineering

A first-year subject for all degree courses in engineering which provides an introduction to the methods of communication used by professional engineers.

You will experience presentation of projects and ideas used in environmental issues and the engineering workplace, and the use of engineering drawing and graphics to communicate and understand design concepts.

EF612 Engineering Management

Two hours per week for two semesters

A first year elective subject in the Graduate Diploma in Management.

Subject aims and description

Management is a key element in all areas of engineering. This unit is directed at the elements of management as they particularly relate to project, site and plant management. As with other subjects within the course, the key elements of management — financial, human and organisational and legal — will be integrated.

An objective subject address core areas of Engineering management with focus on project, life cycle and plant management.

Considerations include project initiation, implementation and termination, financial and legal requirements, life cycle and plant procurement, reliability, maintenance and updating. Elements of particular significance to projects will include initiation of projects, feasibility studies, tendering procedures, estimating, CPM, cost control, construction, documentation, building and planning permits, claims, partial and final certification.

Plant Management aspects will include plant procurement, operation, reliability, maintenance, updating and disposal of equipment.

Planning law, Acts and legislation relevant to major projects will be included.

Textbook


Reference

Chapman, CB, Cooper, PF and Page, MJ. Management for Engineers. Wiley, 1987

EF613 Industrial Engineering

Two hours per week for two semesters

A first year elective subject in the Graduate Diploma in Management.

Subject aims and description

An introductory subject addressing the elements of management germane to production and manufacturing management. Techniques addressing various issues including: analysis, decision-making, inventory, quality and forecasting are covered. The software used in related case studies. Modern approaches to management such as, MPPII, JIT, TQM and techniques for method study, improvement, systematic layout design etc. are discussed.

Heavy class participation and computer interaction is required.

Textbook


EF614 Management Practice

Four hours per week for one semester

A first year compulsory subject in the Graduate Diploma in Management.

Subject aims and description

The core of this subject will be business strategy: setting objectives, measurement of performance, introduction to the marketing function, sales, market research, segmentation, etc. Innovation and entrepreneurial aspects are included.

Human aspects will include creative and lateral thinking, technical communications skills, supervision and leadership, project teams and task forces, motivation and problem analysis; problem solving and decision making.

Financial aspects will consider budgets; management reporting systems. Cost estimating, product costing and pricing.

Legal aspects will concentrate on elements of commercial, criminal and tort law as they affect manufacturers, and concepts of industrial property (patents etc.) will be introduced.

EF620 Human Aspects

Two hours per week for one semester

A compulsory subject in the Graduate Diploma in Management.

Subject aims and description

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 difference, personality theory, value and value systems, group dynamics, social psychology, leadership, intergroup competition, interpersonal, perception, thinking and memory.
- Business politics.
Human Resources Management: recruitment, selection and training.

Aptitude testing. Management 11 a 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.

EF621 Financial and Legal Aspects

Three hours per week for one semester

A compulsory subject in the Graduate Diploma in Management.

Subject aims and description

This subject is designed to build upon the work of the introductory group. Topics include: financial accounting; management accounting and reporting; company taxation; financial statement analysis; business organisations; sources of finance; capital and cash flow; Trade Practices Legislation, insurance and negotiable instruments.

Textbook


EF622 Engineering Management

Two hours per week for one semester

An elective subject in the Graduate Diploma in Management.

Subject aims and description

This subject addresses wider issues associated with effective engineering management. Considerations include: executive interfaces; equipment acquisition and procurement strategies; logistics; management configuration; project and performance strategies; and project and performance assessment.

Textbook

Hindle, K.G. What is a Marketing Case Study and How do you Solve it. Swinburne Press. 1991


EF623 Marketing

Three hours per week for one semester

A compulsory subject in the Graduate Diploma in Management.

Subject aims and description

This subject addresses the skills necessary to evaluate the broad marketing needs and vulnerabilities of private and public sector enterprises. Emphasis is on establishing a grounding in marketing principles and the application of these principles to practical marketing situations. It outcome this subject is the development of a strategy to improve profitability.

Textbook

Hindle, K.G. What is a Marketing Case Study and How do you Solve it. Swinburne Press. 1991


EF624 Management Practice

Six hours per week for one semester

A compulsory subject in the Graduate Diploma in Management for part-time students only.

Subject aims and description

This subject is designed to draw together the topics covered in the other subjects of the graduate diploma in management with an industrial emphasis and provide additional material to enable the student to develop an understanding of the process of management in business organisations.

Particular emphasis is placed on recognising the combinations of internal and external circumstances that create a business opportunity; analysing the risk attached to grasping opportunities; developing the people and business skills needed to launch a successful commercial venture based on technology products or services; practicing sound management skills and techniques in converting opportunities to reality; practicing sound management techniques and disciplines to control the resources available to grow the business or organisation; recognising, discussing and selecting from a broad range of business strategy development methodologies; preparing a commercial business plan; describing and assisting the implementation of appropriate systems and controls to manage a new or growing company or other organisation.

Textbooks


EF625 Computing — Business Applications and Systems

Two hours per week for one semester

An elective subject in the Graduate Diploma in Management.

Subject aims and description

The subject aims to provide an understanding of the process of management and the role of computers. It will include data processing, decision support packages, design and documentation of systems, and applications of computers in business.

In particular it addresses: high level languages, data structures and applications, project engineering, design and control of projects, and the use of computers in business management.

Textbook

Hindle, K.G. What is a Marketing Case Study and How do you Solve it. Swinburne Press. 1991


EF626 Computing — Engineering Applications and Systems

Two hours per week for one semester

An elective subject in the Graduate Diploma in Management.

Subject aims and description

The subject seeks to extend the student's knowledge of engineering oriented applications, and management applications. It aims to extend the student's programming skills and knowledge of computer systems.

In particular it addresses: high level languages, data structures and applications, project engineering, design with computer systems, and the use of computers in business management.

Textbook

Hindle, K.G. What is a Marketing Case Study and How do you Solve it. Swinburne Press. 1991


EF629 Sales Management

Two hours per week for one semester

An elective subject in the Graduate Diploma in Management.

Subject aims and description

The subject aims to provide an understanding of the process of management and the role of computers. It will include data processing, decision support packages, design and documentation of systems, and applications of computers in business.

In particular it addresses: high level languages, data structures and applications, project engineering, design and control of projects, and the use of computers in business management.

Textbook

Hindle, K.G. What is a Marketing Case Study and How do you Solve it. Swinburne Press. 1991


EF630 Manufacturing Management

Two hours per week for one semester

An elective subject in the Graduate Diploma in Management.

Subject aims and description

This subject aims to provide an understanding of the process of management and the role of computers. It will include data processing, decision support packages, design and documentation of systems, and applications of computers in business.

In particular it addresses: high level languages, data structures and applications, project engineering, design and control of projects, and the use of computers in business management.

Textbook

Hindle, K.G. What is a Marketing Case Study and How do you Solve it. Swinburne Press. 1991


EF631 Physical Distribution Management

Two hours per week for one semester

An elective subject in the Graduate Diploma in Management.

Subject aims and description

This subject aims to provide an understanding of the process of management and the role of computers. It will include data processing, decision support packages, design and documentation of systems, and applications of computers in business.

In particular it addresses: high level languages, data structures and applications, project engineering, design and control of projects, and the use of computers in business management.

Textbook

Hindle, K.G. What is a Marketing Case Study and How do you Solve it. Swinburne Press. 1991

EF632 Corporate Communications

Two hours per week for one semester

An elective subject in the Graduate Diploma in Management

Subject aims and description

An examination of an organisation’s communications needs and development of effective strategies to meet those needs. This includes a communications audit, and choice of an appropriate mix of communications media to minimise the cost of communications within the organisation and externally.

Both private and public networks will be considered.

EF633 Energy Management

Two hours per week for one semester

An elective subject in the Graduate Diploma in Management.

Subject aims and description

An assessment of an organisation's energy requirements and development of systems and operational techniques to meet those requirements at minimum cost.

Energy source selection and life cycle costing, system optimisation.

The subject includes techniques for monitoring energy usage in all types and larger sites and for optimal use of equipment.

EF634 Civil Engineering Management

Two hours per week for one semester

An elective subject in the Graduate Diploma in Management.

Subject aims and description

This subject is particularly directed towards development of an awareness of efficient site management techniques.

Responsibilities of site organisation, site engineer, site engineer and conciliator and negotiation.

EF635 Construction Technology

Two hours per week for one semester

An elective subject in the Graduate Diploma in Management.

Subject aims and description

The subject considers the management of technological resources available in the execution of a construction project.

Planning of construction programs; hazards, local factors, works layout, critical path analysis, detailed planning, estimate summary.

Plant and Equipment, characteristics of the site and construction methodologies, and the physical and human resources are considered.

Resource allocation: assignment of plant and equipment to tasks; allocation of labour to job; estimating likely outputs; smoothing resource allocation; establishing plant and equipment spread.

EF641 Management Practice

Six hours per week for one semester

A compulsory subject in the Graduate Diploma in Management for full time students only.

Subject aims and description

This subject is designed to draw together the topics covered in the other subjects of the graduate diploma in management with an industrial emphasis and provide additional material to enable the student to develop an understanding of the process of management in business organisations.

Particular emphasis is placed on recognising the combinations of internal and external circumstances that create a business opportunity; analysing the risk attached to grasping opportunities; developing the people and management skills needed to launch a successful commerced venture based on technology or vice versa; practicing sound management skills and techniques to control the resources available to grow the business or organisation; recognising, discussing and selecting from a broad range of business strategy development methodologies; preparing a business plan; describing and assisting the implementation of appropriate systems and controls to manage a new or growing company or other organisation.

Textbook


EF700 The Business Plan

Three hours per week for two semesters

A subject in the second year of the Graduate Diploma in Entrepreneurship& Innovation and first year of the Master of Enterprise Innovation.

Normally, students of the Graduate Diploma in Entrepreneurship & Innovation undertaking this unit must have satisfactorily completed all first year subjects and be undertaking the standard second year program.

Subject aims and description

This unit aims to provide the entrepreneur with an appreciation of a business plan in: raising venture capital, defining the potential risk and problems in a venture, testing and building the entrepreneurial team and planning the operation of a business.

Self-selected teams will choose areas of interest to develop and plan for a business opportunity and will develop an appropriate business plan. Generally teams will work independently and will be tutored by staff on specialist areas. Some lectures by external consultants in business plan evaluation will be held and time will also be scheduled for the developing of presentation skills.

Textbook


EF710 Entrepreneurship & New Ventures

Three hours per week for two semesters

A subject in the Graduate Diploma in Entrepreneurship & Innovation.

Subject aims and description

This unit aims to provide the student with the ability to:

- define and describe the entrepreneurial process; explain how the entrepreneurial process is used in the development of a business plan for a new venture; apply the processes of opportunity screening and risk assessment to a proposed new venture; use appropriate personnel and financial practices in developing a new business; and to apply the entrepreneurial process to development of opportunities in corporations.

Textbook


References


EF711 'Product' Development & Life Cycles

Three hours per week for one semester

A subject in the Graduate Diploma in Entrepreneurship & Innovation.

Subject aims and description

This unit aims to help the student with the ability to: analyse a competitive advantage; choose a technological strategy for a venture; design and implement product innovations; overcome barriers to technological innovation; drive customer driven innovations; and identify international markets for 'products'.

Textbook


References


EF712 Opportunity & Feasibility Analysis
Three hours per week for one semester
A subject in the Graduate Diploma in Entrepreneurship & Innovation.

Subject aims and description
This unit aims to provide the student with the ability to: recognise opportunities not only in the workplace, but also in everyday living; examine in-depth its attractiveness to new business creation; use a screening guide to assess a product or service in terms of product or source reliability, market share, financial returns and future business development.

Textbooks

EF810 New Venture Marketing
Three hours per week for one semester
A subject in the second year of the Graduate Diploma in Entrepreneurship & Innovation and first year of the Master of Enterprise Innovation.

Subject aims and description
This unit aims to provide the student with the ability to: develop and improve plans for the introduction of new products and supervise the implementation of these plans; employ basic marketing principles in estimating the scale and speed of the probable market response to the new product and in determining the marketing resources required to achieve a given revenue profile over the planning period; distinguish systematic divergence from the plan objectives from statistical fluctuations in the response of the market, and advise on the appropriate modifications to the plan.

Textbooks
Hunt, L.K.G. What is a Marketing Case Study and How Do You Solve It? Swinburne Press, 1991
Legge, J.M. Successful Marketing Strategies — Into the 1990s. Information Australia, 1989

EF811 New Venture Financial Planning
Three hours per week for one semester
A subject in the second year of the Graduate Diploma in Entrepreneurship & Innovation and first year of the Master of Enterprise Innovation.

Subject aims and description
This unit is designed to draw together the topics covered in the other subjects of the graduate diploma in management with an industrial emphasis and provide additional material to enable the student to develop an understanding of the process of management in business organisations. This unit aims to provide the student with the ability to: understand the basic financial principals and theory required for competent financial analysis, planning and management of a small to medium business; to 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 for that venture; to dispassionately and professionally evaluate new venture financial projections from the point of view of a prospective investor (venture capitalist).

Textbook

References

EF812 Entrepreneurship, Law and Ethics
Three hours per week for one semester
A subject in the second year of the Graduate Diploma in Entrepreneurship & Innovation and first year of the Master of Enterprise Innovation.

Subject aims and description
In forming a new venture, the entrepreneur has in general three choices of legal structure: the enterprise can run as a sole proprietorship, as a partnership or as a corporation. The law also affects the steps involved in bringing an invention, original product or process from the stage of conception to that of full commercial utilisation. This unit aims to provide the student with the ability to analyse these issues, together with the ethical issues involved in the decisions, and in particular ethical implications.

EF920 Managing the Growing Business
Fifty-six hours for one semester
A subject in the Master of Enterprise Innovation.

Subject aims and description
This unit aims to provide the student with the ability to: identify the stages of business growth and the problems and opportunities to be managed; recognise the increasing complexities of the growing enterprise; describe the functional, planning and control needs of each stage; identify the tools and techniques available to manage and sustain growth; recognise the different leadership styles appropriate to the stage of business growth; identify the practices by which business maintains innovation; and to plan for business harvest.

Textbooks
Reference
Davie, R.S. and Stamm, W.J. Australian Case Studies. 1990

EF921 Financing Entrepreneurial Ventures
Fifty-six hours over one semester
A subject in the Master of Enterprise Innovation.

Subject aims and description
This unit aims to provide the student with a sound understanding of the methods of, opportunities for and implications of, various forms of finance for an enterprise. Topics include:
— evaluating opportunities: business plans; franchising;
— seeking, assessing and acquiring resources: searching for financial resources, valuing existing business; leveraged buyout; legal forms of organisation; valuation, bidding, partners; securities, law and private financing; share market options; venture capital;
— managing and harvesting the venture: initial public offering; partner-investor relations; takeovers; bankruptcy.

Textbook

References
Davie, R.S. and Stamm, W.J. Australian Case Studies. 1990

EF922 Entrepreneurial Project
Fifty-six hours over two semesters
A subject in the Master of Enterprise Innovation.

Subject aims and description
This unit is undertaken with teams in a real time start of a new business. Business plans will be prepared and the project will require a very substantial time commitment outside the formal class contact time.

References
EF930  Innovation and New Ventures
Fifty-six hours over one semester
A subject in the Master of Enterprise Innovation.

Subject aims and description
This unit aims to provide the student with the ability to: understand the concepts of innovation and invention; differentiate between product development and process innovation; identify the requirements and practices to protect intellectual property; describe the marketing concepts that support industrial consumer driven innovation; use appropriate technological forecasting techniques; and understand leadership types and management practices appropriate to supporting innovation in new ventures.

Textbook

References

EF931  Entrepreneurship in Corporations
Fifty-six hours over one semester
A subject in the Master of Enterprise Innovation.

Subject aims and description
This unit aims to provide the student with the ability to: identify the strategy concept and organisation concept of corporation; recognise the relevance of these concepts to the contexts of entrepreneurship, maturity, diversification, innovation and professionalism; recognise how entrepreneurial management differs from 'professional' management; understand the importance of culture in an organisation and its effect on opportunities; design new ventures to optimise the odds for success in a corporate framework.

Textbooks

EF932  Entrepreneurial Project
Fifty-six hours over two semesters
A subject in the Master of Enterprise Innovation.

Subject aims and description
This unit is undertaken by teams developing a 'real life' product or service within a large corporation. The project will require a very substantial time commitment outside the formal class contact time indicated.

References

ME169  Building Services
Three hours per week for two semesters
A subject in the Graduate Diploma in Air-conditioning.

Subject aims and description
A first-year subject in the Diploma in Building Surveying designed to provide students with an understanding of the basic principles and practice of various specialist services relevant to buildings. Ventilation and heating: general principles, winter heating loads, equipment, inspection and maintenance, regulations and standard, AS 1668.2.


ME269  Building Services
Three hours per week for first semester and two hours per week for second semester
A subject in the Master of Building Surveying.

Subject aims and description
A second-year subject in the Diploma in Building Surveying, intended to extend students' understanding of the services relevant to building.

Air-conditioning: basic principles of human comfort requirements and equipment used; these, and ventilation and HVAC systems; insulation, smoke control, AS1668.1. Speciality services: including reticulated compressed air, vacuum lines, stand-by generating sets, fuel services, garbage disposal, security. Provisions for controls, adjustments, inspections and maintenance. Electrical services: survey of major components of electrical loads, industrial and commercial; electrical aspects of heating, lighting, air-conditioning, transport systems (lifts and escalators). Principles of illumination and ventilation. Emergency supplies. Principles of protective systems for personnel and equipment. Electric shock, and safety procedures. Wiring regulations, responsibility for installation of electrical equipment. Communications systems.

ME621  Air-conditioning
Four hours per week for two semesters
A subject in the Graduate Diploma in Air-conditioning.

Subject aims and description

ME622 Refrigeration
Three hours per week for two semesters
A subject in the Graduate Diploma in Air-conditioning.

Subject aims and description

References

ME627 Risk Psychology
One hour per week for one semester
A subject in the Graduate Diploma in Risk Management.

Subject aims and description
Introduction to necessary principles of psychology. Skill psychology; principles of skill acquisition and learning, models of human behaviour in perceptual workload, arousal-fatigue effects. Individuals behaviour in a risk situation; perception and understanding of risk, motivation, cognition, cognitive dissonance.

References
Selected papers and course notes.

ME629 Risk Social Science
One hour per week for one semester
A subject in the Graduate Diploma in Risk Management.

Subject aims and description
Introduction to necessary principles of social science. Principles of social and group behaviour; culture, power, group pressures, dynamics in organisations, group decision-making. Group perceptions of, and reactions to risk; risky shift, polarisation, opposing groups.

References
Selected papers and course notes.

ME641 Ergonomics
Three hours per week for one semester
Assessment by assignment
A subject in the Graduate Diploma in Risk Management.

Subject aims and description

References
Wickens, CD. Engineering Psychology and Human Performance. Columbus, Merrill, 1984.

ME651 Risk Philosophy
One hour per week for one semester
A subject in the Graduate Diploma in Risk Management.

Subject aims and description
Concepts and definitions: pure and speculative risk, the parameters of risk (probability, exposure and consequence value) and the risk estimation model. Risk Evaluation: The factors affecting risk, the evaluation process, factors affecting evaluation, objective and subjective assessment of risk parameters. The risk estimation model.

References

ME652 Occurrence Analysis
One hour per week for one semester
A subject in the Graduate Diploma in Risk Management.

Subject aims and description
Scientific methodology. Principles of phenomenology; application to unexpected/unwanted occurrences. Models of occurrences; development and use of models, energy damage and time models. Use with cases appropriate to each stream. Application to occurrence recording, investigation and information systems.

References
ME660 Risk Management

Forty-five hours over two semesters
Assessment by assignment

A subject in the Graduate Diploma in Risk Management.

Subject aims and description

Insurance:
Brief history and concepts of insurance.
Types of insurance: contents, claims estimates, premium determination, types of premiums [fixed, burning cost] re-insurance role of brokers.
Liability insurance (product, public, employer and employee), contract types and administration.
Professional indemnity: contract types and administration.

Breakdown insurance: contract types at administrition.

Catastrophic loss insurance: contract types and administration.

Risk Management:
Concepts and definitions: definition of risk management, organisational and risk management objectives.
Risk management models (overview) and definition of terms:
the process model; assets, vulnerabilities, exposure and threats model; functions and activities models.
Risk control: principles and practices (loss retention, reduction and transfer, including pre- and post-loss).

References


ME661 Risk Engineering

Two hours per week for one semester

A subject in the Graduate Diploma in Risk Management.

Subject aims and description

Definitions of risk and reliability engineering.
Morphologic analysis principles and applications to risk and reliability systems: synthesis and analysis techniques (event, fault tree, failure mode and effect).
Application of reliability mathematics to the assignment of probabilities of success. Emphasis on qualitative and logical approach.
Sources of failure, probability and reliability data.
Review of Software applications packages.

References

Browning, R.L. The Loss Rate Concept in Safety Engineering. New York: Marcel Dekker, 1980

ME664 Risk Engineering

Three hours per week for one semester including lectures, tutorials and workshops

A subject in the Graduate Diploma in Risk Management.

Subject aims and description

Risk Control Models
Time sequence 'model', particularly for fire.

Occupational Health and Safety: overview of principles of risk assessment and control — a model.
Application of occurrence phenomenology.
Risk Control Strategies
Highly Protected Risk (HPR) concepts, development, criteria and impact.
Pre-event control and design:
— prevention — control of ignition sources, damaging energy sources;
— design for control (particularly for fire);

Faculty of Engineering

— automatic detection and suppression systems: uses and applications;
— design for control by limiting loss potentials — basic design for minimisation of loss potential, fire walls, space separation, bunding, etc.

Planning for emergencies, private and public fire brigades.

References

Kletz, T.A. An Engineer's View of Human Error. Rugby: Institute of Chemical Engineers, 1986

ME675 Maintenance Management

Two hours per week for one semester
Assessment by assignment

A subject in the Graduate Diploma in Risk Management.

Subject aims and description

Maintenance function: relationship of maintenance within and to the organisation.
Telemetry: life cycling costing, selection of plant, plant system design and effectiveness.
RAM engineering: reliability, fundamentals, analysis, prediction and verification of reliability, maintainability fundamentals and concepts, applications of RAM engineering.

References


ME676 Property and Production Risk Management

Two hours per week for one semester, including lectures, tutorials, seminars

A subject in the Graduate Diploma in Risk Management.

Subject aims and description

Loss Forecasting:
Loss estimate methods overview — purpose and utility. Fire and explosion, controlled and uncontrolled loss. Mapping, insurance criteria, EML, PML, NLE, MFL, etc.
Machinery Breakdown, the use and flow of use charting and criticality analysis. Historical and predictive methods; the role of databases and fault tree analysis. Threat and vulnerability model.
Miscellaneous perils, flood, windstorm, hail etc.

Property Insurance:
Purpose definitions and concepts. Brief history e.g. Lloyds. Factory Mutual, Australian experience.
Levels of cover, deductibles, reinsurace, self insurance, limits of cover, perils, business interruption, construction exclusions.
Role of parties, insured, agent or broker, insurer and reinsurer; government.

Risk and Maintenance Financing:
Financing Models.

Relationship between risk and maintenance.

End of life cycle costing including the cost of risk.

References

ME678 Health and Safety Management
Two hours per week for one semester
A subject in the Graduate Diploma in Risk Management.

Subject aims and description

Occupational Health and Safety
Historical precepts in injury control, the factory inspectors, tenement, Haddon, Wigglesworth.
H&S program objectives and strategies. The application of risk management principles to H&S management: risk identification and quantification (data, surveys, workgroup input, computerised data bases), evaluation criteria and methods (standards and regulations, technical specialists' role, committees and unions), implementation of control measures and control measure hierarchy. Rehabilitation and Claims Management.

Review of Application of Acts: OH&S 1985, Dangerous Goods and Compensation. The Workcare system, the role of committees, representatives, inspectors, ACC, VAPC, Union and Employer policies and resources.

Organisational design for effective implementation and maintenance of a program: role, responsibilities, reporting points, program audit. Sources of information: risk and control information. Public and Product Health and Safety.

Risk assessment for public and product risk; methods, criteria and program development and implementation: incident reporting, design and disposal. Public health and safety program design and management.

Product guarantees, warranties and usage information, recall procedures, incident reporting system.

References

ME721 Air-conditioning
Four hours per week for one semester
A subject in the Graduate Diploma in Air-conditioning.

Subject aims and description

Fluid flow principles: air flow in ducts, water flow in pipes, distribution systems, duct design philosophies, equal friction, constant velocity, static regain, index runs, system character, distribution and mixing of air streams, registers and diffusers, design of components, cooling and heating coil connections, control valves.

Fans and pumps: types, characteristics, construction, system matching, energy consumption and fan operation. Noise and vibration sources, effect of duct and pipe velocities, sound attenuators in lined and unlined ductwork, sound attenuators, vibration isolation of rotating equipment.

Air conditioning systems: review, perimter, volume, dual duct, hot zone, air exchangers, etc., e.g. cooling, typical layouts, advantages and disadvantages, capital and running costs, commissioning, balancing of air and water systems, measurement methods, health and safety aspects, smoke and fire control. AS1668 Pt 1, open cooling towers and alternatives, Legionnaire's Disease, water treatment, fresh air intakes, dusts and air contaminants.

References
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.

References

ME742 Health and Hygiene

Four hours per week for one semester
Assessment: By assignment alone

A subject in the Graduate Diploma in Risk Management.

Subject aims and description
To provide a working knowledge of types of hazards encountered in the workplace and means of overcoming these.

References

ME743 Health and Safety Practices and Technology

One hour per week for one semester

A subject in the Graduate Diploma in Risk Management.

Subject aims and description
Technology and practices in the safe operation and/or use of: machinery and tools (e.g., power presses, woodworking, metalworking, construction) grinding wheels compressed fluids vehicles (fork lift trucks, mobile equipment, trucks) cranes, slings, hoists stairs, steps, ladders, platforms Personal protective equipment: selection, implementation and use (eye, face, head, hand, feet). Emergency equipment and procedures: breathing apparatus use, gas and smoke detection equipment, procedure design and maintenance. Particular industry practices (to suit needs of students).

References
Australian standards and codes of practice. Papers from the literature.

ME762 Risk Engineering

Four hours per week for one semester including lectures, tutorials and workshops.

A subject in the Graduate Diploma in Risk Management.

Subject aims and description

References

ME764 Risk Control Practices and Technology

Four hours per week for one semester including lectures and laboratory work.

A subject in the Graduate Diploma in Risk Management.

Subject aims and description

References

ME765 Risk Engineering (H&S)

Three hours per week for one semester.
Assessment by assignment

A subject in the Graduate Diploma in Risk Management.

Subject aims and description

References

ME774 Maintenance Practices and Technology

Two hours per week for two semesters

A subject in the Graduate Diploma in Risk Management and Maintenance Engineering.

Subject aims and description
Application of diagnostic methods to machine health monitoring, setting up inspection procedures, record keeping, trend monitoring, life curves.

References

ME776 Maintenance Engineering Science
Three hours per week for one semester
Assessment by assignment
A subject in the Graduate Diploma in Risk Management and Maintenance Engineering.

Subject aims and description
Equipment deterioration mechanisms, failure, reclamation and repair strategies. Corrosion detection, treatment and preventative methods. Lubrication mechanisms. Review and selection of maintenance strategies based on management decisions, maintenance planning, work planning, resource analysis and allocation, plant inventory, maintenance control, plant records.

ME777 Maintenance Management
Two hours per week for two semesters
Assessment by assignment
A subject in the Graduate Diploma in Risk Management and Maintenance Engineering.

Subject aims and description
Strategies for systems operations and support. Theories of maintenance, maintenance management: contract law, scheduling, costing, optimisation, maintenance program development.

ME780 Major Project
Forty-five hours over two semesters
Assessment by project, report and seminar.
A subject in the Graduate Diploma in Risk Management.

Subject aims and description
Use of library, definition of computer search keywords, sources of data (databases). Research and project methods and discipline. Executive of a project aimed at developing skills necessary to select, integrate, and apply appropriate knowledge, concepts and techniques to achieve a practical result. Where possible the project shall be based on the students' employment experience and shall address a real problem in industry.

ME781 Project and Energy Management
Four hours per week for one semester
Lecture: 20 hours
Project: 40 hours
Assessment: By staff consultation and comprehensive written report
A subject in the Graduate Diploma in Air-conditioning.

ME903 Advanced Control Systems and Devices
Two hours per week for two semesters
Assessment by assignments and examination
A subject in the Master of Engineering (CIM).

Subject aims and description
Dynamics of controlled systems: state-space concepts, solutions to state-space equations, systems stability, Laplace domains, conversion to Laplace domain, relations of state-space to classical controls. Non-linear and stochastic control: state plane methods, describing function techniques, system stability, Lyapunov stability methods.

References

MF110 Flight Rules and Procedures 1
Three hours per week for two semesters
A first-year subject in the Degree in Aviation.

Subject aims
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 Private Pilot License.

Subject description
Flight Rules and Air Law to CPL, Radio Communication to CPL, Introduction to Air Traffic Control to CPL, Operation Performance Flight Planning to PPL.

References
Flight Rules and Air Law, A.A. regulations, orders, etc., with amendments
MF120 Navigation and Meteorology 1

Three hours per week for two semesters

A first-year subject in the Degree in Aviation.

Subject aims
This subject is designed to provide students with an extensive understanding of the meteorological information and the performance 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.

Subject description
Navigation to CPL; Navigation Fundamentals, Pilot navigation, Radio navigation aids.

Meteorology to CPL; Introduction to Meteorology, Climatology.

References
CAA Aeronautical Information Publication. Civil Aviation Authority
CIV Civil Aviation Orders. Civil Aviation Authority


MF130 Applied Aerodynamics 1

Two hours per week for one semester

A first-year first semester subject in the Degree in Aviation.

Subject aims
This course is designed to provide students with a knowledge of the aerodynamic and flight dynamics required to form a firm foundation for practical application in flight operations up to the level of Private Pilot Licence.

Subject description
Aerodynamics to PPL; Aerodynamic principles of flight, flight controls, steady flight manoeuvres.

References
Thom, T. Basic Aeronautical Knowledge Volume 1: Aviation Theory Centre, 1991

MF140 Theoretical Aerodynamics 1

Four hours per week for one semester

A first-year second semester subject taken in the Degree in Aviation.

Subject aims
This subject is designed to reinforce a student’s understanding of the basic aerodynamic and aerodynamic principles influencing aircraft performance and present a theoretical explanation for the effects of flight parameter changes.

Subject description
Incompressible flow theory, aerodynamic pressure distribution, wind tunnel testing, aerodynamic performance factors, aircraft stability and control.

References
Thom, T. Basic Aeronautical Knowledge Volume 1: Aviation Theory Centre, 1991

MF150 Occupational Health and Safety

Two hours per week for two semesters

A first-year subject in the Degree in Aviation.

Subject aims
This subject is designed to acquaint students with the occupational health and safety requirements of modern aviation.

Subject description
Safety hazards, combustion, handling of dangerous goods, accident prevention, aviation medicine, survival skills.

References

MF160 Propulsion and Aircraft Systems

Three hours per week for two semesters

A first-year subject in the Degree in Aviation.

Subject aims
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.

Subject description
Thermodynamics, internal combustion engines, structures, mechanisms and linkages, electro-mechanical systems, motors and generators.

References

MF170 Aviation Mathematics and Computing

Four hours per week for two semesters

A first-year subject in the Degree in Aviation.

Subject aims
This subject is designed to introduce students to mathematical principles as they relate to aircraft systems and aerodynamics.

Subject description
Ap mathematics, calculus, general and high level language programming, programming applications, data transfer.

References
Mathematics Measures and Units. Canberra, AGGS, 1978
Bishop, J. and Bishop, N. Pascal Precisely for Engineers and Scientists Addison-Wesley, 1982
Thomas, G. and Finney, R. Calculus and Analytical Geometry. 8th edn, Reading, Mass.: Addison-Wesley, 1991

MF180 Aviation Electronics

Two hours per week for one semester

A first-year subject in the Degree in Aviation.

Subject aims
This subject is designed to develop students the thorough understanding of basic electronics relevant to the aviation industry.

Subject description
Electrical circuit analysis, energy transfer and utilisation, transformers.
MF190 Communication Skills

Three hours per week for one semester

A first-year subject in the Degree in Aviation.

This subject is designed to develop the basic skills in research and written and oral communication relevant to aviation industry.

Subject description
Private study and group interaction management, written and graphic communication, reading for research, group presentations.

References
Bailey, B. Effective Language. 1981
Maddock, H. How to Study. 1987
Sorrells, B.D. Business Communication Fundamentals. 1984
Breton, J.C. A Plan for Writing. 1982
Donnelly, A. How to Persuade People Through Successful Communication and Negotiation. 1977
Hicks, T.G. and Valorie, C.M. Handbook of Effective Technical Communications. E.A Books, 1989

MF210 Flight Rules and Procedures 2

Two hours per week for two semesters

A second-year subject in the Degree in Aviation.

Subject aims
This subject is designed to provide students with a knowledge of flight rules and procedures to cover various licence levels and operational situations in sufficient depth often in excess of that required for a Commercial Pilot Licence.

Subject description
Operation performance and flight planning to CPL: Broaden understanding of flight manual, 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.

References
CAA. Regulations, Orders, etc. with amendments
Thom, T. Basic Aeronautical Knowledge Volume 2. Williamstown: Aviation Theory Centre, 1985

MF220 Navigation and Meteorology 2

Three hours per week for two semesters

A second-year subject in the Degree in Aviation.

Subject aims
This subject is designed to provide students with an extensive understanding of the operation and limitations of navigation meteorological systems, and an ability to take into account the importance of the dynamic atmosphere to flight operations up to Airline Transport Pilot Licence standard.

Subject description
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.

References
Janes, Janes Avionics, Janes, 1989-1990
CAA. Aeronautical Information Publication. Civil Aviation Authority
CAA, Civil Aviation Orders. Civil Aviation Authority


MF230 Applied Aerodynamics 2

Two hours per week for two semesters

A second-year subject in the Degree in Aviation.

Subject aims
This subject is designed to reinforce and increase a student's basic understanding of the aeronautical and aerodynamic factors influencing aircraft performance up to Commercial Pilot Licence standard.

Subject description
Aircraft General Knowledge to CPL: Engines and general aircraft systems, thermodynamic systems, aircraft engine operation and control.
Aerodynamics to CPL: Design features, characteristics of airflow, the operation of controls, asymmetric flight.

References

MF240 Advanced Aerodynamics

Three hours per week for one semester

A second-year first semester subject taken in the Degree in Aviation.

Subject aims
This subject is designed to provide a student with an advanced understanding of the aeronautical and aerodynamic factors influencing aircraft performance and present a theoretical explanation for the observed effects of flight parameter changes.

Subject description
Theory of compressible flow, subsonic, transonic and supersonic aerodynamics and wings, dynamic stability, aircrews.

References

MF250 Human Factors and Performance

Three hours per week for two semesters

A second-year subject in the Degree in Aviation.

Subject aims
This subject is designed to provide students with an introduction to the human factors affecting the performance of demanding tasks in a high work load environment like an aircraft cockpit.

Subject description
Psychology, cockpit layout, task performance, accident analysis, decision making.

References
Hurst, I. and L. Pilot Error: Granada, 1976
O'Hare, D. and Roscoe, S. Flightdeck Performance — The Human Factor. Iowa, UP, 1990
MF260 Advanced Propulsion and Aircraft Systems

A second-year subject in the Degree in Aviation.

Subject aims
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 Aircraft Transport Pilot Licence.

Subject description
turbo, operation, propulsion developments, certification.

References


MF270 Aircraft Materials and Structures

Three hours per week for two semesters

A second-year subject in the Degree in Aviation.

Subject aims
This subject is designed to provide students with an introduction to the strength of materials and their behaviour as loaded members in aircraft structures.

Subject description
Structural loading, mechanics of materials, material properties, metal corrosion, fatigue.

References

MF280 Avionics and Electronics

A second-year subject in the Degree in Aviation.

Subject aims
This subject is designed to provide students with an understanding of the operational avionics systems that are essentially electronically driven or controlled.

Subject description
Analog electronic circuits, frequency response, digital electronic concepts, electronic interconnection.

References
Del Tom, V. Electrical Engineering Fundamentals. 2nd edn, Prentice-Hall, 1986
Smith, R.J. Electronics Circuits and Devices. 2nd edn, Wiley, 1987
Cripps, M.D. Computer Interfacing — Connects them to the Real World. Edward Arnold, 1990

MF290 Aviation Business Management

Three hours per week for one semester

A second-year subject in the Degree in Aviation.

Subject aims
This subject is designed to provide students with the knowledge of the functions of aviation business operations and the various roles within an organisation.

Subject description
Business management, flight administration, financial control.

References

Subject aims and description
A first-year subject in all degree courses in engineering. The subject is divided into four parts: physics, energy systems, chemistry and materials and processes.

Part-time students may undertake this subject in separate components as follows:

MM120A Physics — 2 hours per week in 1st semester and 1 hour per week in 2nd semester.

MM120B Energy and Processes — 2 hours per week in 1st semester and 4 hours per week in 2nd semester.

MM120C Chemistry — 2.5 hours per week in 1st semester.

MM120D Materials and Processes — 25 hours per week in 2nd semester.

Physics: Kinetic theory of gases; Linear Dynamics; Rotational Dynamics; SHM and Wave Motion; Fluid Mechanics.


Chemistry: review of chemical bonding, formulae and periodic table. Energy of chemical bonding; electrochemistry; organic and inorganic chemistry.

Materials and processes: metallic, polymeric and ceramic states; Phase transformations; deformation in materials; polymer technology. Compounding Extrusion/injection, compression and blow moulding. Thermforming; machine and near shape forming. Machining methods. Metal powder technology.

Textbooks
Physics

Energy Systems

Chemistry

Materials and Processes

MM169 Services
Three hours in first semester
Two hours in second semester
Prerequisites: Nil
Method of Teaching: Lectures, tutorials, field exercises and laboratory tests
Method of Assessment: Examination 80%, Assessed work 20%

Subject aims and description
A first-year subject of the Degree of Building Surveying intended to provide students with an understanding of services such as water, electrical, sewage and heating, required in buildings; together with the scientific basis of such systems as a knowledge of thermodynamics.

References
MM180 Construction Materials
Three hours for one semester
Prerequisites: Nil
Method of Teaching: Lectures, tutorials, laboratory work
Method of Assessment: Examination 50%, Reports 20%

Subject aims and description
A first-year subject in the Degree in Building Surveying, intended to
give students an understanding of the behaviour of building materials
such as timber, bricks and blocks, cement and concrete, bituminous
materials so that they can:
be used correctly and appraise new materials. Introduction to other
materials used in buildings, and of joining methods

References
Van Vlack, L.H. Materials for Engineering. Reading, Mass.: Addison-
Wesley, 1982

MM209 Engineering Practices
(36 hours)
A second-year subject in the Degree in Mechanical Engineering.

Subject aims and description
This subject provides students with an introduction to current engineer-
ing trade practices and the development of personal elementary
‘hands-on’ skills in these trades.
Students will attend a week block of full time Engineering Practices
in one non-teaching week prior to the start of semester 2. The pro-
gram will operate for 45 days per week, and will permit students to
complete the three trades within the week. Groups will be arranged
to suit the current University calendar.
The syllabus is comprised of lectures, demonstration of specific trade
skills and techniques, and completion of ‘hands-on’ practical work in
basic TAFE trade areas of:
Electrical/Electronic Systems (12 hours)
Machine Shop (12 hours)
Welding (12 hours)

MM210 Industrial Processes
Two hours per week for two semesters
Assessment: exam, practical work, assignments

Subject aims and description
Brief history of the development of the chemical industry. The operation
of major chemical and mineral processing industries using examples of
industries employing inorganic, organic and natural sources.
Practical work in physical chemistry and thermodynamics in support of
the syllabus for MM211, Introduction to Chemical Engineering.

Textbooks
As specified by the lecturer.

Reference
Austin, G.T. Shrews Chemical Process Industries. 5th edn, New York:
McGraw-Hill, 1984

MM211 Introduction to Chemical Engineering
Two hours per week for two semesters
Assessment: exams, assignments

Subject aims and description
Chemical engineering thermodynamics: Physical equilibrium, bubble
dewpoint relations, phase diagrams, activity and activity co-
efficients, Gibbs Duhem equation, chemical reaction equilibria, heats of
reaction and entropy.
Basic Design Techniques: Mass and energy balance calculations; flow-
sheets; stoichiometry calculations involving bypass, recycle and purge;
combustion air heat engine calculations

Textbooks
Smith and Van Ness. Introduction to Chemical Engineering Thermo-
dynamics. 4th edn, McGraw Hill, 1987
Felder, R.M. and Rousseau, R.W. Elementary Principles of Chemical

MM220 Energy Systems
Four hours per week over first semester
Assessment: Examination, Laboratory assignment

Subject aims and description
This subject is a second-year 1st semester subject in the manufacturing engineering degree course.
This subject comprises:
1. Thermodynamics two hours per week.
2. Fluid mechanics two hours per week

Thermodynamics
Revision of non-flow processes with gases.
Revision of steady flow processes with gases and liquids.
Non-steady flow with non-reacting fluids (mechanical engineering students only).
Second law of thermodynamics.
Reversibility.
Entropy of gases, liquids and vapours, T-S and h-s charts.
Vapour compression refrigeration.
Real gases (manufacturing engineering students only).

Fluid Mechanics:
Fundamental concepts: perfect and real fluids; density, compressibility,
viscosity, Newtonian and non-Newtonian fluids, surface tension.
Fluid statics: Measurement of pressure, laws of fluid pressure,
hydostatic thrust on submerged surfaces; buoyancy and flotation.
Basic fluid dynamics: Continuity, energy and momentum equations;
application to devices for measuring velocity and flow rate.
Introduction to boundary layer theory: Qualitative treatment of
boundary layer growth; laminar and turbulent velocity profiles.

References
Daugherty, R.L., Franzini, J.B. and Finnermore, E.J. Fluid Mechanics
Easby, T.D. and McConkey, A. Applied Thermodynamics for
Rogers, G.F.C. and Mayhew, Y.R. Thermodynamic and Transport
Properties of Fluids. Latest edn, Oxford: Basil Blackwell
Rogers, G.F.C. and Mayhew, Y.R. Engineering Thermodynamics, Work
Schmidt. Moller Enthalpy — Entropy and Diagram for Steam. Latest
dtn, Springer

MM222 Energy Systems
Four hours per week for semester one
Three hours per week for semester two

This subject is for all degree students in mechanical engineering.

Subject aims and description
This subject comprises:
1. Thermodynamics two hours per week.
2. Fluid mechanics one hour per week.

Thermodynamics
Revision of non-flow processes with gases.
Revision of steady flow processes with gases and liquids.
Non-steady flow with non-reacting fluids.
Second law of thermodynamics.
Entropy of gas, liquids and vapours, T-s and h-s charts.
Reversibility.
Vapour compression refrigeration.
Turbine isentropic efficiency.
Reciprocating has compressors.
Introduction to power cycles including Carnot, Rankine (with reheat and feed water heating), Otto, Diesel, Joule, Stirling.

Fluid mechanics
Fundamental concepts: perfect and real fluids; density, compressibility,
viscosity, Newtonian and non-Newtonian fluids, surface tension.
revision of fluid statics: measurement of pressure, laws of fluid pressure,
hydrostatic thrust on submerged surfaces. Basic fluid dynamics: Continuity, energy and momentum equations; velocity
measurements, Turbulence, friction factors, laminar and turbulent flow, boundary layers in compressible and incompressible
flow, V flow in pipes and ducts, head losses due to friction, other head losses, friction factor for laminar and turbulent steady flow.

Aims: Following a brief revision of MM220 studies, students will be
introduced to the study of steady flow, non-flow processes and
thermodynamics; energy conservation in steady and non-steady
flows and incompressible fluids and reversibility.

Students will be introduced to the mechanics of fluids, covering
fluid properties, fluid statics, momentum, energy and an introduction to boundary layer theory.

Textbooks
Daugherty, R.L., Franzini, J.B. and Finnermore, E.J. Fluid Mechanics
with Engineering Applications SI Metric edn, New York: McGraw-Hill,
1989

References
Schmidt, Mollier/Enthalpy — Entropy Diagram for Steam. Latest edn, Springer

MM230 Engineering Materials
Two hours per week for two semesters
This subject is a second-year subject in the Mechanical and Manufacturing Engineering Degree.

Subject aims and description
It aims to establish a working knowledge of the relationships between the structure and properties of materials as applied to fields of mechanical and manufacturing engineering.

Subjects covered include:
Fracture mechanics; Fibre composite materials; Polymeric materials; Ferrous materials; Non-ferrous materials; Processing of electrical materials; Corrosion and stress corrosion; Tribology; Joining technologies; Material property data bases.

References

MM240 Electronics and Measurement Systems
Two hours per week for two semesters
Subject aims and description
This subject is taken in two parts; n and e systems, both of which are for two hours per week for one semester, and is common for all degree students in the school of mechanical and manufacturing engineering.

Electronics
Digital Electronics and Microcomputers: introduction to computers; Binary, Octal and Hexadecimal numbers; BCD numbers; binary arithmetic; two’s complement notation; bit grouping; basic digital devices — logic gates, combining logic gates; flip flops and latches; multiplexers and demultiplexers; semiconductor memories; introduction to microcomputers; simplified microcomputer operation.

Electronics
Amplification and passive transducers; thermocouples; piezoelectric, photoelectric, optical, resistive, capacitive, inductive. Communications — modulation — amplitude, frequency, pulse code. Motors — DC motors, AC motors, AC/DC motors.

References

Instrumentation and Measurement Systems
Principles of the role of sensors for the measurement of displacement, velocity, force, pressure, density and temperature; use of electrical quantities, including examples of electromechanical, capacitance, piezoelectric, inductance, and thermoelectric transducers. Analysis of the static and dynamic behaviour of electro-mechanical systems, input-output relations of transducers, 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 micro-computers.

MM243 Applied Mechanics
Four hours per week for first semester
Three hours per week for second semester
A second-year subject in the Degree in Mechanical Engineering.

Subject aims and description
Semester one aims to consolidate earlier studies of force equilibrium, deformation and stressing of simple components and the extension of analysis to more complex loadings which require the determination of stress in two dimensions.

Mechanics of materials:
Frames and machines: analysis of axial and shearing forces and moments in frame, beam and frame systems. Stresses in frame and machine members resulting from axial, shearing and flexural loading. Review of bending formulae derivation.

Mechanics of machines:
Torsion; general treatment of elastic torsion of circular section members.

MM244 Applied Mechanics
Four hours per week for one semester
A second-year subject in the Degree in Manufacturing Engineering.

Subject aims and description
Aims to consolidate earlier studies of force equilibrium, deformation and stressing of simple components and the extension of analysis to more complex loadings which require the determination of stress in two dimensions.

Mechanics of materials:
Frames and machines: analysis of axial and shearing forces and bending moment in frame and frame systems. Stresses in frame and machine members resulting from axial, shearing and flexural loading. Review of bending formulae derivation.

Mechanics of machines:
Torsion; general treatment of elastic torsion of circular section members.

Textbook

Textbooks

References

Faculty of Engineering

References


MM245 Applied Thermodynamics
Four hours per week for first semester
Three hours per week for second semester
A second-year subject in the Degree in Mechanical Engineering.

Subject aims and description
Semester one aims to consolidate earlier studies of force equilibrium, deformation and stressing of simple components and the extension of analysis to more complex loadings which require the determination of stress in two dimensions.

Mechanics of materials:
Frames and machines, torsion, plane stress, Mohr’s stress circle.

Mechanics of machines:
Torsion; general treatment of elastic torsion of circular section members.

Textbook

References

Textbooks

MM250 Engineering Design

Two hours per week for two semesters

This subject is common for all degree students in the school of mechanical and manufacturing engineering.

Subject aims and description

Lecture and tutorial topics are listed below.

Introduction to the course: Introduction to design; Design documentation; Standards and specifications; Tolerances in design; Geometry tolerancing; Design criteria; Failure theories for strength; Bolted and gasketed joints; Welded joints; Lubrication and journal bearings; Rolling element bearings; Chain and belt transmissions; Optimum drive selection; Stress concentration in design; Design for fatigue and endurance; Checking machine elements for fatigue and endurance limits; Shaft design; Shaft design standards; Estimating shaft dimensions; Mechanical drives; Couplings; Clutches and brakes; Electric motors; Introduction to pneumatic and hydraulic systems.

References


MM260 Ergonomics

Two hours per week for second semester

A second-year subject in the Degree in mechanical Engineering.

Subject aims and description

The course aims to give students an understanding of the place humans occupy in the industrial environment and to develop an awareness of the relationships between humans and the workplace and to establish a broad understanding of ergonomics with an introduction to the indentification and assessment of common industrial ergonomic problems.


References


MM269 Services

Two hours per week for one semester

Prerequisite: MM169 Services

Method of Teaching: Lectures, tutorials and field excursions

Method of Assessment: Examination 70%, Assessed work 30%

Subject aims and description

A second-year subject of the Degree in Building Surveying dealing with the services encountered in industrial and low rise buildings. The following topics are covered. Air conditioning; basic principles of comfort requirements. Equipment type. Integration in buildings. Electrical services; principles of illumination, emergency and exit lights. Communication systems. Speciality services; garage and trade waste disposal.

References


American Society of Heating, Refrigerating and Air Conditioning Engineers. ASHRAE Handbooks (Fundamentals, Systems, Application and Equipment volumes), latest editions, 1985

MM270 Manufacturing Technology and CAD/CAM

Two hours per week for two semesters

Subject aims and description

This subject is a second-year subject in the mechanical and manufacturing engineering degree course.

This subject is comprised of a CAD/CAM section (draft theory and hands on) and a lecture based Manufacturing Technology section, each occupying one semester.

Assessment of the two sections will be completed on a semestrs basis, with the manufacturing technology section being assessed by examination and assignment and the CAD/CAM section being assessed by separate assignments in CAD and CAM and submitted reports on the hands on work.

The subject aims to provide students with an understanding of some of the fundamental technologies employed in manufacturing industry. Students will develop an appreciation of the principles underlying these technologies, how they are applied, and how they affect product cost and quality.

Students will also be introduced to the principles of computer aided design (CAD) and computer aided manufacture (CAM), and through hands on exercises, begin to develop skills in the application of CAD/CAM.

References


MM271 Manufacturing Technology

Four hours per week for one semester

Assessment: examinations and assignments

Subject aims and description

The subject is taken in conjunction with MM272 (Manufacturing Practice) and also compliments the subject MM270 taken by all manufacturing and mechanical engineering students.

As such, it expands upon the fundamentals of those subjects to provide the manufacturing engineering student with both a wider and more rigorous treatment of the range of manufacturing technologies. In addition, students are introduced to concepts and techniques associated with engineering dimensional metrology which serve as a bridge between the technologies and quality in manufacture.

Texts


MM272 Manufacturing Practice

Four hours per week for one semester

Assessment: practical work and assignments

Subject aims and description

To familiarise the students with the workings and functionality of manufacturing machines;

To reinforce materials taught in the Manufacturing Technology and CAD/CAM subjects of the course;

To develop in the students experimental skills;

To develop the students report writing skills.

MM280 Introduction to Management

Two hours per week for two semesters OR

Four hours per week for one semester

Subject aims and description

Topics of each week's lectures and tutorials are listed below:

Self Management; People Management; Industry Management; Management Functions and Context.

Textbook


Plus selected references.
MM297  Professional Computing  
One hour per week for two semesters  
Prerequisite: Standard first year introductory course EE188 or a course equivalent to the computing component of EE188  
Assessment: Test and Assignment  
A second-year subject in the Degree in Manufacturing and Mechanical Engineering.

Subject aims and description
This subject aims to teach the development of structured programs using the PASCAL language. The structure and function of system software such as operating systems, compilers etc. are discussed as examples. FORTRAN is introduced as another language for programming engineering problems.

Building on the PASCAL programming taken in the first year, the students will gain programming experience in both PASCAL and FORTRAN 77. The problems given will be relevant to the students' specialising in chemical, production or mechanical engineering fields.

Topics: data structures and algorithms, structured programming using PASCAL language; architecture of operating systems (compilers, editors, linkages, assemblers); overview of other high level languages and introduction to syntax of FORTRAN 77; programming with FORTRAN 77.

Texts and References
Elster, D.M., Standard FORTRAN for Engineers and Scientists, 2nd edn, Benjamin Cummings, 1987
Savitch, W.J., Turbo PASCAL, Benjamin Cummings, 1987

MM312  Unit Operations  
Four hours per week for one semester  
Assessment: Practical work and examination  
A third year subject in the Degree in Manufacturing Engineering.

Subject aims and description
Aim: To impart understanding of physical phenomena involving particles, and the importance of these in chemical manufacturing. 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.

Textbook

MM315  Heat Transfer  
Five hours per week for one semester  
Assessment: Practical work and examination  
A third year subject in the Degree in Manufacturing Engineering.

Subject aims and description
Aim: To impart understanding of physical phenomena involving particles, and the importance of these in chemical manufacturing. 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.

Textbook

MM320  Energy Systems  
Four hours per week for one semester  
A third year subject in the Degree in Mechanical Engineering.

Subject aims and description
This subject comprises:
Thermodynamics 2.5 hrs/week for one semester. Fluid mechanics 15 hrs/week for one semester.

Fluid Mechanics:
Dimensional analysis and similarity. Methods of dimensional analysis; dimensionless groups associated with problems occurring in fluid flow including effects of inlet and forcing 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, powerflow characteristics, efficiency, similarity laws, system matching.

References

MM330  Advanced Materials  
One hour per week for one semester  
Assessment: examinations and assignments  
A third year subject in the Degree in Manufacturing Engineering.

Subject aims and description
Fracture Mechanics:
Plane strain fracture toughness testing. Valid test sample, determination of stress intensity factor, toughness determination for a variety of materials and configurations.

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:
MM331 Engineering Materials

A third year subject in the Degree in Mechanical Engineering.

Subject aims and description
Fracture Mechanics: plane strain fracture toughness testing; validity; examples of RCIC analysis. Fatigue: life calculations and analyses. Fibre composite materials: fabrication and manufacture; metal matrix composites; high temperatures, high strength composites. Design of cellular solids, including the facing core, and their adhesion: analytical design; empirical design; critical failure modes. Laminate composite analysis; analysis using computer packages. Advanced ceramics: characterisation of ceramics; surface flaws; statistical distribution; Web analysis; strengthening of ceramics; design and selection of advanced ceramics for structural and high temperature applications. Surface engineering: nature of wear; testing and selection for wear resistance; quantitative description of wear; r of strial systems for modification of surfaces.

References
Tsai, S.W. Composite Design. 4th edn, Dayton, Ohio: Think Composites, 1988
Richardson, B.W. Modern Ceramics Engineering. Boston: Marcel Dekker, 1983

MM340 Applied Mechanics

Three hours per week for one semester

Assessment: 1 x 3 hour examination, assignment/ laboratory

A third year subject in the Degree in Manufacturing Engineering.

Subject aims and description
Part A Solid Mechanics: To extend earlier studies of stress, strain and deflection of elastic systems and introduce the concepts of yielding, failure and deformation beyond the elastic limit.

Textbook

References

Part B Vibrations: A basic course in vibrations covering the properties of 1, 2 and multi degree of freedom systems (with and without damping) to free, transient and steady state harmonic forcing.

Textbook

References

MM341 Mechanics and Machine Systems

Six hours per week for one semester

This subject consists of three parts:

MM341a Mechanics of Materials

Two hours per week for one semester

Subject aims and description
A course that concentrates on structural analysis, buckling instability and complex bending.


References

MM341b Mechanics of Machines

Two hours per week for one semester

Subject aims and description
A basic course in vibrations covering the properties of 1, 2 and multi degree of freedom systems (with and without damping) to free, transient and steady state harmonic forcing.


Multi degree of freedom systems. Equations of motion; system modelled with support by linear systems. Real and complex eigenvalues and eigenvectors. Example of the natural modes of a building.

References

MM341c Control Engineering

Two hours per week for one semester

Subject aims and description
An introduction to the application of classical methods for the analysis of the dynamic performance of linear systems.


References
Dransfield, P. Systems and Control. Part 1 and 2, Monash University, 1988
MM350 Design for Manufacture

Four hours per week for one semester

A third year subject in the Degree in Manufacturing Engineering.

Subject aims and description

This subject is designed to develop students in design aspects of common industrial systems and to consolidate their first industrial experience into the design process.

Assessment will be by projects and assignments on these topics:

Design process: 
- Design process: 4 aspects of decision-making strategies within Australian industry, and other communities, and directions applicable to diverse idea generation and convergent solution selection processes.

Mechanical transmission systems: Hierarchy of useful mechanical power transmission systems for fixed and variable ratios. Design of spur and helical gear systems, Force analysis and statics, under dynamic loading conditions. Losses and heat dissipation. Consideration of fatigue strength and surface durability. Practical design aspects for shafts, bearings, pinions, wheels and housings.

Machine bases and foundations.

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.


Numerical control: introduction to NC machine tools, comparison with conventional, hardware configurations, software implementation, control systems, machine control unit, feed 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. Computer assisted NC programming (processors, post-processors); APT, Computer Numerical Control (CNC), Direct Numerical Control (DNC); comparison, management implications.

Numerical control: introduction to NC machine tools, comparison with conventional, hardware configurations, software implementation, control systems, machine control unit, feed 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. Computer assisted NC programming (processors, post-processors); APT, Computer Numerical Control (CNC), Direct Numerical Control (DNC); comparison, management implications.

Numerical control: introduction to NC machine tools, comparison with conventional, hardware configurations, software implementation, control systems, machine control unit, feed 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. Computer assisted NC programming (processors, post-processors); APT, Computer Numerical Control (CNC), Direct Numerical Control (DNC); comparison, management implications.

Numerical control: introduction to NC machine tools, comparison with conventional, hardware configurations, software implementation, control systems, machine control unit, feed 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. Computer assisted NC programming (processors, post-processors); APT, Computer Numerical Control (CNC), Direct Numerical Control (DNC); comparison, management implications.

Numerical control: introduction to NC machine tools, comparison with conventional, hardware configurations, software implementation, control systems, machine control unit, feed 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. Computer assisted NC programming (processors, post-processors); APT, Computer Numerical Control (CNC), Direct Numerical Control (DNC); comparison, management implications.

MM360 Ergonomics

Three hours per week for one semester

A third year subject in the Degree in Mechanical Engineering.

Subject aims and description

This subject is a continuation of MM260 and expands on the material introduced in the second year subject.

Ergonomics systems concepts: ergonomic systems modeling, approaches to problem analysis and design synthesis. Human body functional anatomy: human skeletal and muscular system of hand, arm, shoulder, spine structures. Structure of body, vision characteristics and limitations. Structure of ear, hearing characteristics and limitations. Biomechanics of the upper limbs, application to lifting, pulling, pushing tasks. Engineering and psychology: quantification of human information processing to perception, memory, learning, and motor control. Vigilance and attention: signal detection and search theory, reaction time, risk, subjective probability and expected values, physical environmental factors. Thermal measurement indices, alleviation and control techniques. 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 through 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. Human-Environment-Workplace interface: displays and control compatibility, design of operator interface. Workspace and systems evaluation, m for working environment and task demands. Workspace design, modeling, and synthesis techniques. Work organization: application of skills and task analysis to job design, worker intervention theories, effects of job type on worker performance, shiftwork.

References

Wickens, C.D. Engineering Psychology and Human Performance. Columbus: Menill, 1984

MM370 Manufacturing Technology

Five hours per week for one semester

A third-year subject in the Degree in Manufacturing Engineering.

Subject aims and description

Sheetmetal work: presses, classification, drive systems and mechanism, 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, die design and requirements, variables, effects of clearance, cutting with shear, stripping force. Materials selection for press molding. Mechanical design considerations, mechanical testing, tensile test, analysis of stress, 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, feed 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. Computer assisted NC programming (processors, post-processors); APT, Computer Numerical Control (CNC), Direct Numerical Control (DNC); comparison, management implications.

Numerical control: introduction to NC machine tools, comparison with conventional, hardware configurations, software implementation, control systems, machine control unit, feed 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. Computer assisted NC programming (processors, post-processors); APT, Computer Numerical Control (CNC), Direct Numerical Control (DNC); comparison, management implications.

Numerical control: introduction to NC machine tools, comparison with conventional, hardware configurations, software implementation, control systems, machine control unit, feed 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. Computer assisted NC programming (processors, post-processors); APT, Computer Numerical Control (CNC), Direct Numerical Control (DNC); comparison, management implications.

Numerical control: introduction to NC machine tools, comparison with conventional, hardware configurations, software implementation, control systems, machine control unit, feed 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. Computer assisted NC programming (processors, post-processors); APT, Computer Numerical Control (CNC), Direct Numerical Control (DNC); comparison, management implications.

Numerical control: introduction to NC machine tools, comparison with conventional, hardware configurations, software implementation, control systems, machine control unit, feed 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. Computer assisted NC programming (processors, post-processors); APT, Computer Numerical Control (CNC), Direct Numerical Control (DNC); comparison, management implications.

Numerical control: introduction to NC machine tools, comparison with conventional, hardware configurations, software implementation, control systems, machine control unit, feed 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. Computer assisted NC programming (processors, post-processors); 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, dilatant, plastic flow, time dependent flow, thixotropy, viscosity, fractional viscosity. Extrusion defects; causes and prevention. Extrusion die design, and mold making: handcut extrusion, and product characteristics. Injection moulding; mould design, basics of the moldflow philosophy, cooling systems. Thermforming die design. Elastomers; C black, other additives, compounding. Compression and injection moulding.
**Textbooks**


**References**


**MM380 Productivity Improvement**

***Two hours per week for one semester***

A third-year subject in the Degree in Manufacturing Engineering.

**Subject aims and description**

- Productivity: definition. social and economic implications, waste reduction attitudes.
- Work study: Method study, time measurement, ( stopwatch, predetermined methods: work sampling).
- Value analysis and engineering.

Laboratory exercises will be conducted on relevant issues.

**References**


**MM381 Managerial Economics**

***Two hours per week for one semester***

A third-year subject in the Degree in Manufacturing Engineering.

**Subject aims and description**

- Economics and Finance
  - supply and demand, elasticity, pure competition, monopoly and oligopoly
  - micro economics of cost, profit marginal concepts
  - source of finance and cost of capital
  - macro-economic fundamentals
  - banking system and credit
  - national accounts. GDP; government controls
  - productivity and international comparisons
  - markets, resource allocation
  - demand analysis, forecasting
  - economic indicators

Accounting
- Introduction to accounting
- Financial accounting and annual reports, financial ratios
- Management accounting, budgeting, standard costing, historical costing, marginal costing.

An accounting/finance package will be used in teaching the accounting section.

**Textbook**


**References**


**MM396 Computer Science**

***Two hours per week for one semester***

Prerequisite: **MM297**

A third-year subject in the Degree in Manufacturing Engineering.

**Subject aims and description**

- The subject aims to introduce 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 the way databases are manipulated, by design of a system in-house or applications packages (off-shelf).

Computer architectures, with emphasis on special purpose systems to support real time systems, communication between computers and machines, processes, e.g. including an overview of mostly used systems: a discussion of relational databases including normalisation of data, design approaches, query languages: an overview of a database package such as DBase III-V: spreadsheet modelling, implementation using a package.

**Textbook and Reference**

- Saola, P. *DBase III Workbook*. Swinburne Bookshop

**MM414 Stage-wise Processes**

***Five hours per week for one semester***

A fourth year subject in the Degree in Manufacturing Engineering.

**Subject aims and description**

- 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, weir 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.

**Textbook**


**Reference**


**MM415 Mass Transfer**

***Four hours per week for one semester***

A fourth year subject in the Degree in Manufacturing Engineering.

**Subject aims and description**


- Convective mass transfer: mass transfer coefficients; interphase mass transfer. Theory and design of continuous differential contacting: mass transfer with chemical reaction; mass head and momentum transfer analogies.

**Textbook**


**Reference**


**MM420 Energy Systems**

***Four hours per week***

A fourth year subject in the Degree in Mechanical Engineering.

**Subject aims and description**

- Thermodynamics — Two hours per week for one semester.
  - Fluid mechanics — Two hours per week for one semester.

- Fluid Mechanics: Rotodynamic machinery characteristics, moment of inertia, energy, work. Dynamic pressure, total pressure, static pressure, system matching and analysis. Fluid drag, boundary layers and wakes. Flow through submerged bodies, pressure drag, boundary layer theory, Navier-Stokes equation, momentum and
A fourth year subject in the Degree in Manufacturing Engineering. 

**Subject aims and description**

This subject is designed to develop students in design aspects of advanced industrial systems and to provide competence in project engineering work ready for their second industrial placement.

Assessment will be by project and assignments on these topics: Design analysis of thermofluid systems; Design characteristics of fluid flow equipment. Pumps and fans, compressors and turbines. Vessels, valves, piping and flanges. Heat exchanger design options, configurations and insulation. System flow sheeting. Design analysis of control systems: Design classification of control systems. Design procedures, trade-off between accuracy and stability. Component modelling and sizing for system design. Design analysis of proportional, integral and derivative control systems. Phase compensation.

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**References**


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**M440a Mechanics of Materials**

- One and a half hours per week

**Subject aims and description**

This subject provides experience and understanding of experimental methods of stress analysis and extends the student's ability to apply basic principles to more complex problems. Thin plates and shells. Deformations Symmetrical about an Axis. This subject provides experience and understanding of experimental

**References**


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**M440b Vibration and Noise Control**

- Two hours per week for one semester

**Subject aims and description**

This subject provides basic understanding of acoustic measurements and noise control techniques; and extends the earlier subject in vibrations to engineering applications.

Topics covered include:

- Continuous and branched systems. Vibration measurement, Balancing of solid rotors — field balancing. Sound measurement and analysis. Noise control.

**References**

- Bury, M.D. Course Notes on Industrial Noise Control

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**M440c Control Engineering**

- One and a half hours per week

**Subject aims and description**

This subject provides experience in the design and analysis of system state-space methods.

Topics covered include:

- Transient response and the root locus method; Root loci and constant gain loci; application of the root locus method to the analysis of the transient performance of closed loop systems.
- Polar plots of root loci; Application of the root locus method to the analysis of the transient performance of closed loop systems.

**References**

- Dransfield, P. Systems and Control. Part 1 and 2, Monash University, 1985
Design optimisation: Modelling and simulation of engineering systems. Design optimisation techniques and local applications. Risk analysis and design for mechanical reliability. Failure analysis, quality control and product liability. Cost models and evaluation, product pricing and life cycle costing. Integration of design and ergonomic factors in major engineering projects.

References

MM460 Ergonomics
Three hours per week for one semester
Assessment: Assignments and laboratory

A fourth year subject in the Degree in Mechanical Engineering.

Subject aims and description
At the completion of this subject students should be able to demonstrate competence in ergonomic assessment of workplaces. The major assignment for this subject will take the form of an ergonomic design of a workplace.


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 injuries: types, origins, task design criteria, control measures.

Oc...
MM480 Facilities Planning and Design
Three hours per week for one semester

A fourth year subject in the Degree in Manufacturing Engineering.

Subject aims and description
Aim: To introduce methods of analysis and planning of facilities layout considering products, processes, effective material handling facilities, etc. Relevant quantitative techniques such as queuing theory, location models, etc are introduced where they are needed for design of facilities.

Significance and objectives of a facilities design. Product development; market research; forecasting; design. Process development/planning. Capacity planning; schedules, machines, manpower tools. Material handling requirements: principles, selection, design. Storage and warehousing. Process planning and production. Layout design; conventional and computer-aided approaches. Analytical models used; queuing, location models. Facility design for JIT... WCM.

Textbook

References

MM481 Decision Analysis
Two hours per week for one semester

A fourth year subject in the Degree in Manufacturing Engineering.

Subject aims and description
Aim: The aim of this subject is to introduce the decision making methodology and techniques. To emphasise the need for formal approaches and the goals of structured, formal decisions. To examine several areas in manufacturing where crucial decisions must be made if these use of these techniques are to be effective. 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 in computer package will be used. Decision outcomes under uncertainty. Risk attitudes, utility functions. Decision making in large 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 Delphic technique reviewed. The analytic hierarchy process, methodology, modelling, Structuring the problem, judgement. Group decisions with AHP, other methods. Sensitivity analysis and presentation of results. Use of a computer package to experiment with AHP.

References

MM482 Manufacturing Operations Management
Two hours per week for one semester

A fourth year subject in the Degree in Manufacturing Engineering.

Subject aims and description
Aim: To introduce methods of planning and managing all functions and their relationships in a manufacturing environment, how it is planned, organised and controlled.

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; CAD/CAM; scheduling techniques at shop floor level; inventory control policies and models; MRP, MRPII, methodology; introduction to a computer; implemented MRP, hands on experience; requirements for successful MRP implementations.

References

MM483 Engineering Management
Four hours per week for one semester

Subject aims and description
This subject provides both an introduction to fundamental of financial and commercial engineering functions and an overview of organisational environment effects on engineering outcomes. 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.

Textbook

MM500 Manufacturing Project
Six hours per week for one semester plus three weeks full-time

Assessment: By thesis and observed techniques

A fifth-year subject in the Degree in Manufacturing Engineering.

Subject aims and description
Aim: 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
One hundred and thirty seven hours over eighteen weeks

Assessment: Student seminar, technical report and performance assessment

A fifth-year subject in the Degree in Mechanical Engineering.

Subject aims and description
Aim:
1. 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 report and, if appropriate, usable equipment.
2. To develop individual initiative in pursuing an engineering objective.
3. To plan and manage, in conjunction with a staff member, the progress of an engineering project.

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 college 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

Two hours per week for one semester

Assessment: Tutorial assignments, practical work and examination

A fifth-year subject in the Degree in Mechanical Engineering.

Subject aims and description

Aim: 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 mathematical structures used in the modelling of engineering systems.

Section A: Mathematical Methods

Numerical Analysis


Complex Variable


References


MM511 Chemical Engineering Design

Five hours per week for one semester (65 hours)

Assessment: Examination, practical work and assignments.

A fifth-year subject in the Degree in Manufacturing Engineering.

Subject aims and description

Aim: To acquaint the student with the responsibilities of the professional chemical engineer and some of the issues that may be confronted.

A separate segment seeks to consolidate the students' 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, flowchart preparation and layout, exercises in preparation of computer solutions to problems in momentum, heat and mass transfer.

Textbook

Ross, G. Computer Programming Examples for Chemical Engineers. Amsterdam: Elsevier, 1987

MM520 Engineering Science

Four hours per week for one semester

A subject in the fifth year of the Degree in Mechanical Engineering. Three 26-hour units are offered: Thermofluid mechanics, energy systems and energy modelling. Students must take two of the three alternatives offered.

MM520a Thermofluid Mechanics

Two hours per week for one semester, including lectures, tutorial and laboratory work

Assessment: Laboratory, assignment and examination

Subject aims and description

Aim: To provide students with an opportunity to pursue a number of applied thermofluid areas in depth.


Textbooks

**MM520b Energy Systems**

Two hours per week for one semester including lectures, tutorial and laboratory work.

**Subject aims and description**


**Textbooks**


**MM520c Energy Modelling**

Two hours per week for one semester including lectures and tutorials.

**Subject aims and description**

Aim: This subject aims to introduce students to the application of numerical methods to the solution of problems in thermo-fluid mechanics where alternative solutions are available from physical measurements or analytical solutions.

It will cover modelling accuracy, degree of difficulty, computing time, economic effectiveness in comparison with alternative solutions and relative accuracy of experimental data.

The syllabus 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, FIDAR, INFERNO). Write a report covering both tasks and addressing the above objectives.

**References**


**MM540a Mechanics of Solids**

Two hours per week for one semester.

**Subject aims and description**


**Textbooks**


**MM540b Vibration and Modal Analysis**

Two hours per week for one semester.

**Subject aims and description**

The syllabus includes advanced topics in the theoretical and experimental analysis of vibration in machines and structures. Random vibration; statistical modelling analysis and measurement. Spectral analysis, analogue and digital methods, filtering, band width, averaging time and error analysis. Response of linear systems to random forcing, Modal analysis; experimental evaluation of modal data, system identification and modification to meet design specification. Finite element methods, applications packages.

**References**


**MM540c Control Engineering**

Two hours per week for one semester.

**Subject aims and description**

The syllabus includes advanced topics in the analysis and design of engineering control systems. Topics will be offered from the following:


**Textbook**


**References**


**MM540d Machine Systems and Simulation**

Two hours per week for one semester.

**Subject aims and description**

The syllabus includes advanced application in the analysis, synthesis and design of machines and mechanisms.

**Topics**

MM550 Design for Manufacture

Five hours per week for one semester

Subject aims and description

Aim: To provide additional knowledge of design tools, machinery and equipment for quality production.

The modules on design of machinery for production and industrial robot design provide the basis for the design and selection of machine tools and robots. Advanced mechanical design and advanced tooling design (CAD/CAM) aim to provide a detailed analysis of the design of CAD/CAM systems.

References


MM551 Engineering Technology

Six hours per week for one semester

Subject aims and description

Aim: To introduce students to engineering aspects of equipment life cycle from concept through design, realization, integration, commissioning, life use and ultimate decommissioning.

The syllabus includes: Types of equipment, fixed and mobile equipment, maintenance and safety, and environments, minor equipment, service, repair, inspection, assessment, budgets and estimates, reliability and maintainability, achievements, reliability, maintainability, and advanced support requirements, trials, tests, and demonstration plans and contracting for reliability.

Maintenance Strategy:

Types and approaches, preventive maintenance, condition monitoring, tooling, resources, breakdown maintenance, and ORTL.

Integration and Commissioning process:

Systems management and systems effectiveness, the operational system, the maintenance system, the maintenance levels, and the period maintenance Operations:

Configuration:

Configuration control and modification.

Decommissioning, disposal and system replacement.

References

Byrt, W.J. and Masters, P.R. The Australian Manager. 2nd edn, Melbourne: MacMillan, 1982


Moss, M.A. Designing for Minimal Maintenance Expense. The practical application of Reliability and Maintainability. NY: M. Dekker, 1985
MM551d Occupational Risk
Two hours per week for one semester including lectures and tutorials
Assessment: Assignments

Subject aims and description
Aim: To provide an introduction to the principles of occupational health and safety. Students are expected to research in depth one of the topic areas discussed and to write a technical paper to a standard acceptable for publication in one of the major Occupational Health and Safety periodicals.

The syllabus covers:
1. Occupational hygiene: methods and limitations of sampling and measurement of contaminants, control aspects of occupational hygiene.
2. Toxicology: routes of entry, dose-response relationships, threshold limit values and other measures applied to chemicals, noise, vibration and radiation.
3. Chemical hazards and effects: solvents, dusts, welding fumes, heavy metals, sensitisation, cancer, respiratory and other systemic effects, respiratory protection against dusts, mists and vapours, equipment types, effectiveness and program requirements.
4. Radiation: ionising and non-ionising, uses and applications, damage-risk criteria, control methods.
5. 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 safeguards 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.

References

MM556 Reactor Design
Two hours per week for one semester including lectures, workshop and project consultations.
Assessment: Project

Subject aims and description
Aim: To introduce students to the methodology and techniques for developing computer models in diverse engineering technology disciplines.

Areas covered will be selected from: Engineering software, systems effectiveness, risk modelling, and expert systems engineering.

The syllabus includes:

Engineering Software Design
Topics: Software design process. Human computer interfaces, computer generated sound, window, buttons, menus, icons, navigation, help, hypertext, search techniques, use of colour, screen layout. Computer manual design. Students will use a high level software construction kit to generate an ergonomic sound piece of engineering software. Emphasis will be on high level design concepts.

Expert Systems in Engineering
Topics: The nature of expert systems. Applications of expert systems to engineering. Knowledge bases, interfacing, forward and backward chaining, rule set partitioning. Rule and frame based systems. Lisp and PROLOG. Students will use an expert system shell to generate a run-time expert system which captures some element of real engineering expertise.

Systems Effectiveness
Topics: The nature of systems effectiveness; systems effectiveness versus cost effectiveness; systems modelling, model elements and their inter-relations. Factor affecting system effectiveness; management organisation utilisation, reliability, maintainability, configuration, environment, logistic support and administration. Optimisation of systems effectiveness; reliability growth management, configuration management, system modification and systems effectiveness growth management.

Risk Modelling
Topics: The nature of risk modelling and simulation. Use of personal computers and simulation programs. Transfer of real world data into computer simulation models and models: Types of available simulation, and optimal choices for specific modelling needs: Advanced simulations with graphical interpretation of results. Communication of conclusions to management. Students will use state-of-the-art simulation software to thoroughly explore situations taken from current industrial challenges. They will be responsible for all stages of the project, from the basic definition of the problem, and following right through to the final managerial report.

References
MM570 Manufacturing Technology

Five hours per week for one semester
A fifth-year subject in the Degree in Manufacturing Engineering.

Subject aims and description

Aims: 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. The automation section emphasises the techniques applied in automation and the exotics and rubber section completes the development of these techniques.

The syllabus revises essential materials engineering and also includes: melting and solidification, deformation, slip, lattices, Homologous temperature scale, textures and anisotropy — $<110>$, $<112>$ and $<111>$; Effect of grain size — Hall Petch. Strain hardening, Strain ageing, Ductility, yield point elongation. Cold/Warm/Hot working, Super-plasticity, 'n', 'm', and 'c' values. Restoration, recovery. Spherodising. Eutectic and peritectic materials.

Textbooks
Rowe, G. Elements of Metalworking Theory. London: Edward Arnold, 1979

MM580 Management Practices

Three hours per week for one semester
A fifth-year subject in the Degree in Mechanical Engineering.

Subject aims and description

Aim: 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.

This subject includes managerial concepts and practices that engender a co-operative working environment required for World Class production and innovative (typically 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 for maximising the desired output of a new application of technology, socio-technical systems analysis for specification, selection and implementation of total technical and working environment requirements.
- Job design to sustain co-operative 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.

References
Macleod, R. (ed.) Technology and the Human Prospect: Essays in Honour of Christopher Freeman. Frances Pinter, 1986

MM581 Manufacturing Systems Modelling

Two hours per week for one semester
A fifth-year subject in the Degree in Manufacturing Engineering.

Subject aims and description

Aim: To introduce modelling concepts, techniques and solutions applied to manufacturing systems as tools in identifying structuring and analysis of problems leading to real decisions.

The syllabus covers: modelling concept; classifications; optimisation models applied to resource allocation, networks, capacity planning, maintenance, assembly lines; introduction to a commercial software package and its application to some cases; stochastic models, applications in reliability, maintenance; markovian analysis; Simulation modelling with an emphasis on benefits, applications, languages, LISP; introduction to and applications of a commercial simulation package (Simfactory); Statistical analysis, reliability modelling.

References
Williams, H.R. Modelling in Mathematical Programming. 2nd edn, Wiley

MM582 World Class Manufacturing Systems

Two hours per week for one semester
A fifth-year subject in the Degree in Manufacturing Engineering.

Subject aims and description

Aim: To understand the current trends in manufacturing via thorough analysis of content and implications of current trends. emphasis is placed on the understanding of current real issues and the development of a number of important problems. students then select an elective from one of the following:

- 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.

References
Innovations in Management — The Japanese Corporation. IIE, 1985

MM583 Industrial Management

Four hours per week for one semester
A fifth-year subject in the Degree in Manufacturing Engineering.

Subject aims and description

Aim: 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.

Topics covered include: business strategy, setting of objectives, theories and practice; supervision and leadership, motivation, finance, payment systems, management development and personnel appraisal, legal.

References
Faculty of Engineering

MM604 Design for Manufacture
Four hours per week for one semester
A subject in the Graduate Diploma in Manufacturing Technology.

Subject aims and description

Textbook

References

MM605 Design for Manufacture
Four hours per week for one semester
A subject in the Graduate Diploma in Manufacturing Technology.

Subject aims and description

References

MM606 Manufacturing Technology
Five hours per week for one semester
A subject in the Graduate Diploma in Manufacturing Technology.

Subject aims and description
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, recoils, springback, blank development. Deep drawing; planning, force requirements, variables, effects of clearance, cutting with shears, 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, controll system design considerations. System input/output, types of control media, symbolic codes, tape input format, with M/C. NC programming: machining methods, computer assisted NC programming, postprocessors, FAP, programming languages — APT. Computer Numerical Control (CNC); Direct Numerical Control (DNC); comparison, management implications.


Textbooks

References

MM607 Manufacturing Technology
Five hours per week for one semester
A subject in the Graduate Diploma in Manufacturing Technology.

Subject aims and description

Textbooks
Roe, G. Elements of Metalworking Theory. London: Edward Arnold, 1979

MM608 Manufacturing Technology
Five hours per week for one semester
A subject in the Graduate Diploma in Manufacturing Technology.

Subject aims and description
Polymer processing - comparison of techniques of polymer processing, e.g. extrusion, injection moulding and blow moulding for the production of particular components. Selection and costing with the optimisation of the use of material. Comparison of thermoset versus thermoplastic materials using elastomers and examples. Calendering and coating. Manufacture of PVC products. Analysis of film blowing and printing.

Textbooks
Roe, G. Elements of Metalworking Theory. London: Edward Arnold, 1979

MM611 Introduction to CAD
Two hours per week for one semester
Assessment: Assignments and examination

A subject in the Graduate Diploma in CAD/CAM.

Subject aims and description
Aim: To introduce the fundamentals of computer graphics, computer aided design, and geometric modelling systems.


Transformation systems: Windowing, clipping, 2D and 3D transformations. Translation, scaling and rotation of line algorithms, mass property algorithms, interference detection.

Geometric representation surfaces, modelling Complex surfaces and their manipulation and robotic paths. CAD implementation. Review of micro, mini and mainframe CAD systems: Applications, capabilities and limitations. CAD and its relationship in a totally integrated manufacturing process. Designing a simple 2D CAD system using fundamental programming skills.

References

MM612 CAD Practice
Four hours per week for one semester
Assessment: Assignments and projects

A subject in the Graduate Diploma in CAD/CAM.

Subject aims and description
Aim: To provide hands on experience on computer aided design and geometric modelling software, its capabilities and applications. Hands on 2D and 3D geometric modelling, Wireframe modelling, surface modelling and solid modelling. Complex surfaces, splines, shading and animation. Kinematic and robotic simulations. NC programming and postprocessing.

References
Instruction Manuals: CATIA package

MM613 Micro CAD
Two hours per week for one semester
Assessment: Assignment

A subject in the Graduate Diploma in CAD/CAM.

Subject aims and description
Aim: To introduce the students to micro computer aided design, its capabilities as a design/drafting tool and its limitations.

Introduction to micro CAD hardware, file maintenance and computer screen layout. Practical work on 2D and 3D, mainly in the area of graphic element generation. Points, lines, circles, cylinders, planes, etc. Utilities for image manipulation e.g. zooming, panning, copying, minoring etc. Generation of packed elements such as symbols, subparts etc. Other micro CAD facilities for comprehensive image presentation e.g. dimensioning, hatching technology etc. Advance capabilities of micro CAD systems in parametric design and CAD/CAM facilities.

References

MM614 Automation and Machining
Two hours per week for one semester
Assessment: Examination and assignments

A subject in the Graduate Diploma in CAD/CAM, Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology CIM.

Subject aims and description
Aim: To develop an understanding of machining technology and conventional automation and also the relationships between these technologies and advanced manufacturing technology. Rationales for automation. Review of conventional automation in machining. Approaches to conventional automation - pneumatic, hydraulic, electric, electronic, hybrid systems. Machining technology: Machine costs and time estimates, economics of machining, including computer techniques: tool life, effects of parameters including depth, feed, cutting force, tool geometry, temperature, cutting fluids; single and multiple cuts. Establishing cutting conditions and work holding locations.

References
Boothroyd, G. Fundamentals of Metal Machining. London: Edward Arnold, 1965

MM615 Manufacturing Automation
Two hours per week for one semester
Assessment: Examination, assignments and laborator reports

A subject in the Graduate Diploma in CAD/CAM, Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology CIM.

Subject aims and description

Introduction to automated assembly.

Laboratory sessions: NC milling, NC turning, CATIA/NC programming, postprocessing and link.

Textbook
MM616 Manufacturing Automation
Two hours per week for one semester
A subject in the Graduate Diploma in CAD/CAM.

Subject aims and description
Aim: The subject is intended to provide an understanding of the use of automation and expert systems in manufacturing.
Flow lines and flow line balancing; Transfer mechanisms, analysis of flow lines. Flow line balancing, computer simulation of flow lines.

Automated inspection systems — co-ordinate measurement machines (CMM).

Knowledge based systems: Fusion of relevance and characteristics of expert/knowledge based systems.
Laboratory: Practical work relating to programming co-ordinate measurement machines (CMM), programmable logic controllers (PLC) and industrial robots.

References

Further references will be supplied by the lecturer.

MM617 Introduction to Computer Integrated Manufacture
Two hours per week for one semester
A subject in the Graduate Diploma in CAD/CAM, Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology CIM.

Subject aims and description
Aim: This subject aims to provide the student with an appreciation of the breadth of computer integrated manufacturing — as such, it establishes the context for all other subjects taken in completing the course.

Computer Aided Design (CAD): Application of computers in engineering design.

Computer Aided Manufacturing (CAM): The role of numerical control (NC) in CAM, CNC, DNC, manufacturing planning and control systems — MRP, MRP II, CAPP and shop floor control systems.

Group technology and flexible manufacturing: Application of group technology in cellular type flexible manufacturing, definition of flexible manufacturing systems (FMS) and discussion of various aspects of flexibility.

Computer Integrated Manufacturing (CIM): Definitions, integration of elements of CIM via common data bases, data base management systems, relationship between FMS and CIM.

References

MM618 Introduction to Robotics
Two hours per week for one semester
A subject in the Graduate Diploma in CAD/CAM.

Subject aims and description
Aim: The subject is intended to provide an understanding of the use of robots in increasing manufacturing productivity. The basic terminology used in robotics is explained and the factors affecting the implementation of robotics in industry discussed.
Robot definitions, classifications, specifications and characteristics.
Robot hardware elements: Drive systems, controllers.
Robot end effectors: Gripper design, choosing an end effector.
Robot sensor systems: Vision, force and torque sensing systems.
Robot applications: Machining, spray painting, glueing, arc/spot welding and assembly.

Technical and financial evaluation of robotic installations.

Organisational effects of 'robotization'.

Faculty of Engineering

Robot programming: Walkthrough, leadthrough and offline programming.

References

MM619 NC Project
Four hours per week for one semester
A subject in the Graduate Diploma in CAD/CAM.

Subject aims and description
Aim: To familiarise students with the use of modern NC equipment, robots and CAD systems for solving practical engineering problems. Individual or in group project involving co-ordinate measuring equipment and modelling, NC machining and robotic tasks and advanced CAD systems for the design of more complex parts and producing models or dies for net shape manufacturing processes, injection moulding or other processes.

References
The same as for Introduction to Computer Aided Design, Micro CAD and CAD Practice.

MM620 Computers and Interfacing
Two hours per week for one semester
A subject in the Graduate Diploma in CAD/CAM, Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology CIM.

Subject aims and description
Aim: To introduce students to the basic principles of digital computer architecture, the connection of computers to physical closed loop control systems.

Boolean algebra, number systems, Karnaugh mapping techniques, state machines and microprocessor based systems. Memory mapping (addressing) techniques and computer architecture. Design of buffering and signal conversion circuits for interfacing. Students are required to provide a major seminar in conjunction with relevant project work.

Reference
Cripps, M. Computer Interfacing: Connection to the Real World. Edward Arnold, 1989

MM621 Mathematics
Two hours per week for one semester
A subject in the Graduate Diploma in CAD/CAM.

Subject aims and description
Aim: To develop an understanding of mathematical and statistical techniques for computer applications.

Matrix and matrix algebra — orthogonal matrices, real symmetric matrices and applications. Solution of a homogeneous system of linear equations.

Initial value problems: Runge-Kutta.

Introduction to finite difference methods of ordinary and partial differential equations.


References
MM622 Advanced Computer Techniques

Two hours per week for one semester

Assessment: Project and assignment work, examination

A subject in the Graduate Diploma in CAD/CAM, Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology CIM.

Subject aims and description

Aim: To provide students with the skills necessary to undertake structured program development.

- Structured programming in Turbo PASCAL
  - control structure (sequence, repetition, conditionals)
  - recursion
  - user defined data types
  - procedures and functions
  - arrays, records, files
  - program documentation
  - dynamic data structures
  - development of units for large scale program development

Textbook

Savitch, W. Turbo Pascal 5.5. Benjamin Cummings, 1990

MM623 Computer Based Management Systems

Two hours per week for one semester

Assessment: Assignment and project work, written test

A subject in the Graduate Diploma in CAD/CAM, Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology CIM.

Subject aims and description

Aim: The subject is intended to provide a grounding in the application of computers to the management and control of a business. Particular emphasis is placed on practical experience with available software packages and evaluation of their applicability to particular cases.

A proportion of the subject is devoted to MRP II packages. Further topics include project management including CPM/PERT and investment decision, simulation, decision making and total maintenance system.

References


Micro MRP Inc. MAX Manual

MM624 Management of CAD/CAM Technology

Two hours per week for one semester

Assessment: Assignment and project work, written test

A subject in the Graduate Diploma in CAD/CAM.

Subject aims and description

Aim: Discussion of the new business environment, introduction to managerial issues specific to CAD/CAM environments in adoption, design, control. Industrial relations concerning people, government, unions, others.

Introducing technological change related to CAD/CAM, project planning, management, maintenance agreements, installation and commissioning.

Impact of CAD/CAM on the organisation, industrial relations implications, ergonomics and occupational health and safety issues, training for CAD/CAM, approaches to CAD/CAM, government initiatives relating to CAD/CAM, support organisations.

References


In addition to the above references, the student will be referred to relevant journal articles and papers.

MM625 Machine Systems

Two hours per week for one semester

Assessment: Assignment and examination

A subject in the Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology.

Aim: To develop an understanding of conventional and modern technologies associated with manufacturing automation.


Characteristics of transducers: Dynamic properties of transducers — zero, first and second order transducers: NOISE.


- Adaptive control: Adaptive control of machine tools, parameters used for adaptive control, block diagrams.


References


MM626 Advanced Mathematics

Two hours per week for one semester

Assessment: Assignments/examination

A subject in the Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology.

Subject aims and description

Aim: To develop an understanding of mathematical and statistical techniques for computer applications.

- Computational methods: linear algebra with applications to sparse matrices and three dimensional geometry. Finite differences methods in ordinary and partial differential equations.

- Vector transformation. Splines and parametric geometry.

References


MM627 Manufacturing Management Systems

Two hours per week for one semester

Assessment: Assignment/examination

A subject in the Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology.

Subject aims and description

Aim: To provide an understanding of the manufacturing management systems.

An overview of manufacturing management functions, organisation, data flow, control etc.

Traditional approaches are followed by an overview of the current world market characteristics leading to needs for flexibility in all aspects. Role of technology and approaches such as MRP III philosophy, just in time, OPT are discussed in detail.

References


MM628 Control Systems and Devices
Two hours per week for one semester
Assessment: Laboratory examination
A subject in the Graduate Diploma in CIM, Master of Engineering in CIM, Master of Technology.

Subject aims and description
Aim: To consolidate the students prior learning and experience in the application of classical closed loop control systems; to provide an understanding of those factors determining the stability and dynamic performance, to provide an appreciation of the adaptive control theory and application.
Introduction: to closed loop control systems and their applications. Classical feedback control is extended to include the analysis of non-linear systems.
Applications include chatter and instability in machine tools and manufacturing processes.

References
Dransfield, P. Systems and Control, Parts 1 and 2. Monash University, 1988

MM629 Computers and Interfacing
Two hours per week for one semester
Assessment: Project/lecture work and examination
A subject in the Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology.
Aim: To provide a sound understanding of computer interfacing through data communications techniques as they apply to manufacturing.
Introduction: to the principles of computer interfacing. Parallel and serial external communication techniques, distance limitations, noise induction, RS-232 and RS-449 circuits and problems. Network topologies and protocols. Students are required to provide a major seminar in conjunction with project work.

References

MM630 Mathematics and Computing
Two hours per week for one semester
Assessment: Assignment/examination
A subject in the Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology.

Subject aims and description
Aim: To develop an understanding of mathematical and statistical techniques for computer applications. To introduce students to common computer systems operating systems and their development environments, and to common end-user software.
Maths
Statistics and Operations Research:
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/ORM, industrial applications.
Multiple Linear Regression: Review of linear regression with one predictor.
Computing
Introduction to computer organisation
DOCS = command interpreter; windows environment
End-User Software = spreadsheets; graphics packages

References
Dransfield, P. Systems and Control, Parts 1 and 2. Monash University, 1988

MM631 Machine Systems
Two hours per week for one semester
Assessment: Assignment/examination
A subject in the Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology.

Subject aims and description
Aim: To develop an understanding of software and hardware aspects of CIM systems.
Development of NC. and robot programming languages: Online and online programming of NC. machines and robots.
Levels of programming: Manipulator, object and objective levels of programming.
Development of a universal programming language: The implications. Material handling systems in FMS/CIM: Robotic material handling, autonomous guided vehicles (AGV) — control and implementation, automated warehousing — description of hardware, integration with other elements of automated material handling system.
Expert knowledge based systems: Description of elements, knowledge and problem representation in an expert system, use of expert systems’ ‘shells’ and ancillary systems, development of expert systems including role of expert systems in mac.

References
Further references will be supplied by lecturer.

MM632 Computer Aided Design
Two hours per week for one semester
Assessment: Assignment/project examination
A subject in the Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology.

Subject aims and description
Aim: To introduce theoretical foundations of graphics and CAD systems and provide hands on experience in Micro CAD 3D systems.
Practical section: Further hands on micro-CAD system with 3D modelling and introduction to micro CAD/CAM.

References

MM633 Advanced CAD
Four hours per week for one semester
Assessment: Assignments/project and examination
A subject in the Graduate Diploma in CIM, Master of Engineering CIM and Master of Technology.

Subject aims and description
Aim: To introduce advanced topics of CAD and related theory, review various CAD systems and provide hands on experience in advanced 3D geometric modelling system.
Subject aims and description

A subject in the Graduate Diploma in Chemical Engineering.

References


MM689 Minor Thesis

Sixteen hours per week for one semester
Assessment: Continuous of work and participation/ final report and presentation. (Assessment will be in accordance with the regulations and marking scheme handed out to students when projects are approved.)

A subject in the Master of Technology CIM.

Subject aims and description

This subject aims to give the student the opportunity to apply the subject matter studied in the other course subject to CIM related problems in his/her specific field of interest. Where possible the problems should be industry sponsored and have direct relevance to the student's area of employment.

Students will work in small groups under staff supervision. Each project will require a literatures survey, and a theoretical and/or experimental investigation. Results and conclusions will be written in a report and oral presentations to selected audiences will be required to accustom the student to giving oral progress reports on a major project.

MM740 Instrumentation and Measurement Systems

Two hours per week for one semester
Assessment: Assignment, laboratory and examination

A subject in the Graduate Diploma in Chemical Engineering.

Subject aims and description

Aims: To give a basic foundation in the principles and practice involved in instrumentation and measurement systems used in the chemical industry.

Principles and role of sensors for the measurement of displacement, velocity, force, energy, flow rate, and temperature

Transducers for conversion among mechanical, thermal, and electrical quantities, including examples of electro-mechanical, capacitive, piezoelectric, resistance, inductance, and thermo-electric transducers.

Analysis of the static and dynamic performance of electro-mechanical transducers, input characteristics of transducers, compatibility of transducers, amplifiers, measuring circuits and recorders in measurement systems.

Applications of data transfer and communications between microcomputers.

References


MM741 Control Engineering

Two hours per week for one semester
Assessment: Assignment and examination

A subject in the Graduate Diploma in Chemical Engineering.

Subject aims and description

Aims: An introduction to classical methods of analysis for linear control systems.


Textbook


References


MM755 Equipment Life Cycle

Two hours per week for one semester
Assessment: Project

A subject in the Graduate Diploma in Chemical Engineering.

Subject aims and description

Aims: To introduce students to the aspect of equipment life cycle, from conception through design, realization, integration, commissioning, life usage and ultimate decommissioning/disposal.

Types of equipment: Fixed and mobile: Equipment and procedures and procurement cycle; lesig research and development; equipment ridding, testing and demonstration.

Maintenance strategy: Types and approaches, preventive maintenance, condition monitoring. Integration and commissioning processes.


Configuration: Configuration Mull and facilitation, disposal and system replacement.

Textbooks

To be advised.

References

Byrt, W.J. and Masters, PR. The Australian Manager: 2nd edn, Melbourne: Macmillan, 1992
Dhillon, B.S. and Reiche, H. Reliability and Maintainability Management. N.Y.: Von Nostrad Rheinhold, 1985
Moss, M.A. Designing for Maintainability. N.Y.: Dekker, 1984

MM756 Chemical Engineering Design 3

Two hours per week for one semester
Assessment: Examination

A subject in the Graduate Diploma in Chemical Engineering.

Subject aims and description

Aims: 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.

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, batch drying, batch filtration, batch reactors and batch leaching and absorption, solvent extraction; ion exchange, semibatch operation.

Textbooks

Levenspiel, O. Introduction to Reaction Engineering.

296
MM901 Database Technology
Three hours per week for one semester
Assessment: Assignments/examination

A subject in the Master of Engineering CIM.
Subject aims and description
Aim: To provide a conceptual framework of the database concept. The study will encompass requirements analysis, database design, implementation and query languages with emphasis being on the rational paradigm. Applications specific to the manufacturing environment will be discussed.
Data structures: flat files, hierarchical, relational, network structures.
Rational databases: tables, relational algebra, keys, indexes, normalization.
Database design: modelling reality, data dictionaries, entity relationships, CASE tools.
Implementation: SQL, QBE, 4GL, application software.
Manufacturing applications: modelling manufacturing data, graphical data, MRP II performance.
Systems requirements analysis; data flow analysis, system life cycle.

Textbook
Date, CJ. An Introduction to Database Systems. 5th edn, Reading, Mass.: Addison-Wesley, 1990

MM902 Numerical Engineering
Two hours per week for one semester
Assessment: Assignment/examination

A subject in the Master of Engineering CIM.
Subject aims and description

Textbooks
Burnett, DS. Finite Element Analysis From Concepts to Applications. Reading, Mass.: Addison Wesley, 1987

References

MM903 Numerical Engineering Project
One hour per week for one semester
Prerequisite: MM902
Assessment: Project

A subject in the Master of Engineering CIM.
A project based course on the application of numerical methods in engineering based on in particular the application of micro computer FE analysis.

Textbooks
See MM902.

References
See MM902.

MM904 Systems Integration
Three hours per week for one semester
Assessment: Assignment/examination

A subject in the Master of Engineering CIM.
Subject aims and description
The aim of this subject is to discuss the issues related to computer integrating those elements to a unified manufacturing (CIM) system by introducing its elements and functional implications. The subject will discuss the issues related to computer integrating those elements to a unified manufacturing (CIM) system by introducing its elements and functional implications. The subject will discuss

Faculty of Engineering

MM905 Computers and Interfacing
Three hours per week for one semester
Assessment: Project/seminar/Work and examination

A subject in the Master of Engineering CIM.
Subject aims and description
Aim: To introduce students to advanced techniques in the design of interfaces between computers and industrial equipment. To provide a high level of understanding of the principles involved in communications protocols development, OSI networks. Designing with AID and DIA converters, control of multiple servo-driven axes (CNC), PLCs and specialized interfacing hardware.
Selection of communication parameters and systems. Design and implementation of point to point communications protocols OSI/OSI networks and protocols.

References
Cripps, M. Computing Interfacing — Connection to the Real World. London: Edward Arnold, 1989

MM906 Project A
MM907 Project B

Project A — Eight hours per week for one semester
Project B — Twelve hours per week for one semester
Assessment: Continuous assessment/final report and presentation

Project B will be in accordance with regulations and marking scheme handed out to students when projects are approved.

Subject aims and description
This subject aims to give the student the opportunity to apply the subject matter studied in the other course subjects to CIM related problems in his/her specific field of interest.

Students will work on approved problems under staff supervision. Externally supervised projects may also be appointed. Each project will require a literature survey, a theoretical and/or experimental investigation. Results and conclusions will be presented in a written report. Students will be required to submit a report to selected audiences and will be required to attend the student giving oral progress reports on a major project. The project is marked in two parts:

Part A — Progress is assessed by continuous assessment during the course and by submission of "Introduction, literature survey and experimental design" parts of the thesis.

Part B — Full assessment in accordance with assessment above.
**MP280 Construction Materials**

Three hours per week for one semester  
Prerequisites: MP180 Construction Materials  
Method of Teaching: lab  
Method of Assessment: 70% lab, 30% report

Subject aims and description
A second-year subject of the Degree in Building Surveying, designed to extend students' knowledge of materials and construction relevant to building construction.

Detailed treatment of selected materials such as alloy steels, structural steels, high-strength weldable steels, stainless steels, copper alloys, aluminium alloys, plastics, and rubber in civil engineering and building applications. Ceramics: properties, types, effects of stress and deformation, glasses, types of failure. Corrosion and deterioration: control prevention, mimic. Materials: ferrous metals, non-ferrous metals, light metals, polymers, paints. Non-destructive testing: general principles, types, uses.

Reference

**MP286 Building Materials 2**

Four hours per week for one semester  
Assessment by assignment and examination

Subject aims and description
A second-year subject in the Diploma in Building Surveying, designed to extend students' knowledge of material behaviour relevant to building construction.

Detailed treatment of behaviour of selected materials used in building: steels, high-strength weldable steels, aluminium alloys, plastics and rubbers, and pipelines. Joining methods: principles of behaviour of the different joining systems, including welding, adhesive bonding, soldering, brazing, mechanical fasteners, and comparative costs of various joining methods. For textbooks and references see MP183.

**MP711 Mass Transfer**

Four hours per week for one semester  
Assessment: Laboratory work, assignment and examination

Subject aims and description
Aim: To provide the student with an insight into the theory, and physical reality of diffusional mass transfer.


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 in liquids. Gas absorption and liquid-liquid extraction.

Textbook

References

**MP712 Unit Operations**

Four hours per week for one semester  
Assessment: Practical work and examination

A subject in the Graduate Diploma in Chemical Engineering.

Subject aims and description
Aim: To impart understanding of physical phenomena involving particles, and the importance of these in chemical manufacturing.

Fluid 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.

Textbook

**MP713 Chemical Engineering Design 1**

Four hours per week for one semester  
Assessment: Assignments and examination

A subject in the Graduate Diploma in Chemical Engineering.

Subject aims and description
Aim: To impart understanding of the fundamentals of chemical engineering thermodynamic and basic principles of mass and energy balances as a basis for further study in chemical process technology.

Basic design techniques: Mass and energy balance calculations; flowcharts; 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.

Textbook


**MP714 Stagewise Processes**

Five hours per week for one semester  
Assessment: Practical work and examination

A subject in the Graduate Diploma in Chemical Engineering.

Subject aims and description
Aim: To give students a general understanding of industrial mass transfer operations, and of stagewise methods for the design of mass transfer equipment.

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 in packed bubble cap and 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 design tools for further study in chemical engineering.

Reference

Textbook

**MP715 Heat Transfer**

Five hours per week for one semester  
Assessment: Practical work and examination

A subject in the Graduate Diploma in Chemical Engineering.

Subject aims and description
Aim: To provide the student with a sound approach to the design and selection of heat transfer equipment.

Description and characteristics of shell and tube exchangers, and alternative geometries; boilers, condensers, etc. with examples of their use.


Textbook

Subject aims and description
Aim: To teach students by the use of case studies and other means to scientifically assess the possible pollution outcomes of various processes.

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 ionising (including ultra-violet).

Toxicology: Toxic substance; mechanisms of action and pathogenic effects (carcinogenesis, mutagenesis, teratogenesis). Routes of ingestion toxic substances including heavy metals, benzene, PCB, solvents, etc.


Subject aims and description
Aim: To provide a working knowledge of types of hazards encountered in the workplace and means by which these may be overcome.


Toxicology: Toxic substance; mechanisms of action and pathogenic effects (carcinogenesis, mutagenesis, teratogenesis). Routes of ingestion toxic substances including heavy metals, benzene, PCB, solvents, etc.


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SM293 Engineering Mathematics
Three hours per week of lectures and practical workshops practice for two semesters
A second-year subject in the Degree in Civil Engineering.

Subject aims and description
Integration-integration methods, plane polar coordinates, double integrals and applications, cylindrical and spherical coordinates, triple integrals and applications.

Vector Calculus — scalar and vector fields, gradient of a scalar field, the potential, surface integrals, flux of a vector field, divergence Gauss' theorem, continuity of fluid flow, line integrals, curl, Stokes theorem, introduction to fluid dynamics.

Linear Algebra — Orthogonal Matrices, eigenvalue problems, real symmetric matrices and applications.

Statistics — review of data analysis, probability distributions for discrete variables and continuous variables, sampling distributions, the distribution, F and Chi-Square hypothesis testing, goodness of fit, ANOVA (One and Two-way), correlation and simple regression, experimental design, Minitab package used.

Operations research chosen from queuing theory and linear programming.

Textbook

References

SM294 Engineering Mathematics
Four hours per week for two semesters
Prerequisite: SM199 Engineering Mathematics
Method of Teaching: Lectures/Tutorial
Method of Assessment: Examination/Assignments
A second-year subject in the Degree in Electrical Engineering.

Subject aims
To provide the necessary mathematical background and analytical techniques essential for the understanding of the electrical course and for further research.

Subject description


Fourier series: orthogonality, Trigonometric Fourier series, Euler formulae, half range series. Dirichlet's theorem, Parseval's formula, power spectrum, transmission of periodic waveforms by two port networks, transfer functions.


Vector fields: line and surface integrals, grad, div and curl, the formulae of Gauss and Stokes, combinations of vector operators, scalar potential, the equations of Laplace and Poisson.


Probability: a, I statistic, probability, series and parallel systems, redundancy, independence, discrete distributions, the binomial distribution, the Poisson distribution, Continuous distributions, probability density functions, the normal, chi-square, Rayleigh and gamma distributions, sum of two random variables, characteristic functions, the central limit theorem. Confidence limits and hypothesis testing for the mean and variance. Goodness of fit.

References

SM295 Engineering Mathematics
Six hours per week for five weeks, seven hours per week for nine weeks
A second in the bridging program for engineering students from S.E.

Subject aims and description
Integration-integration methods, plane polar coordinates, double integrals and applications, cylindrical and spherical coordinates, triple integrals and applications.

Vector Calculus — scalar and vector fields, gradient of a scalar field, the potential, surface integrals, flux of a vector field, divergence Gauss' theorem, continuity of fluid flow, line integrals, curl, Stokes theorem, introduction to fluid dynamics.

Linear Algebra — Orthogonal Matrices, eigenvalue problems, real symmetric matrices and applications.

Statistics — review of data analysis, probability distributions for discrete variates and continuous variates, sampling distributions, the distribution, F and Chi-Square hypothesis testing, goodness of fit, ANOVA (One and Two-way), correlation and simple regression, experimental design, Minitab package used.


Textbook

SM299 Engineering Mathematics
Three hours per week of integrated instruction and practice for two semesters
A second-year subject in the Degree in Manufacturing and Mechanical Engineering.

Subject aims and description
Integration-integration methods, plane polar coordinates, double integrals and applications, cylindrical and spherical coordinates, triple integrals and applications.

Vector Calculus — scalar and vector fields, gradient of a scalar field, the potential, surface integrals, flux of a vector field, divergence Gauss' theorem, continuity of fluid flow, line integrals, curl, Stokes theorem, introduction to fluid dynamics, introduction to tensors and tensor notation.

Linear Algebra — Orthogonal Matrices, eigenvalue problems, real symmetric matrices and applications.

Statistics — review of data analysis, probability, probability distributions for discrete variates and continuous variates, sampling distributions. The t distribution, F and Chi-Square, hypothesis testing, goodness of fit, ANOVA (One and Two-way), correlation and simple regression, experimental design, Minitab package used.


Textbook
SM393 Engineering Mathematics

Two hours per week of integrated instruction and practice for one semester

A third-year subject in the Degree in Civil Engineering.

Subject aims and description

References

SM394 Engineering Mathematics

Three hours per week for one semester

Prerequisites: SM393 Engineering Mathematics
Method of Teaching: Lectures/Tutorials
Method of Assessment: Examination/Tutorial assignments

A third-year subject in the Degree in Civil Engineering.

Subject aims
To provide the fundamental numerical techniques and the tools of discrete mathematics which are indispensable to the modern engineer.

Subject description
Numerical methods — numerical solution of linear and non-linear algebraic equations, introduction to finite difference methods for ordinary and partial differential equations, applications.

Z transforms — an introduction to the Z-transforms and its properties.

Discrete mathematics — mathematical logic, counting methods, recurrence relations, applications.

Prescribed course material

References

SM395 Engineering Mathematics

Three hours per week of integrated instruction and practice for one semester

A third-year subject in the Degree in Manufacturing Engineering.

Subject aims and description

References

SM399 Engineering Mathematics

Three hours per week of integrated instruction and practice for one semester

A third year subject in the Degree in Mechanical Engineering.

Subject aims and description

References

SM493 Engineering Mathematics

Two hours per week for one semester

A subject in the fourth year of the Degree in Civil Engineering.

Subject aims and description
Introduction to finite element methods; approximation, basis functions, quadrature, weighted residual methods, ordinary and partial differential equations.

References

SM494 Engineering Mathematics

Two hours per week for one semester

Prerequisite: SM399 Engineering Mathematics
Method of Teaching: Lectures/Tutorials
Method of Assessment: Examination/Tutorial assignments

A fourth-year subject in all streams of the Degree in Electrical Engineering.

Subject aims
To further develop the specialised mathematical/analytical techniques used in the more advanced and specialised engineering subjects.

Subject description
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.

SM495 Engineering Mathematics

Two hours per week for one semester

Prerequisite: SM493 Engineering Mathematics
Method of Teaching: Lectures/Tutorials
Method of Assessment: Examination/Tutorial assignments

A fourth-year subject in all streams of the Degree in Electrical Engineering.

Subject aims
To further develop the specialised mathematical/analytical techniques used in the more advanced and specialised engineering subjects.

Subject description
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.

SM496 Engineering Mathematics

Two hours per week for one semester

Prerequisite: SM494 Engineering Mathematics
Method of Teaching: Lectures/Tutorials
Method of Assessment: Examination/Tutorial assignments

A fourth-year subject in all streams of the Degree in Electrical Engineering.

Subject aims
To further develop the specialised mathematical/analytical techniques used in the more advanced and specialised engineering subjects.

Subject description
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.
SM499 Engineering Mathematics

Two hours per week of integrated instruction and practice for one semester.

A fourth-year subject in the Degree in Mechanical Engineering.

Subject aims and description

Introduction to finite element methods: approximation, basis functions, quadrature, weighted residual methods, ordinary and partial differential equations.

References


SM741 Statistics and Reliability

Two hours per week for one semester.

A subject in the Graduate Diploma in Risk Management.

Subject aims and description

Introduction to finite element methods: approximation, basis functions, quadrature, weighted residual methods, ordinary and partial differential equations.

References


SP294 Engineering Physics

Two hours per week for two semesters.

Prerequisite: EE188 Electronics, Circuits and Computing Method of Teaching: Lectures.

Method of Assessment: Examination/Assignment.

A second-year subject in the Degree in Electrical Engineering.

Subject aims

To develop in students a familiarity with selected areas of classical and modern physics, particularly those areas relevant to modern electrical engineering. To allow students to obtain a basic understanding of the properties and usage of materials that are relevant to electrical engineering.

Subject description

Relativity: inertial frames, constancy of speed of light, special relativity, space-time, mass and energy.


Optics: lasers and other light sources, modulators and detectors. Optical fibres as sensors and in communications. Holography and holographic devices.

Nuclear physics: nuclear structure, properties, stability and reactions. Fission, fusion and nuclear power.

Textbook


SP419 Occupational Hygiene and Safety

Four hours per week for one semester.

A subject in the Graduate Diploma in Chemical Engineering.

Subject aims and description

Environmental hazards

Accident prevention. Work-related injuries including tenosynovitis, back and muscle injuries. Relationship of physical defects to employee safety. Stress in the workplace, measurement and alleviation.


Toxicology

Toxic substances, mechanisms of action and pathogenic effects (carcinogenesis, mutagenesis, teratogenesis). Use of mammals and sub-mammalian systems in predicting and assessing toxic effects in humans.

Routes of ingestion of toxic substances including heavy metals, benzene, PCB solvents, organic chemicals, silica, asbestos, allergens and pesticides.

Evaluation and control measures.

Safety technology


<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic staff</td>
<td>304</td>
</tr>
<tr>
<td>Courses offered</td>
<td>304</td>
</tr>
<tr>
<td>Assessment</td>
<td>304</td>
</tr>
<tr>
<td>Examinations</td>
<td>304</td>
</tr>
<tr>
<td>Attendance</td>
<td>304</td>
</tr>
<tr>
<td>General Conditions</td>
<td>304</td>
</tr>
<tr>
<td>Entrance Requirements</td>
<td>304</td>
</tr>
<tr>
<td>Hawthorn Campus</td>
<td></td>
</tr>
<tr>
<td>Diploma of Art (Graphic Design)</td>
<td>305</td>
</tr>
<tr>
<td>Degree of Bachelor of Arts (Graphic Design)</td>
<td>305</td>
</tr>
<tr>
<td>Distinction between diploma and degree courses</td>
<td>306</td>
</tr>
<tr>
<td>Subject details</td>
<td>306</td>
</tr>
<tr>
<td>Prahran Campus</td>
<td></td>
</tr>
<tr>
<td>Degree of Bachelor of Arts (Graphic Design)</td>
<td>308</td>
</tr>
<tr>
<td>Subject details</td>
<td>308</td>
</tr>
<tr>
<td>Degree of Bachelor of Arts (Industrial Design)</td>
<td>311</td>
</tr>
<tr>
<td>Subject details</td>
<td>312</td>
</tr>
</tbody>
</table>
School of Design

Head, School of Design
D.G. Murray, BA(Graphic Design)(SIT), TTTC
Principal Lecturer
C.J. Austin, BA(Graphic Design)(SIT)
Head of Department, Industrial Design
G. Lewis, Art & Design(Industrial Design), DipA&D(ID)(Prahran)
Head of Department, Graphic Design
R. Macfarlane, DipArt(SCOT), TTTC

Senior Lecturers
J. Bassani, DipArt&Design(Graphic Design), Grad DipEd(Haw)
S. Huxley, DipArt & Design(Bristol), CGLI Cert Pict Graphics
R. Graham, AssocDipArt(Graphic Design)(RMIT), DipArt(Advertising)(Benolige), TTTC

Lecturers
P. Anderson, AssDip(Plastics Technology)(RMIT)
C. Barnes, BEd(MelbSCV), BA(Hons)(Melb)
P.E. Blair, DipArt(Graphic Design)(RMIT), GradDipEd(Haw)

D. Bryans, BA(Graphic Design)(SIT), DipEd(Haw)
W. Cuthbert, Dip Art & Design(Prahran)
R. Duncan, DipDesign(London)(Craft), HKS(Sweden)
P. Garee, DipEd(Haw), OAM, FBIPP(England), FPSA(USA), MFIA(Belgium), FMPA(Lon), HonFRPS(England)
A. Haig, BA(Graphic Design)(SIT)
J. Howell, DipCommArt(Adelaide)
R. Jones, BA(ANU)
R.F. Kinnane
H. Lueckenhausen, GradDip(Industrial Design)(RMIT), DipEd(Haw)

R.A. Newbound, CertPrint
P. Slattery, DipArt(Industrial Design)(RMIT)
D. Snibson, DipArt & Design(Graphic Design)(Prahran)
T. Streader, BA(Graphic Design)(SIT)
L. Taylor, DipArt & Design(Graphic Design)(VicColl)
T. Ward, DipAdvertDes(Swinburne), TTTC
D.M. Whitehouse, ALAA, BA(Hons)(LaTrobe), MA

Computer Systems Officer
C.A. Higman

Courses offered
Diploma of Art (Graphic Design)
Bachelor of Arts (Graphic Design)
Bachelor of Arts (Industrial Design)

As a result of the transfer of courses in Graphic Design and Industrial Design from Victoria College to Swinburne, these programs, together with those conducted on the Hawthorn Campus, are currently being reviewed. The subject codes and course structures in this handbook may change.

Assessment
Each year of the course is taken as a whole and in order to qualify, an overall pass must be achieved on the year's work.

To qualify for a Diploma of Art (Graphic Design), a Bachelor of Arts (Graphic Design) or a Bachelor of Arts (Industrial Design), a student must achieve a pass in all subjects.

A Faculty Pass may be awarded under exceptional circumstances. The School Board is the final authority for determining the results in any of the examinations for the School of Design. The Faculty of Arts has responsibility for the processing of academic awards for the School of Design.

Examinations
Students must enter for all subjects in a particular year of the course except where an exemption has been approved or electives offered.

The form of the examination and the content of the project work (assigned projects) will be determined by the panel of examiners and moderators appointed by the School Board.

Attendance
Students are expected to attend all lectures, assignment briefings, progress tutorials and critiques and timetabled studio sessions in each semester.

The Administration Committee may preclude a student from further attendance, or the right to further assessment, if the lecturer responsible reports the student's attendance to be unsatisfactory.

General conditions
Swinburne reserves the right to retain any work executed by students as part of their course studies. Work not required may be claimed by the student after it has been assessed.

The courses are not available for part-time or external study.

Ex prerequisite studies
English Units 3 and 4 to be included in the "best four".

Art or art related subjects.

Note: Art studies undertaken subsequent to a satisfactorily completed VCE qualification should not be regarded as a prerequisite, however these studies may enhance an applicant's chance of entry.

Special requirements: All 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 course and be able to demonstrate an awareness of the course content and career opportunities.

All applicants who specify either graphic design or industrial design must follow carefully the procedure for enrolment, which is given with other details in the Victorian Tertiary Admissions Centre publication, Guide to Courses in Colleges and Universities. This is published in August, and distributed to all secondary schools, or is available on application to the Victorian Tertiary Admissions Centre, 40 Park Street, South Melbourne 3205, telephone 690 7977. Please refer to 'Application procedure', in the general section of this Handbook.
For industrial design applicants, a pass in mathematics or science subject to year 11 is desirable and some knowledge of instrumental and rendered drawings. The folio should include three-dimensional models, technical drawings, renderings, photographs and sketches, including developmental back-up work and any other written work. If a folio is not available or incomplete, a short test may be given.

All applicants without resident status must apply direct to Swinburne.

All overseas applicants, including Australian citizens, must be able to attend for interview, if required.

Applications for second year and higher must be made direct to Swinburne and not through VTAC.

Hawthorn Campus
Diploma of Art (Graphic Design)
G020 First and second years
G040 Third year
3 years full-time

The aim of the diploma course is to train designers to work effectively in areas where information is conveyed by visual means, such as advertising, publishing, publicity, printing, merchandising, education and some research projects. The course is planned 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 diploma/degree streams but in the final diploma year, a number of special bias studies are offered, including photography, illustration and three-dimensional design.

Course structure

<table>
<thead>
<tr>
<th>Diploma of Art (Graphic Design)</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G020 First and second years</strong></td>
<td></td>
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<tr>
<td><strong>G040 Third year</strong></td>
<td></td>
</tr>
<tr>
<td>First year</td>
<td></td>
</tr>
<tr>
<td><strong>RG101</strong> Assigned Projects 1</td>
<td>20</td>
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<tr>
<td><strong>RG111</strong> History of Arts 1</td>
<td>3</td>
</tr>
<tr>
<td><strong>RG120</strong> Introduction to Critical Studies</td>
<td>2</td>
</tr>
<tr>
<td><strong>RG140</strong> 'Result of Studies'</td>
<td></td>
</tr>
<tr>
<td>Second year</td>
<td></td>
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<tr>
<td><strong>RG201</strong> Assigned Projects 2</td>
<td>20</td>
</tr>
<tr>
<td><strong>RG211</strong> History of Arts 2</td>
<td>3</td>
</tr>
<tr>
<td><strong>RG233</strong> Behavioural Studies (two semesters)</td>
<td>2</td>
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<tr>
<td><strong>RG240</strong> 'Result of Studies'</td>
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<tr>
<td>Third year</td>
<td></td>
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<tr>
<td><strong>RG301</strong> Assigned Projects 3</td>
<td>20</td>
</tr>
<tr>
<td><strong>RG335</strong> Art and Design Culture (two semesters)</td>
<td>3</td>
</tr>
<tr>
<td><strong>RG322</strong> Print Technology (one semester)</td>
<td>2</td>
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<tr>
<td><strong>RG340</strong> 'Result of Studies'</td>
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<tr>
<td>Note:</td>
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<tr>
<td>Changes subject to ratification. Results will be published for each subject and for the year as a whole. 'Result of Studies is not a subject, but is a clear-cut decision on the student's total success or otherwise in the year's studies (see under 'Assessment').</td>
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</table>

Bachelor of Arts (Graphic Design)
G020 First and second years
G050 Third and fourth years
G060 Fourth year conversion diploma/degree
4 years Industry Based Learning (IBL)

The aim of the degree course is to meet the present and future needs of industry, and to train 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 are selected for the degree course. They are required to spend the whole of the third year working in an industrial situation organised by Swinburne. This arrangement conforms to the Y structure under the IBL system. This third year enables the student to begin professional practice and is supervised by senior staff.

During the year in industry, students are required to attend the University for two sessions per week for theoretical subjects: Print Technology and Art and Design Culture.

In the final year, in addition to Assigned Projects 4, Design Management is studied at Swinburne.

1 Hear Design Centre degree program

Diploma students who achieve an overall high standard in their final year qualify to apply for the Design Centre degree program which 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.

Course structure

<table>
<thead>
<tr>
<th>Bachelor of Arts (Graphic Design)</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>G020 First and second years</strong></td>
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<tr>
<td>(common to both diploma and degree)</td>
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<tr>
<td><strong>G050 Third year</strong></td>
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<tr>
<td>(4½ days in industry)</td>
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<tr>
<td><strong>RG303</strong> Industrial Year</td>
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</tr>
<tr>
<td><strong>RG335</strong> Art and Design Culture (two semesters)</td>
<td>3</td>
</tr>
<tr>
<td><strong>RG322</strong> Print Technology (one semester)</td>
<td>2</td>
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<tr>
<td><strong>RG340</strong> 'Result of Studies'</td>
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<tr>
<td>Subjects to be taken by part-time study.</td>
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<tr>
<td><strong>G060 Fourth year</strong></td>
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<tr>
<td>(full-time at the University)</td>
<td></td>
</tr>
<tr>
<td><strong>RG410</strong> Assigned Projects 4</td>
<td>21</td>
</tr>
<tr>
<td><strong>RG490</strong> Design Management (one semester)</td>
<td>2</td>
</tr>
<tr>
<td><strong>RG441</strong> 'Result of Studies'</td>
<td></td>
</tr>
<tr>
<td><strong>G060 Fourth year Design Centre degree program</strong></td>
<td></td>
</tr>
<tr>
<td><strong>RG410</strong> Assigned Projects 4 (Professional)</td>
<td>24</td>
</tr>
<tr>
<td><strong>RG490</strong> Design Management (one semester)</td>
<td>2</td>
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<tr>
<td><strong>RG441</strong> 'Result of Studies'</td>
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<tr>
<td>Note:</td>
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<tr>
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<td></td>
</tr>
</tbody>
</table>
**Explanation of course structure**

<table>
<thead>
<tr>
<th>Year</th>
<th>Degree (cooperative)</th>
<th>Degree (conversion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td></td>
<td>Diploma</td>
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</tbody>
</table>

**Entry**
- VCE or equivalent
- Full time study at Swinburne
- Experience in industry or professional practice

**Distinction between diploma and degree courses**

The diploma stream is for a student with specific abilities, i.e., as an executant working to specific briefs and producing work of a unique and individual character.

The degree course requires a student to have a greater ability in conceptual thinking, together with proven abilities in handling complex problems in visual communication. Maturity, responsibility, leadership, planning and organisational skills are expected but not necessarily "unique" technical skills of a high order.

**Graphic Design diploma/degree subject details**

As this course is subject to restructuring, changes may occur.

**First year**

**RG101**

**Assigned Projects 1**

- Twenty hours practical per week for two semesters
- Prerequisite, nil
- Assessment is continuous

Assigned projects refer to a co-ordinated work program with specific emphasis on an individual creative approach to solving communication problems principally of a graphic nature. Students are encouraged to develop their own personal style through soundly-reasoned, skilfully-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.

A sequential program of applied design and communication projects is directed at developing a general awareness of visual aspects of the students’ environment and facility for critical objective analysis.

Specific study areas include:

- **Design**
  - The object is 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.

- **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 letterforms in contemporary design, the preparation of artwork and reproduction are also studied.

- **Photography**
  - A comprehensive introduction to still-photography as a creative medium aimed 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 costs.

- **Design for print**
  - An introduction to 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.

- **Drawing**
  - Expanding vision through assignments which develop control of drawing as a discipline for research and invention. Subject matter includes the figure, perspective, object drawing and natural forms.

- **Textbooks**
  - Students are advised not to purchase textbooks or references until classes commence.

**RG111 History of Arts 1**

- Three hours per week for two semesters
- Prerequisites, nil
- Assessment is continuous

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 finally 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 cross-over 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 oral components with an emphasis being placed on creativity.

**Recommended reading**

Rosenblum, R. and Janson, HW. Art of the Nineteenth Century. London: Thames and Hudson, 1984


**RG120 Introduction to Critical Studies**

- Two hours per week for two semesters
- Prerequisite, nil
- Assessment is continuous

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.

**Second year**

**RG201**

**Assigned Projects 2**

- Twenty hours practical per week for two semesters
- Prerequisite, RG140 Result of Studies 1
- Assessment is continuous

This program constitutes a bridge between the formative studies of the first year and the closely-applied studies of third year. The aim of the second year is to bring the student to a professional standard of competence in the illustrative, graphic, written and oral presentation of ideas. In the arrangement of sequential information embracing publishing, advertising, sales promotion, merchandising and public relations, also for non-commercial areas such as education and community organisations. Study areas include design, photography, methods of production, computer-aided design, typography, history of arts and psychology. Instead of studying these subjects in isolation, the aim is to integrate them into composite communication problems wherever possible.
RG211 History of Arts 2
Three hours per week for two semesters
Prerequisite, RG140 Result of Studies 1
Assessment is continuous
This subject explores the developments in art and design from the post World War II era through to Post Modernism and the 1980s. The first semester concentrates on different theories of symbology and the manner in which visual imagery; painting, graphics, advertising, etc., use symbolic language to convey messages about the political, psychic, social and cultural values of our society. Current issues of design theory are also explored. The second semester begins with Abstract Expressionism, moves on to Assemblage, Pop Art, and explores the 1960s boom in Popular Culture, and looks at Post Modernist themes in art, design and architecture.

Recommended reading
Fry, T. Design History Australia. Sydney: Hale & Iremonger, 1988

*RG223 Behavioural Studies
Two hours per week for two semesters
Assessment is continuous
Apart from specific study of the basic psychology text, class activities focus on experiential learning. To this end an active participation in seminar-type discussions is required. These sessions will deal with self-awareness as a basis to communication, communication skills, assertiveness training, the use of relevant learning theories in modifying behaviour and physiological factors relevant to personal growth and development such as relaxation, nutrition and stress-reduction.

Textbook

* Funding implications may mean that the School might not be able to offer one or other of these subjects in a given year.

Diploma in Graphic Design

Third year

RG301 Assigned Projects 3
Twenty hours per week for two semesters
Prerequisite, RG240 Result of Studies 2
Assessment is continuous
N.B. Additional work required outside scheduled hours, including evenings and weekends

The final-year student is encouraged to move towards one of the main studies with the aim of producing solutions to advanced problems of communication design at a professional level, e.g. advertising design in various graphic media, publication design, corporate image design and educational technology. Special bias studies are offered, including photography, illustration; three-dimensional design, audio-visual and publication design.

RG335 Art and Design Culture
Three hours per week for two semesters
Prerequisite, RG240 Result of Studies 2
Assessment is continuous
N.B. It is expected that for students to satisfactorily complete this subject, additional time will be required to visit galleries, exhibitions and performances

The study aims to facilitate a first-hand experience of art and design culture and the place it occupies within the functioning of our society. 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.

RG322 Print Technology
Two hours per week for one semester
Prerequisite, RG240 Result of Studies 2
Assessment is continuous
Advanced studies of photo-mechanical and direct-printing procedures. Photogravure, letterpress, offset lithography, rotogravure, silk-screen, type identification, indication and specification, the point system, copy-casting, proof-reading, copy preparation techniques, practical exercises in direct impression and digitised photo-typesetting, for book, advertising and display typography. Cost estimating, mechanical art procedures, production control, paper consideration. Visits to production houses are arranged.

Degree in Graphic Design

Third year

RG303 Industrial Year
Two semesters industrial experience
Prerequisite, RG240 Result of Studies 2
Assessment is continuous
(See ‘Y’ chart.)

RG335 Art and Design Culture
Three hours per week for two semesters
Prerequisite, RG240 Result of Studies 2
Assessment is continuous
N.B. It is expected that for students to satisfactorily complete this subject, additional time will be required to visit galleries, exhibitions and performances

The study aims to facilitate a first-hand experience of art and design culture and the place it occupies within the functioning of our society. 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.

Fourth year

RG410 Assigned Projects 4
Twenty-one or twenty-four hours per week for two semesters
Prerequisite, RG241 Result of Studies 3
Assessment is continuous
N.B. Additional work required outside scheduled, including evenings and weekends

Working in a professional atmosphere, the student’s special capabilities through assigned professional projects or self-defined problems, culminating in a major design assignment.
RG490  Design Management
Two hours per week for one semester
Prerequisite, RG341 Result of Studies 3
Assessment is continuous
The aim of this subject is 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 is incorporated in assigned project work of the cooperative degree stream and the visual language of the Graphic Design Centre (degree conversion).
Students are required to submit two major written assignments based on information presented in the tutorials by the course co-ordinator and guest lecturers.

Prahran Campus
GD50  Bachelor of Arts (Graphic Design)
The objective of the course is to produce high calibre professional practitioners who:
- are acceptable to the graphic design profession and the Australian advertising industry; and
- have the capacity to take creative responsibility in the resolution of design and advertising problems.

Course structure
Note: Changes subject to ratification.
The four-year eight-semester degree course is divided into major, related and elective studies covering course work in eight areas:
- Design Studies
- Drawing and Communication Studies
- Illustration
- Critical Studies
- Marketing
- Technology
- History of Art (Design)
- Advertising Design 8
These areas are sub-divided into units which are designed to inter-relate with each other in a grid structure, firstly, giving lateral support across the semester levels and, secondly, forming vertical sequences through the eight-semester course in the respective study areas.

Course outline
The academic year is divided into two semesters, each of 15 weeks’ duration. Units will be taken in the four-year, eight-semester course as follows:

Semesters 1 and 2 — see Hawthorn Campus

GP30
Third year
Semester 5
GD5036 Art Direction 5 12
GD5040 Copywriting 5 2
GD5042 Storyboard 5 6
GD5044 Media Technology 5 3
GD5046 Marketing 5 4
Semester 6
GD6037 Art Direction 6 12
GD6041 Copywriting 6 2
GD6043 Storyboard 6 6
GD6045 Media Technology 6 6
GD6047 Marketing 6

GP40  Semester 7
Fourth year
Semester 8
GD7038 Advertising Design 8 24

Subject details
CS3903 History of Art (Design) 3
Two hours per week for one semester
Prerequisites: History of Art (Design) 2, Graphic Design 2, Drawing 1, 2, Visual Language (GD) 2, two elective units
The study program of lectures and tutorials examines the post-war shift of the international mainstream art and design interest to North America and also investigates the European situation. The program then focuses on the Australian art and design environment, its background, intellectual and theoretical underpinning, in terms of influences from Europe and America. A study of developments in Australian art, design and culture since World War 2 includes an examination of traditional and contemporary Aboriginal art and design and its relevance to current design.

CS4904 History of Art (Design) 4
Two hours per week for one semester
Prerequisites: History of Art (Design) 3, Graphic Design 3, Print Technology 3, Film Studies 3, Illustration 3, Visualising 3
Based on the previous semester, this unit reviews post-World War 2 art and design in Australia and overseas, focusing on issues of special concern to design students. Comparative surveys are made of the art and design of selected contrasting cultures. Examination of theoretical issues of relevance includes a study of post-Modern theory and its application to contemporary design. The program concludes with an assessment of current directions in the art and design stream both in Australia and overseas.

GD3903 Graphic Design 3
Prerequisites: Graphic Design 2, Drawing (G.D.) 2, Visual Language (G.D.) 2, History of Art (Design) 1 and 2, two elective units.
Students will undertake between eight and ten assigned projects. These projects will vary in complexity and cover a variety of formats and media. The briefs will be specific and the permissible time allocated to each will shorten as the semester progresses. Through this process, students will become accustomed to answering the brief appropriately and creatively, accepting responsibility for their own decisions, and coping under pressure. Areas covered within the project sequence include: Photography, Packaging, Typography and Symbol. Many projects will integrate these areas and overlap each other, giving the students experience in coping with various tasks and challenges simultaneously.
GD3922 Illustration 3
Six hours per week for one semester
Prerequisites: Graphic Design 2, Drawing (GD) 2, Visual Language (GD) 2, History of Art (Design) 1 and 2, two elective units
The unit comprises a series of creative projects designed to develop experiences through experimentation with plastic medium, direct printing and photomechanical techniques; eg, pastels, crayons, carbons, gouache, tempura, ink, water colour and marker pen in response to various papers, boards and surface preparations. Later projects may explore the potential of lino cuts, woodblocks, line and screen bromides, continuous prints, photostats and cibachromes. Local and subject material will be used early in the course, while the latter more conceptual themes will rely on individual research.

GD3929 Media Arts 3
Two hours per week for one semester
Prerequisites: Visual Language 2, Graphic Design 2, Drawing 2, History of Art (Design) 1 and 2
This unit looks at television as a significant part of popular culture. Analysis of current programming is used to define the role of broadcast-television in the mass-communication of the news, information, ideologies and entertainment. It also seeks to establish a range of appropriate criteria by which this role might be evaluated in relation to the audience for which it is intended. In seeking to establish a basis for practical criticism, the unit studies the social-industrial structures in which television programs are produced and presented. VTR material will be shown in class time to support lectures and tutorials. Students must also be prepared to follow up prescribed viewing in their own time, undertake prescribed reading and present a critical analysis of aspects of electronic media in essay form.

GD3932 Visualising 3
Three hours per week for one semester
Prerequisites: Graphic Design 2, Drawing (GD) 2, Visual Language (GD) 2, History of Art (Design) 1 and 2, two elective units
The unit comprises a series of exercises and projects specifically designed to develop knowledge and skills in design preparation for print. The principles and applications of colour separation, half-tone and continuous-tone screens and the four-color half-tone process will be covered. Projects will be prepared to camera-ready standard and supported by excursions to printers and platemakers.

GD3934 Print Technology 3
Six hours per week for one semester
Prerequisites: Graphic Design 2, Drawing (GD) 2, Visual Language (GD) 2, History of Art (Design) 1 and 2, two elective units
The course work consists of a balance of theory and practical work comprising lectures, excursions and demonstrations in parallel with a series of exercises and projects specifically designed to develop knowledge and skills in design preparation for print. The principles and applications of colour separation, half-tone and continuous-tone screens and the four-color half-tone process will be covered. Projects will be prepared to camera-ready standard and supported by excursions to printers and platemakers.

GD4904 Graphic Design 4
Prerequisites: Graphic Design 3, Print Technology 3, Illustration 3, Visualising 3, Film Studies 3
Based on the format and the objectives established in Graphic Design 3, this unit is designed to develop experiences through practical work in designing and making books. Students will undertake between eight and ten assigned projects. These projects will be multi-faceted and require the student to think critically and independently across a range of subsidiary challenges. Market conditions will become an important factor, as students are required to design as a significant part of popular culture. Analysis of current programming is used to define the role of broadcast-television in the mass-communication of the news, information, ideologies and entertainment. It also seeks to establish a range of appropriate criteria by which this role might be evaluated in relation to the audience for which it is intended. In seeking to establish a basis for practical criticism, the unit studies the social-industrial structures in which television programs are produced and presented. VTR material will be shown in class time to support lectures and tutorials. Students must also be prepared to follow up prescribed viewing in their own time, undertake prescribed reading and present a critical analysis of aspects of electronic media in essay form.

GD4923 Illustration 4
Six hours per week for one semester
Prerequisites: Illustration 3, Graphic Design 3, Print Technology 3, Visualising 3, Film Studies 3
Based on the exploratory studies in GD 3, this unit aims to develop a coherent awareness in the potential of the graphic arts as an important factor in communicative imagery. A series of creative projects are designed to firstly define, then develop a range of appropriate criteria by which this role might be evaluated in relation to the audience for which it is intended. In seeking to establish a basis for practical criticism, the unit studies the social-industrial structures in which television programs are produced and presented. VTR material will be shown in class time to support lectures and tutorials. Students must also be prepared to follow up prescribed viewing in their own time, undertake prescribed reading and present a critical analysis of aspects of electronic media in essay form.

GD4933 Visualising 4
Three hours per week for one semester
Prerequisites: Graphic Design 3, Visualising 3, Print Technology 3, Illustration 3, Film Studies 3
The unit comprises a series of exercises and projects specifically designed to develop knowledge and skills in design preparation for print. The principles and applications of colour separation, half-tone and continuous-tone screens and the four-color half-tone process will be covered. Projects will be prepared to camera-ready standard and supported by excursions to printers and platemakers.

GD4935 Print Technology 4
Six hours per week for one semester
Prerequisites: Graphic Design 3, Graphic Design 4, Illustration 3, Visualising 3, Film Studies 3
The course work consists of a balance of theory and practical work designed to develop experiences in contemporary pre-production procedures for all printing processes including: photo-engraving, letterpress, offset lithography, roto-gravure and silkscreen. It will also cover cost estimating, mechanical and photo-technical processes, computer-assisted finished art and pagination techniques, production control, paper stock considerations, print finishing, publication and packaging.

GD5036 Art Direction 5
Prerequisites: Graphic Design 4, Print Technology 4 or equivalent (eg, Methods of Production 4), Visualising 4 or equivalent (eg, Idea Drawing 4)
Based on the format and the objectives established in Graphic Design 3, this unit is designed to develop experiences through practical work in designing and making books. Students will undertake between eight and ten assigned projects. These projects will be multi-faceted and require the student to think critically and independently across a range of subsidiary challenges. Market conditions will become an important factor, as students are required to design...
GD5040 Copywriting 5
Two hours per week for one semester
Prerequisite: Nil

This unit will initially concentrate on audiovisual message. Two main concepts will be introduced: the basic principles behind effective, informational and motivational copy. Existing copy ideas will be discussed and summarised, newspaper and magazine articles will be edited and improved, and existing captions will be analysed and modified to increase their effectiveness and meaning. Existing advertisements will be dissected and rewritten, and original copy ideas will be applied to star packages, brands and logos. Typography and layout skills will be enhanced.

Students will be expected to undertake prescribed reading.

GD5042 Storyboard 5
Six hours per week for one semester
Prerequisite: Visualising 4 or equivalent (eg, Idea Drawing 4)

Based on skills developed in the prerequisite visualising units, Storyboard 5 concentrates on developing fluidity and consistency within standard storyboard formats, and aims initially at competence in a range of pen and ink line drawings and comprehensive colour renderings. First assignments will be based on existing scripts, whereas later assignments will require the integration of original script and audio ideas. These later projects will draw upon skills and experiences gained from the copywriting and media production units and begin to introduce alternatives to marker pen renderings, such as collage, photo-montage and photography as effective storyboard mediums. Through these experiences students will improve their ability to conceive and visualise complex segmental and spatial effects and narrative ideas.

GD5044 Media Technology 5
Three hours per week for one semester
Prerequisite: Print Technology 4 or equivalent (eg, Methods of Production 4)

This unit will consist of a series of investigations and practical experiences in the areas of radio, television and film production. It also covers the technical and creative support industries in parallel with Art Direction 5.

This course work will be covered through:
- industry visits
- work experience
- individual research through professional and industrial contacts

Students will be assisted in work experience placement and rotation, and in establishing professional and industrial contacts. Industry visits will be arranged on a group basis. Through these experiences students will endeavour to cover all production phases including pre-production and post-production.

The support industries will include music composition and soundtrack production, animated and computer-generated imagery, set and model engineering, prop, costume and talent agencies.

GD5046 Marketing 5
Two hours per week for one semester
Prerequisite: Nil

The unit will focus on the role of the marketing executive and will make use of Australian case studies related to basic theory. Emphasis will be placed on class participation and general discussion of the nature and role of marketing in design and advertising.

Prescribed text

GD6037 Art Direction 6
Prerequisite: Art Direction 5, Marketing 5, Copywriting 5, Storyboard 5, Media Technology 5

The major design course will now concentrate on introducing and correlating experiences, skills and concepts, in the area of advertising campaigns, promotions and media events that require the co-operative talents of many people. Specific projects will encourage the integration of experiences and skills developed in the marketing, copywriting, storyboard and media technology units undertaken in the previous semester.

The delegation and rotation of responsibilities throughout the project sequence will continue from Art Direction 5, with the onus increasing on the group and students. The ‘team’ will appoint a different chairperson or ‘director’ for each project, and take responsibility for nominating and organising guest lecturers, industry visits and work experience segments. In this way the unit achieves a strengthening of inter-personal and group attitudes, and as a result improves skills in collective problem-solving as opposed to individual problem-solving.

GD6041 Copywriting 6
Two hours per week for one semester
Prerequisite: Nil

This copywriting unit concentrates on the design of advertisements, publications, promotional and of point of sale materials from a copy view-point. Assigned projects will require students to come to terms with the disciplines of working simply, logically and creatively with words and verbal ideas. Again typograph, typesetting, layout and presentation skills will play an important role in each project’s presentation. Later projects may include additional visual elements such as photographs and illustrations.

Projects undertaken in this unit will relate directly to art direction and marketing units.

GD6043 Storyboard 6
Six hours per week for one semester
Prerequisite: Storyboard 5

The storyboard units will gain input from both the copywriting and media production units through the continuing introduction of creative copy script ideas, an understanding of sound recording and mixing techniques, and a developing appreciation for the potential of electronic media. The development of conventional presentation techniques begun in Storyboard 5 will be complemented through the broad spectrum of creative possibilities available through photography and synchronised slide presentations, animations, film and videotape. Through experiences in style and presentation modes students will further develop their perceptual, structural and narrative concepts.

Projects will attempt to emulate video clips, television commercials and animated films, using low tech equipment and students functioning in support roles for each other, camera, sound, model-maker, editor.

GD6045 Media Technology 6
Six hours per week for one semester
Prerequisite: Media Technology 5

This unit comprises a series of experiences in production planning and management. At this stage of the program, students will assume the greater responsibility for the organisation of their course. Through work experience segments (one day per week), students will be expected to gain first-hand experience in areas such as sub-contracting, briefing, cost estimating, production scheduling, specifying, pre-production and post-production meetings, media insertions and publications deadlines. Under work experience conditions students will come into contact with art directors, production managers and media managers.

GD6047 Marketing 6
Two hours per week for one semester
Prerequisite: Marketing 5

Market Research and Decision-Making: the role of market research in marketing management and the effective organisation of the market research function.

Research/Design: the nature of research design and steps in design process.

Value and Cost of Information: test-marketing new products, what should be researched and the role of intuition. The research design and the expected value approach to determining the value of information.

Survey research: survey research and the use of panels ex-post factor research.

Experimentation: nature of experimentation, types of errors affecting experimental results, experimental design, environment variables, the use of experimentation in measurement and Research: the concept of measurement, scales of measurement and components of measurement. Questionnaire design, content, response format, question sequence, pretesting and questionnaire characteristics. Attitude scales, rating scales, multi-dimensional scales. Observation, depth, interviews and projective techniques.
The objectives of the Bachelor of Arts (Industrial Design) are to:

- develop in students an awareness of the role of the designer;
- develop in students a progressive philosophy to advance Australia through innovation so that ideas are subject to creative lateral thinking;
- develop in students the ability to design, including the development of skills in design methodology, research, information-gathering, and design synthesis;
- develop in students an awareness of current internationally competitive value-added processes such as simultaneous engineering, and the generic for cost-effective product development (this will ensure that development time from concept to production will reduce product costs);
- develop in students at least one specific area of design to a level that is appropriate to the needs of Australian industry;
- assist students to develop methods of professional practice, skills and work habits which relate to the specialist area;
- enable students to develop a broad understanding of the technological requirements and the information resources available for the particular specialisation;
- assist students to achieve competence in the various communication skills necessary to present design ideas, including rendering and presentation drawing, technical drawing and illustration and model-making;
- develop in each student the ability to prepare design briefs, specifications and reports and to develop oral presentation skills;
- introduce students to the fundamentals of business systems (including related software) of interactive computer graphics, information storage and retrieval and computer-aided drafting;
- develop in students an appreciation of how factors like the law, government policies, economics and party platforms influence design decisions and national prosperity and how these factors relate to industry;
- develop in students an appreciation of design history, with emphasis on each student's particular specialisation;
- prepare students to meet the professional standards of the Design Institute of Australia and the International Council of Societies of Industrial Design.

Course structure

The Bachelor of Arts (Industrial Design) course structure comprises seven study groups of major and related studies that cover course work in seven areas:

- Industrial Design
- Technology
- Communication Studies
- Information Resources
- Workshop Techniques
- Professional Studies
- History of Art (Design)

These areas are subdivided into units which interrelate. Throughout the eight semesters groups of units form prerequisites for subsequent and sequential units. To qualify for the Bachelor of Arts (Industrial Design) a student must complete a total of 34 units.

Course outline

The academic year is divided into two semesters each of 15 weeks' duration. The 34 units are taken in the four-year, eight-semester course as follows:

**IP10**

**First year**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours per week</th>
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<tbody>
<tr>
<td>ID1901 Engineering Drawing 1</td>
<td>3</td>
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<tr>
<td>ID1907 Industrial Design 1</td>
<td>12</td>
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<tr>
<td>ID1917 Perceptions 1</td>
<td>3</td>
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<tr>
<td>ID1914 Workshop Techniques 1</td>
<td>3</td>
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<tr>
<td>ID1920 Technical Illustration 1</td>
<td>3</td>
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<tr>
<td>CS1901 History of Art (Design) 1</td>
<td>2</td>
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<tr>
<td>ID2901 History of Art (Design) 2</td>
<td>2</td>
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<tr>
<td>ID2902 Methods of Production (ID) 2</td>
<td>3</td>
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<tr>
<td>ID2908 Industrial Design 2</td>
<td>12</td>
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<tr>
<td>ID2915 Workshop Techniques 2</td>
<td>3</td>
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<tr>
<td>ID2921 Technical Illustration 2</td>
<td>3</td>
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<td>CS2902 History of Art (Design) 2</td>
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**Second year**

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<tr>
<th>Semester 3</th>
<th>Hours per week</th>
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<td>ID3904 Engineering Design 2</td>
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<tr>
<td>ID4915 Professional Practice for Designers 4</td>
<td>3</td>
</tr>
<tr>
<td>ID4923 Technical Illustration 4</td>
<td>3</td>
</tr>
<tr>
<td>CS4904 History of Art (Design) 4</td>
<td>2</td>
</tr>
</tbody>
</table>
Subject details

CS1901 History of Art (Design) 1
Two hours per week for one semester
Prerequisite: Nil

A survey covering the history of design and art movements from ancient times to the late nineteenth century, including relevant aspects of the culture, ideology and technology of the various phases. The way the development of technologies influenced design and the manner in which styles in design and the visual arts arising and interlink are also examined during the lecture and tutorial program.

CS2902 History of Art (Design) 2
Two hours per week for one semester
Prerequisite: History of Art (Design) 1

Developing second semester, the second semester with stylistic developments and influences in art are within the scope. This unit will include the study of individually designed products and innovative developments during the last century.

CS3903 History of Art (Design) 3
Two hours per week for one semester
Prerequisite: History of Art (Design) 2

The study program of lectures and tutorials examines the post-war shift of international mainstream art and design interest to the North American continent. It also investigates the European situation, and how both regions influenced Australian artists and designers. The program then begins to focus particularly on the Australian man on his background, into and development of Australian art, design and culture since World War 2.

CS4904 History of Art (Design) 4
Two hours per week for one semester
Prerequisite: History of Art (Design) 3

Based on the previous semester, this unit makes a study of late twentieth century art and design and of issues of special concern to design students, such as the role of the designer in society. A comparative survey is also made of the design of a contrasting culture. This unit offers an intensive analysis of selected influential international art and design movements of contemporary relevance and examines the ways they have affected design in Australia.

ID1901 Engineering Drawing 1
Three hours per week for one semester
Prerequisite: Nil

Details of the program are as follows:

- introduction to tolerancing, including: linear, bilinear, limits/limits, geometric tolerancing
- requirements of drawings: title blocks, detail, assembly, specification, installation drawings
- metrology: micrometers, verniers, general methods used.

ID1907 Industrial Design 1

Twelve hours per week for one semester
Prerequisite: Nil

The unit will include basic design exercises with projects that include drawing and manual skills. A large proportion includes the use of workshop equipment and materials such as plastics, metals and timber. Skills in model-making, preparation of design briefs, drawing-up terms of reference, ability to draw-up and cadence, research materials, and the ability to present and plan problem-solving techniques will be demonstrated. Techniques including modern handling and presentation will be taught.

ID1914 Workshop Techniques 1
Three hours per week for one semester
Prerequisite: Nil

This unit will discuss the timber industry, including timber types, selection and saw milling. Wood machining, especially where it relates to the preparation of timber suitable for furniture construction and model-making will be discussed.

The wood machining equipment, after demonstration of the capabilities and safety requirements, for each machine, will be used by the student under staff supervision to produce a series of four models representing typical product design projects.

ID1917 Perceptions
Three hours per week for one semester
Prerequisite: Nil

The unit deals with the observation and drawing skills. Through a series of tutorials and class exercises, students are introduced to basic sketching and freehand drawing techniques using a variety of media including pencil, pastel, marker, poster paint and pen and wash.

ID1920 Technical Illustration 1
Three hours per week for one semester
Prerequisite: Nil

This unit covers perspective (one and two-point) and the use of guides and instruments, such as parallel rules, parallel pencils, and French curves. The student is required to produce a range of designs and drawings, including pencil and Pen and Wash studies.

ID2902 Methods of Production (ID) 1
Three hours per week for one semester
Prerequisite: Engineering Drawing 1

This unit introduces production processes and equipment for fabrication, including the use of tools and machines. It covers the selection and application of materials and the use of various techniques, such as casting, forming, and machining. The student is required to produce a range of models and drawings, including detailed and assembly studies.

Topics covered are as follows:

- introduction to plastic materials: molecular structure, thermoplastics and thermosets
- processing plastic materials: extrusion, blow moulding, injection moulding, thermostuff, injection
- design with plastics: capabilities and limitations, shrinkage, draft angle
- costing plastic components: process and materials
- identification of plastics
- testing plastics
- joining plastics
- finishing plastics
- mould design.
School of Design

ID2908 Industrial Design 2
Twelve hours per week for one semester
Prerequisites: Engineering Drawing 1, Industrial Design 1, Perceptions, Technical Illustration 1, Workshop Techniques 1

This unit covers:
- Industrial Design
- Production Awareness and Methodology.

Industrial Design
In this component students revise the work produced in Industrial Design 1. A series of lectures is given and discussed, based on the psychological elements of design such as synaesthetics, order, progression, active and passive influences. An introduction to ergonomics is given, including several projects which allow the student to derive figures and statistics in areas where none or few exist. The student completes the semester with a thorough grounding in manual skills and basic techniques in model-making, wood-working, rendering and illustration.

Production Awareness and Methodology
This component deals with:
- the development of a design from first principles
- basic materials and processes and their influence in product design
- industrial processes and manufactured materials and their selection in product design and development

Both components of this unit ensure that students develop technical skills in the following areas:
- drawings, presentation techniques and methods; the best way to present work for different types of client; various classes of design work, eg, furniture design, corporate image, product design, etc.
- engineering drawing and specification; product costing.

ID2915 Workshop Techniques 2
Three hours per week for one semester
Prerequisite: Workshop Techniques 1

This unit expands the studies of the capabilities of the various items of equipment already presented in Workshop Techniques 1.

Projects will emphasise timber specification and selection, marking out, timber joining techniques and decorative and applied wood machining. Mass production where it relates to the design industry will be undertaken. Students will produce a series of four models representing typical product design projects.

ID2921 Technical Illustration 2
Three hours per week for one semester
Prerequisite: Technical Illustration 1

Students will construct perspective grids for use through continuing technical illustration projects. The unit is taught with preliminary lectures covering the use and understanding of perspective, textures and shading, and time is devoted to achieving a level of skill in the production of finished work. Students are expected to execute finished drawings of three articles in different techniques.

ID3903 Engineering Design 1
Three hours per week for one semester. Minimum of three factory visits.
Prerequisite: Methods of Production (ID) 1

This unit gives students a practical introduction to workshop and production machinery. Students learn to use the department's machine shop equipment, which includes lathe, milling machine, measuring instruments, etc. Students become familiar with the capabilities and limitations of the department's lathe and milling machine by designing and producing a number of simple products.

The unit covers the following:
- lathes (including practical exercises)
- milling machines (including practical exercises)
- shapers
- planers
- laser cutters
- requirements of specification and tolerancing in relation to machine tools.

Casting processes:
- uses of castings
- sand casting
- green sand
- permanent moulds
- skin dried moulds
- loam moulds
- furnac moulds
- CO₂ moulds
- metal moulds
- rubber moulds.

ID3909 Industrial Design 3
Twelve hours per week for one semester
Prerequisites: Methods of Production (ID) 1, Industrial Design 2, Technical Illustration 2, Workshop Techniques 2

The unit will begin to identify some areas of design specialisation in industrial design. The study of design methodology is the main subject covered and develops the problem-solving, communication, presentation and technical skills gained in the first year. These are further developed to a professional level and understanding. The unit attempts to introduce the student to the reality of production, costing specifications, professional practice, visual and verbal presentation of projects. Projects to be assigned will attempt to introduce the student to the reality of production, costing, and design. Brevity, debriefings, and important components of design. Instance, the design methodology is held to formalise those aspects.

ID3922 Technical Illustration 3
Three hours per week for one semester
Prerequisite: Technical Illustration 2

This unit extends the studies commenced in Technical Illustration 2 and deals with presentation methods and techniques. The selection of appropriate methods of illustration and presentation for product or design type is discussed, demonstrated and practised.

ID4904 Engineering Design 2
Three hours per week for one semester. Factory visits and exhibitions.
Prerequisite: Engineering Design 1

At this level of the engineering program, students continue to develop their practical skills and gain experience in their specific requirements. The assignments set during this semester follow on from those in Industrial Design 3 and are designed to encourage students to develop their own ideas and experiments. Emphasis is placed on design systems, design methodology and approaches to problem-solving. These stages are presented by lecture and expanded upon during discussions. Understanding is tested by project and experiment and is encouraged and a variety of approaches is fostered. Students produce models and prototypes appropriate to their project. The economics of design and the problem of producing ideas is expanded.

Industrial Design Specialisation
The options are:
- general industrial design (non-specific)
- advanced exhibition and display
- work environments
- furniture
- transport.

ID4910 Industrial Design 4
Twelve hours per week for one semester
Prerequisites: Engineering Design 1, Industrial Design 3

Students continue their involvement in the various design specialisations to gain experience in their specific requirements. The assignments set during this semester follow on from those in Industrial Design 3 and are designed to encourage students to develop their own ideas and experiments. Emphasis is placed on design systems, design methodology and approaches to problem-solving. These stages are presented by lecture and expanded upon during discussions. Understanding is tested by project and experiment and is encouraged and a variety of approaches is fostered. Students produce models and prototypes appropriate to their project. The economics of design and the problem of producing ideas is expanded.

Industrial Design Specialisation
The options are:
- general industrial design (non-specific)
- advanced exhibition and display
- work environments
- furniture
- transport.

ID4915 Professional Practice for Designers
Three hours per week for one semester
Prerequisites: Engineering Design 1, Industrial Design 3

This unit has been designed to give a reasonable, practical knowledge of the profession. It is run on a lecture and tutorial basis and concentrates on the commensurate aspects of such matters as ethics, codes of conduct, professional bodies and what the professional bodies offer to the practising designer. Instruction is given in report and letter writing, accounting practice and costing of fees. Reference is made to topics such as personnel administration, executive training, patents and trade mark applications.
**ID4923** Technical Illustration 4  
Three hours per week for one semester  
Prerequisite: Technical Illustration 3

In this unit students work towards producing a folio of at least five renderings or illustrations and a graphic communication project. The basic knowledge built up through Technical Illustration 1, 2 and 3 is developed further in regard to industrial design presentation techniques, materials such as: poster paint, canson paper, marker pen, crystalene paper, airbrush, pastel, bond and bank papers, dyes and prints. Types and methods of folio construction, use of cover papers and mount boards are explained.

**ID5024** Methods of Production (ID) 2B  
Three hours per week for one semester  
Prerequisite: Engineering Design 2

The unit consists of a balance of theory and practical work. Practical information is imparted to the student by developing the engineering inputs necessary for detailing Industrial Design project work. Engineering information is represented as an expansion and detailing of that presented in previous units:
- engineering design: mechanics, levers, specification
- engineering model shop: metrology, machining practices, project development, component detail drawing
- materials and theory of design: design applications, limits of materials, design calculations, tables and reference books, standards
- production processes: major manufacturing processes and finishes. Factory visits and study of designated process.

This prepares the student for computer study electives and establishes an understanding of what the computer can do for the designer.

**ID5025** Materials/Processes (ID) 1B  
Three hours per week for one semester  
Prerequisite: Methods of Production (ID) 2B

In this unit, the study of materials presented in previous semesters is detailed. The historical and present production processes used in the manufacture, specification and sources of various materials are discussed.

Mechanical and physical properties of materials: ferrous/non-ferrous metals; plastics (various types, reinforcement, fillers, suitability for various applications); timber; pulpwood materials; paper; concrete; masonry.

**ID5028** Industrial Design 5B  
Twelve hours per week for one semester  
Prerequisites: Engineering Design 2, Industrial Design 4, Professional Practice for Designers

Students will elect to work with a staff member whose experience relates to their design specialisation. The staff member assists in identifying an area of specialisation and developing suitable industry contacts.

This unit expands in greater detail the work covered in previous semesters, including professional work habits, design skills and methods of communication. To achieve this, students must elect to specialise and find external projects (preferably of a community nature, yet related to their specialisation) and also carry out educationally developed projects, up to six per semester.

**ID5034** Computer Applications for Designers  
Three hours per week for one semester  
Prerequisite: Technical Illustration 2

This unit is related to the Industrial design major unit and is aimed at showing the potential of microcomputers for data storage, data manipulation, use of applications software and computer graphics.

The unit is introduced through a series of creative and applications programs which allow students to input data collected during the Technical Illustration elective. Word processor and related software is used to prepare documents.

Students will be encouraged to develop their writing techniques and will be required to become competent in the use of at least one applications program. The program selected will be one that is suitable for use in preparing documents for the Technical Writing elective. Writing computer programs will be taught together with the use of a computer system that demonstrates the use of the program.

- Operating systems such as MS DOS, PC DOS and Unix will be explained.
- Students will use word processing, database, graphics, accounting spreadsheet and desktop publishing application programs.

**ID5036** Technical Writing  
Five hours per week for one semester  
Prerequisite: Technical Practice for Designers, Engineering Design 2

This unit is related to industrial design and covers some of the topics mentioned in the Professional Practice for Designers unit. Topics include: research methods, market research, product evaluation, developing a proposal, including methods for classifying and retrieving information and other information resources.

The unit also covers various aspects of technical writing. This includes: report writing, specification writing, technical writing (including service and operating instructions), brief preparation and writing, writing of patents applications and design registration. Research work dealing with advanced data for design projects will be carried out during the periods of this unit. Assignments for this unit will include visual presentation of research material.

**ID6025** Materials/Processes (ID) 1B  
Three hours per week for one semester  
Prerequisite: Methods of Production (ID) 2B

In this unit, the study of materials presented in previous semesters is detailed. The historical and present production processes used in the manufacture, specification and sources of various materials are discussed.

Mechanical and physical properties of materials: ferrous/non-ferrous metals; plastics (various types, reinforcement, fillers, suitability for various applications); timber; pulpwood materials; paper; concrete; masonry.

**ID6029** Industrial Design 6B  
Twelve hours per week for one semester  
Prerequisites: Methods of Production (ID) 2B, Industrial Writing, Professional Practice for Designers, Professional Practice for Designers, Government and the Law

Students will continue to work within their identified specialist design area, on project work of a substantial nature determined and dependant on the scope and scale of project work undertaken. The project work may be entrepreneurial or by direct consultation between staff and/or industry. At least one project from an alternate area of design must be completed.

**ID6035** Computer-Aided Drafting (CAD)  
Three hours per week for one semester  
Prerequisite: Computer Applications for Designers

Students will be made aware of the types of systems available and the advantages of a CAD system/workstation. A number of software packages will be available to students and the advantages/disadvantages of each will be assessed.

The unit will also demonstrate the operating language necessary for the system. Through demonstration, the student will become aware that computer-aided drafting is a tool and not a replacement for draughtspeople.

The technological and social implications of computer-aided drafting will be discussed.

**ID6037** Ergonomics  
Five hours per week for one semester  
Prerequisite: Nil

In this unit, the student will be presented with topics that show how anthropometric data is gathered and how ergonomic data is prepared from this.

Projects will also show how ergonomic data can be applied, how to select the information that is relevant and the meaning of percentiles and samples. Also the selection of ergonomic data to be used when designing for children, the handicapped and data required in the design of work environments will be detailed.
**ID6038 Entrepreneurship**

Four hours per week for one semester.

Prerequisites: Professional Practice for Designers, Industrial Design 4, Engineering Design 2

Application of a systematic, reasoned and critical analysis of business environments and definition of worthwhile and viable opportunities. Participants will learn how to:

- set up a new business venture and run it successfully
- develop the capacity to innovate in effective ways
- apply key concepts and techniques to the development of new products
- develop a business plan
- develop a marketing strategy
- understand the legal structure and taxation implications
- understand technology issues with respect to innovation and invention, licensing products, patents, design registration and trademarks.

**ID6039 Entrepreneurial Research Skills**

Two hours per week for one semester.

Prerequisites: Professional Practice for Designers, Industrial Design 4, Engineering Design 2

Students in this unit will gain an understanding of research techniques, data gathering and the dissemination of information into business and marketing plans. Strategies and pathways into government instrumentalities, statutory organisations and local councils for information retrieval will also be discussed.

**ID7026 Materials/Processes (ID) 2B**

Six hours per week for one semester.

One-hour lecture, two-hour tutorial, three hours research and/or industry contact.

Prerequisite: Materials/Processes (ID) 1B

Through a series of lectures and tutorials, the state and potential of Australian industry will be introduced. Terms such as 'sunrise industries', 'technology transfer', 'just in time production' and new industry or government initiatives will be discussed. The potential of these initiatives is to be reinforced through a series of excursions to firms using the latest materials and technology and attendance at seminars and conferences that relate to the student's specialisation. Students will be encouraged to establish contact with manufacturers, materials and component suppliers to develop an appreciation of the practical requirements of their project work. As part of this, students will be expected to develop a file of technical literature, as well as maintain contact with technical sales representatives. Where necessary, staff will assist in making contacts.

**ID7030 Industrial Design 7B**

Fifteen hours per week for one semester.


This semester covers the application of work habits and skills developed in previous semesters. The nature of work habits and skills expected to be developed in this semester and its expected application of research material commenced in the previous semester will begin to occur. (Some projects will not be completed until the final semester.) Work carried out will have to be fully documented and detailed and students are assisted by staff and visiting professionals through tutorials, seminars and discussions.

Development of ideas includes the production of a prototype and/or other suitable methods for testing or communicating a design solution. Students are expected to establish contacts with materials, component and equipment suppliers. They will be required to communicate effectively with manufacturers, technical sales personnel and other professionals.

**ID8027 Materials/Processes (ID) 3B**

Six hours per week for one semester. One two-hour tutorial, four hours research and/or industry contact.

Prerequisite: Materials/Processes (ID) 2B

In the final semester, contact with industry relevant to the student's specialisation will become even more important. Individual and group tutorials will guide students in their own specialisation as well as maintaining an overview of the latest materials, componentry and technology available in Australia and overseas. Students will be encouraged to discuss their findings in group sessions with staff and other students. This will give practice in the oral presentation of complex material to others.

Tutorials, excursions and individually generated visits to industry will form the major requirement of this unit.

Attendance at relevant industry, trade and professional seminars and conferences will be encouraged.

Students will be expected to continuously upgrade their specialist and general information files, bibliographies and sample collections.

**ID8031 Industrial Design 8B**

Fifteen hours per week for one semester.

Prerequisites: Industrial Design 7B, Materials/Processes (ID) 2B

The final semester will be the culmination of the synthesis and development of work from earlier semesters. Students will be expected to have reached a level commensurate with professional practice where they are in continuous contact with the profession and the industry and have a level of knowledge of their area of specialisation.

Projects, when presented, will consist of:

- design brief,
- development program (calendar),
- research material,
- development work (including additional research),
- design proposals (including specifications),
- technical drawings,
- presentation drawings,
- prototype, test models, form studies,
- specifications,
- project evaluation paper, prepared after the project has been presented and discussed. Staff will assist in this regard.

B.A. (Industrial Design) students will be required to prepare a folio of their work and arrange for suitable display to present their work to the external assessor(s) and academic staff.
Centre for AnimationInteractive Multimedia

The Centre was established in 1991 to provide a focus for training and research relevant to the needs of the animation and interactive multimedia industries.

Academic staff
Manager/Director
J.E. Bird, DipArt(SIT), TTTC

Administrative Officer
R. Blake, GradDipArt(AppF&TV)(SIT)

Lecturers
D. Atkinson, DipArt(SIT)
J. Parker, GradDipArt(AppF&TV)(SIT)

F081 Graduate Diploma in Animation1 Interactive Multimedia

Assessment
First semester: internal and progressive assessment of completed assigned projects.
Second semester: the major component of the course is the creation of a published and distributable end product. Assessment is based upon the evaluation of the resulting end-product rather than the formal process of its realisation. Assessment of the major work (or portfolio of works) will be made by an external assessment panel composed of professional practitioners representing the various facets of the course.
The assessment panel is the final arbiter on deciding the pass or failure status of any student portfolio of work.

General and copyright conditions
Swinburne reserves the right to retain any work executed by students as part of their course studies. Work not required may be claimed by the student after final assessment and public exhibition. Original authors may retain the copyright to e.g. script, music, character design or computer software.
Students are requested to ensure that their productions conform to the formal copyright and publication rights, agreements and censorship obligations.

Course aims
The primary objective of the course is to foster the development of artistic and creative talent through practical production. In the course of the year, students are expected to produce a substantial body of published work for examination and exhibition.
While based upon the heritage of animation and the motion picture arts, the course recognises new opportunities for artistic expression and potential areas of employment created by changing technology. The course acknowledges that the quality of any program is largely determined by the conceptual and realisation skills of the student writer/director/editor. It also seeks to formally establish foundation craft skills in production through exposure to a wide range of genres and techniques; traditional animation, 2 and 3D computer animation interactive production and the new media industries. The course intends to lay the foundation for persons wishing to undertake further advanced study at M.A. and PhD level at the Centre or in association with other faculty disciplines.

Eligibility
Applicants are initially required to submit responses to tests set each year by the lecturing staff. These tests follow the example below:
1. Describe two soundtracks which conjure up distinct and contrasting moods to a single image.
2. Write a short narration on a given topic.
3. Convey a dramatic theme through a short sequential series of images.

Following the assessment of the tests, selected applicants are asked to attend an interview where they are required to:
1. Present their portfolio of work.
2. Demonstrate an awareness of the requirements of the course.
3. Provide academic reports.

Selection tests and interviews are conducted from October through December each year.
Applicants usually will have taken a first degree or diploma in any discipline. It is expected that they will draw upon past studies or past experiences when devising their particular program content. However there does not have to exist some definable correlation between their achievements of the past and their proposals for the future. Proven design ability is seen as an asset.

Mature age entry applicants, some who are not graduates, may be considered for admission if they can demonstrate substantial industrial experience.

Quota — 12 students

Course structure
1 year full-time
Semester 1 Aim1 Assigned Projects as set by lecturers
Semester 2 Aim2 A personal portfolio of published work(s)

Hours per week
The course is formally 28 hours per week (4 days, 9am.-5pm).
In practice, however, the need for access to rostered production/studio facilities usually extends this period considerably. Students are alerted to the fact that a high level of extra-curricula time is required, particularly during the production-intensive second semester.

Resources
Swinburne provides an extensive range of equipment and assists with production costs. Budget expenditure is determined by the individual student subject to departmental approval.

Personal Resources
Applicants are reminded that this is a production-based course and that they will be expected to make personal contributions to their budgets.

Students are advised to fully crew their productions, and to assist on at least two of their fellow student productions. Past experience has shown that student directors of animation commonly underestimate the crewing levels and expertise required in post-production editing, sound and music recording and track laying. Whilst students are expected to undertake a Directorial and Supervising Editor’s role over post production, they are also advised to hire-in experienced production talent to assist in these tasks.

Application forms
These are available from the Administrative Officer, Centre for AnimationInteractive Multimedia and must be returned by the date specified thereon.

Telephone: (03) 819 8117, 819 8590.
## INDEX:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstudy</td>
<td>10</td>
</tr>
<tr>
<td>Abbreviated Titles (for courses)</td>
<td>20,21</td>
</tr>
<tr>
<td>Academic Board</td>
<td>20</td>
</tr>
<tr>
<td>Academic Calendar (see inside front cover)</td>
<td></td>
</tr>
<tr>
<td>Academic Statements</td>
<td>22</td>
</tr>
<tr>
<td>Access Education Department</td>
<td>11</td>
</tr>
<tr>
<td>Accident Insurance</td>
<td>15</td>
</tr>
<tr>
<td>Accommodation. Student</td>
<td>10</td>
</tr>
<tr>
<td>Accounting</td>
<td></td>
</tr>
<tr>
<td>Bachelor of Business</td>
<td>158</td>
</tr>
<tr>
<td>Graduate Diploma</td>
<td>164</td>
</tr>
<tr>
<td>Accounting Department (see Faculty of Business)</td>
<td>152</td>
</tr>
<tr>
<td>Adding subjects</td>
<td>24</td>
</tr>
<tr>
<td>Administration. Student</td>
<td>22</td>
</tr>
<tr>
<td>Administration studies (see Business Administration)</td>
<td></td>
</tr>
<tr>
<td>Admission (see Entrance Requirements)</td>
<td></td>
</tr>
<tr>
<td>Advising Centre for Women at Swinbum</td>
<td>11</td>
</tr>
<tr>
<td>Air-conditioning</td>
<td></td>
</tr>
<tr>
<td>Bachelor of Technology</td>
<td>221</td>
</tr>
<tr>
<td>Graduate Diploma</td>
<td>233</td>
</tr>
<tr>
<td>Amendments to Enrolment</td>
<td>24</td>
</tr>
<tr>
<td>Personal details</td>
<td>24</td>
</tr>
<tr>
<td>Animation and Interactive Multimedia Centre</td>
<td>37</td>
</tr>
<tr>
<td>Graduate Diploma</td>
<td>318</td>
</tr>
<tr>
<td>Application Procedure (see also Entrance Requirements, Enrolment Regulations)</td>
<td>21</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>22</td>
</tr>
<tr>
<td>Postgraduate</td>
<td></td>
</tr>
<tr>
<td>Applied Chemistry Department (see Applied Science Faculty)</td>
<td>44</td>
</tr>
<tr>
<td>Applied Colloid Science</td>
<td></td>
</tr>
<tr>
<td>Graduate Diploma</td>
<td>57</td>
</tr>
<tr>
<td>Master of Applied Science</td>
<td>59</td>
</tr>
<tr>
<td>Applied Colloid and Biocolloid Science Centre</td>
<td>38</td>
</tr>
<tr>
<td>Applied Neurosciences Centre</td>
<td>38</td>
</tr>
<tr>
<td>Applied Science Courses</td>
<td>45</td>
</tr>
<tr>
<td>Bachelor of Applied Science (Undergraduate)</td>
<td>49</td>
</tr>
<tr>
<td>Computer-aided Biochemistry</td>
<td>50</td>
</tr>
<tr>
<td>Computer-aided Chemistry</td>
<td>49</td>
</tr>
<tr>
<td>Computer Science and Software Engineering</td>
<td>53</td>
</tr>
<tr>
<td>Computing and Instrumentation</td>
<td>51</td>
</tr>
<tr>
<td>Environmental Health</td>
<td>54</td>
</tr>
<tr>
<td>Mathematics and Computer Science</td>
<td>52</td>
</tr>
<tr>
<td>Medical Biophysics and Instrumentation</td>
<td>50</td>
</tr>
<tr>
<td>Psychology/Psychophysiology</td>
<td>54</td>
</tr>
<tr>
<td>Bachelor of Applied Science (Honours)</td>
<td>45</td>
</tr>
<tr>
<td>Graduate Certificate</td>
<td>56</td>
</tr>
<tr>
<td>Computer Science</td>
<td></td>
</tr>
<tr>
<td>Social Statistics</td>
<td>56</td>
</tr>
</tbody>
</table>

### Graduate Diploma

- **Applied Colloid Science** .................................................... 57
- **Biomedical Instrumentation** .................................................. 56
- **Computer Science** ............................................................ 57
- **Industrial Chemistry/Biochemistry** ........................................... 58
- **Industrial Microbiology** ...................................................... 58
- **Social Statistics** ............................................................. 58
- **Masters degree (by coursework)** ............................................. 59
- **Applied Colloid Science** ...................................................... 59
- **Biomedical Instrumentation** .................................................. 60
- **Social Statistics** ............................................................. 60
- **Masters degree (by research)** ................................................ 59
- **Master of Information Technology** .......................................... 59
- **Doctor of Philosophy** .......................................................... 60
- **Faculty** .............................................................................. 43
- **Subject Details** ................................................................... 61

### Applied Psychology, Graduate Diploma

- **Art (also see Animation)** ...................................................... 117
- **Diploma of Art (Graphic Design)** .............................................. 305

### Articulation from Associate Diploma (TAFE) to Degree (see appropriate faculty entry)

**Arts**

- **Courses** .............................................................................. 107
  - Bachelor of Arts ................................................................. 107
  - Asian Studies ....................................................................... 111
  - Australian Studies ................................................................ 111
  - Economics ............................................................................ 116
  - Interdisciplinary Studies .................................................... 111
  - Italian .................................................................................. 113
  - Japanese ................................................................................ 112
  - Korean ................................................................................... 112
  - Literature ............................................................................. 113
  - Media Studies ....................................................................... 113
  - Philosophy and Cultural Inquiry ............................................ 114
  - Political Studies .................................................................. 114
  - Psychology ........................................................................... 114
  - Psychology and Psychophysiology ......................................... 115
  - Sociology ............................................................................... 115
  - Vietnamese ............................................................................ 112
- **Bachelor of Arts (Graphic Design)** ........................................... 305
  - Hawthorn Campus ................................................................... 117
  - Prahran Campus ...................................................................... 308
- **Bachelor of Arts (Honours)** ................................................... 116.162
  - Cultural Studies .................................................................... 117
  - Languages ................................................................................ 117
  - Psychology ............................................................................. 117
  - Social Science ....................................................................... 117
- **Bachelor of Arts (industrial Design)** ....................................... 311
- **Bachelor of Business/Bachelor of Arts** .................................... 116.162
  - Double Degree ....................................................................... 116.162
  - Italian .................................................................................... 116.162
  - Japanese .................................................................................. 116.162
  - Korean .................................................................................... 116.162
  - Vietnamese ............................................................................ 116.162

### Graduate Diploma

- **Applied Psychology** ............................................................. 117
- **Equal Opportunity Administration** .......................................... 118
- **Japanese** ............................................................................... 118
- **Japanese for Professionals** .................................................... 119
- **Urban Research and Policy** ...................................................... 119
- **Masters degree** ..................................................................... 119
  - Counselling Psychology .......................................................... 119
  - Japanese ................................................................................... 120
  - Urban Research and Policy ....................................................... 120
- **Masters degree (by research)** .................................................. 119
- **Doctor of Philosophy** ............................................................ 120
- **Professional Doctorate in Psychology** ..................................... 120
- **Faculty** .............................................................................. 105
- **Subject details** ................................................................... 120

---

**Subject Details**

- **Accounting**
  - Bachelor of Business: 158
  - Graduate Diploma: 164
- **Accounting Department (see Faculty of Business)**: 152
- **Adding subjects**: 24
- **Administration**: 22
- **Administration studies (see Business Administration)**
- **Admission (see Entrance Requirements)**
- **Advising Centre for Women at Swinbum**: 11
- **Air-conditioning**
  - Bachelor of Technology: 221
  - Graduate Diploma: 233
- **Amendments to Enrolment**: 24
- **Personal details**: 24
- **Animation and Interactive Multimedia Centre**: 37
- **Graduate Diploma**: 318
- **Application Procedure (see also Entrance Requirements, Enrolment Regulations)**
  - Undergraduate: 21
  - Postgraduate: 22
- **Applied Chemistry Department (see Applied Science Faculty)**: 44
- **Applied Colloid Science**
  - Graduate Diploma: 57
  - Master of Applied Science: 59
- **Applied Colloid and Biocolloid Science Centre**: 38
- **Applied Science**
  - **Courses**
    - Bachelor of Applied Science (Undergraduate): 45
    - Computer-aided Biochemistry: 49
    - Computer-aided Chemistry: 49
    - Computer Science and Software Engineering: 53
    - Computing and Instrumentation: 51
    - Environmental Health: 54
    - Mathematics and Computer Science: 52
    - Medical Biophysics and Instrumentation: 50
    - Psychology/Psychophysiology: 54
    - Bachelor of Applied Science (Honours): 45
    - Graduate Certificate: 56
    - Computer Science: 56
    - Social Statistics: 56
  - **Graduate Diploma**
  - **Industrial Microbiology**: 58
  - **Social Statistics**: 58

---

**Faculty**

- **Subject Details**: 61

**Diploma of Art (Graphic Design)**: 305

**Articulation from Associate Diploma (TAFE) to Degree (see appropriate faculty entry)**

**Arts**

- **Courses**: 107
  - Bachelor of Arts: 107
  - Asian Studies: 111
  - Australian Studies: 111
  - Economics: 116
  - Interdisciplinary Studies: 111
  - Italian: 113
  - Japanese: 112
  - Korean: 112
  - Literature: 113
  - Media Studies: 113
  - Philosophy and Cultural Inquiry: 114
  - Political Studies: 114
  - Psychology: 114
  - Psychology and Psychophysiology: 115
  - Sociology: 115
  - Vietnamese: 112
- **Bachelor of Arts (Graphic Design)**
  - Hawthorn Campus: 305
  - Prahran Campus: 308
- **Bachelor of Arts (Honours)**
  - Cultural Studies: 117
  - Languages: 117
  - Psychology: 117
  - Social Science: 117
- **Bachelor of Arts (industrial Design)**: 311
- **Bachelor of Business/Bachelor of Arts**
  - Double Degree: 116.162
  - Italian: 116.162
  - Japanese: 116.162
  - Korean: 116.162
  - Vietnamese: 116.162

**Graduate Diploma**

- **Applied Psychology**: 117
- **Equal Opportunity Administration**: 118
- **Japanese**: 118
- **Japanese for Professionals**: 119
- **Urban Research and Policy**: 119
- **Masters degree**
  - Counselling Psychology: 119
  - Japanese: 120
  - Urban Research and Policy: 120
- **Masters degree (by research)**: 119
- **Doctor of Philosophy**: 120
- **Professional Doctorate in Psychology**: 120
- **Faculty**: 105
- **Subject details**: 120
Asian Languages and Cultures Discipline.
Faculty of Arts........................................ 1 0 6112
Japanese (see Japanese).............................. 111
Korean (see Korean)................................... 111
Vietnamese (see Vietnamese)......................... 111
Asian Studies. Bachelor of Arts...................... 111
Assessment Regulations (see also
Examinations; Results).............................. 25
Assistance Schemes. Student........................... 8
Audiovisual Services (see Learning Services)...... 111
Australian Studies. Bachelor of Arts................. 111
Austudy.................................................. 10
Aviation. Bachelor of Technology..................... 230
Awards (see also Scholarships and Awards)
Applications to receive degrees and diplomas...... 22
Bachelor of Business/Bachelor of Arts (Double
Degree).................................................. 116,162
Italian.................................................... 116,162
Japanese................................................... 116,162
Korean..................................................... 116,162
Vietnamese............................................... 1 1 6, 1 6 2
Bachelor degrees
Accounting............................................... 158,160
Air-conditioning........................................ 221
Asian Studies.......................................... 111
Australian Studies..................................... 111
Aviation.................................................. 230
Building Surveying.................................... 158,160
Business Law............................................ 158,160
Business Modelling.................................... 159,160
Chemical Technology.................................. 221,222
Civil...................................................... 223
Communication and Electronic......................... 226
Computer-aided Biochemistry........................ 50
Computer-aided Chemistry............................ 49
Computer-aided Design and Manufacture............. 221,222
Computer Science and Software Engineering........ 53
Computer Systems....................................... 226
Computing.............................................. 159,160
Computing and Instrumentation....................... 51
Economics.............................................. 116,159,160
Electrical Power and Control........................ 226
Environmental Health................................... 54
Finance................................................. 159,160
Fire Technology........................................ 221,222
Graphic Design........................................ 305,308
Industrial Design....................................... 311
Information Technology................................ 55,162
Interdisciplinary Studies (Arts Faculty)............... 11
Italian.................................................... 113
Italian (Double degree).................................. 1 1 6, 1 6 2
Japanese................................................... 112
Japanese (Double degree).................................. 1 1 6, 1 6 2
Korean..................................................... 112
Korean (Double degree).................................. 1 1 6, 1 6 2
Literature............................................... 113
Manufacturing (Production)........................... 231
Manufacturing (Chemical)............................. 231
Manufacturing Technology............................ 221,222
Marketing............................................... 159,160
Mathematics and Computer Science.................... 52
Mechanical............................................. 223
Media Studies.......................................... 113
Medical Biophysics and Instrumentation.............. 50
Philosophy and Cultural Inquiry....................... 114
Political Studies....................................... 114
Productivity Management................................ 221,222
Psychology.............................................. 114
Psychology and Psychophysiology..................... 54,115
Sociology.............................................. 115
Technology............................................. 221
Vietnamese.............................................. 112
Vietnamese (Double degree)............................ 116,62
Honours year
Accounting............................................. 161
Business Law.......................................... 161
Business Modelling..................................... 161
Computer Science.................................... 45
Computing............................................. 161
Cultural Studies...................................... 117
Economics.............................................. 116,162
Environmental Health.................................. 45
Finance............................................... 161
Languages.............................................. 117
Marketing.............................................. 161
Medical Biophysics..................................... 45
Medical Biophysics and Instrumentation............. 45
Organisation Behaviour................................. 161
Psychology.............................................. 117
Scientific Instrumentation............................. 45
Social Science......................................... 117
Behaviour Studies (see Organisational
Behaviour; Psychology)
Biochemistry (see Computer-aided Biochemistry
listed under Computer courses)
Biomedical Instrumentation
Centre..................................................... 38
Graduate Diploma...................................... 56
Masters degree......................................... 60
Biophysics and Instrumentation (see Medical
Biophysics and Instrumentation)
Bookshops............................................... 13
Building Surveying
Bachelor of Technology................................ 223
Diploma.................................................. 223
Business
Courses.................................................. 153
Bachelor of Business.................................... 158,161
Accounting............................................. 158
Business Law.......................................... 158
Business Modelling..................................... 159
Computer Science.................................... 159
Economics.............................................. 159
Finance............................................... 159
Marketing.............................................. 159
Organisation Behaviour................................. 160
Bachelor of Business/Bachelor of Arts................. 1 1 6, 2
Italian.................................................... 116,2
Japanese................................................. 116,162
Korean.................................................... 116,162
Vietnamese.............................................. 116,62
Bachelor of Business (Honours)....................... 161
Bachelor of Information Technology.................. 162
Graduate Certificate
Business Administration............................... 162
Business Information Technology..................... 163
Taxation and Finance.................................. 164
Graduate Diploma
Accounting............................................. 164
Business Administration............................... 164
Business Information Technology..................... 165
Corporate Finance...................................... 166
Management Systems.................................... 166
Marketing Modelling.................................... 167
Organisation Behaviour................................. 167
Chemistry
Computer-aided Biochemistry................................. 50
Computer-aided Chemistry...................................... 49
Industrial Chemistry............................................... 58
Child-care Centre.................................................... 11
CIM — Computer Integrated Manufacture Centre (see also Computer Courses).............................. 38
Civil Engineering
Bachelor of Engineering........................................... 223
Graduate Diploma (Construction)... 224
Civil Engineering and Building. School of (see Faculty of Engineering) ...................................... 222
Clubs and Societies........................................................ 15
Colloid Science (see Applied Colloid Science)
Communication and Electronic Engineering.
Bachelor of Engineering........................................... 226
Community Access Programs........................................ 11
Compensatory Education............................................ 11
Complaints. Student (see Grievance Procedure for Students)
Completion of courses (see Awards)............................. 22
Computer Centre......................................................... 12
Computer Courses
Business Information Technology
Graduate Certificate................................................ 163
Graduate Diploma..................................................... 165
Computer-aided Biochemistry
Bachelor of Applied Science........................................ 50
Computer-aided Chemistry
Bachelor of Applied Science........................................ 49
Computer-aided Design/Computer-aided
Manufacture
Bachelor of Technology.............................................. 221, 222
Graduate Diploma...................................................... 233
Computer-Integrated Manufacture
Graduate Diploma...................................................... 234
Master of Engineering............................................... 236
Master of Technology................................................. 235
Computer Science
Honours year — Bachelor of Applied Science.. 45
Graduate Diploma...................................................... 57
Computer Science and Software Engineering
Bachelor of Applied Science ....................................... 53
Computer Systems Engineering
Bachelor of Engineering............................................. 226
Graduate Diploma...................................................... 227
Computing
Bachelor of Business............................................... 159
Bachelor of Business (Honours Year)................. 161
Computing and Instrumentation
Bachelor of Applied Science ....................................... 51
Information Technology
Bachelor of Information Technology...................... 55, 162
Master of Business................................................... 168
Master of Information Technology......................... 59, 170
Mathematics and Computer Science
Bachelor of Applied Science ....................................... 52
Computer Science Department (see Faculty of Applied Science) .............................................. 44
Computing Productivity Institute................................. 44
Concession Tickets....................................................... 38

Certificates (see Graduate Certificates)
Chancellery................................................................. 3
Chaplain................................................................. 11
Chemical Engineering
Bachelor of Technology............................................ 221, 222
Graduate Diploma...................................................... 233

Centres (Research and Consulting)
Advising Centre for Women........................................ 11
Animation and Interactive Multimedia (AIM)............. 37
Applied Colloid and Biocolloid Science...................... 38
Applied Neurosciences............................................... 38
Biomedical Instrumentation....................................... 38
Computer Integrated Manufacture (CIM)...................... 38
Computing Productivity Institute............................... 38
Design Centre........................................................... 39
Energy Systems Engineering.................................... 39
Housing and Planning............................................... 39
Industrial Democracy................................................ 39
Laboratory for Concurrent Computing Systems ... 39
Marketing Strategy..................................................... 39
Media and Telecommunications............................... 39
National Korean Studies.......................................... 40
Psychological Services............................................. 40
Science Education.................................................... 40
Science Shop........................................................... 41
Taxation Research and Advisory Centre..................... 40
Urban and Social Research...................................... 41
Womens Studies....................................................... 41

Centres
Child-care.............................................................. 11
Computer.................................................................. 12
Conference................................................................ 11

Business Information Technology (see Computer Courses)
Business Law. Bachelor of Business............................ 158
Business Modelling. Bachelor of Business.................... 159

CIM — Computer Integrated Manufacture Centre (see also Computer Courses)

Calendar — Important dates (see inside front cover)
Campuses (see Eastern (Lilydale). Hawthorn. Prahran. also maps inside back cover)
Car Parks (see Parking and maps)

Careers
Services................................................................... 9

Business Administration
Graduate Certificate................................................... 162
Graduate Diploma...................................................... 164
Masters degree (MBA)............................................... 169

Certificate courses (see Computer Courses)
Conference Centre ........................................ 11
Confirmation of records .................................. 24
Construction. Master of Technology ..................... 224
Contact. Student information centre ...................... 15
Cooperative Education
Applied Science .............................................. 47
Business ....................................................... 154
Engineering .................................................... 213
Cooperative Employers
Business ....................................................... 154
Engineering .................................................... 213
Corporate Division .......................................... 5
Corporate Finance. Graduate Diploma .................... 166
Council. Swinburne .......................................... 3
Counselling. Student ........................................ 9
Course Codes (see appropriate faculty)
Courses Offered. Abbreviated Titles (also see specific faculty) ........................................ 20
Cultural Inquiry and Philosophy Studies Discipline
Arts Faculty ...................................................... 114
Cultural Studies
Bachelor of Arts. Honours Year .......................... 117
Deferred entry .................................................. 21

Degrees
Undergraduate (see Bachelors degree)
Postgraduate (see Masters degrees. Doctor of Philosophy)

Departments
Applied Science Faculty
Applied Chemistry ........................................... 44
Computer Science ........................................... 44
Mathematics ................................................... 44
Physics ......................................................... 45
Arts Faculty (see under Discipline)
Psychology ..................................................... 114, 115
Business Faculty
Accounting ..................................................... 152
Economics ..................................................... 152
Information Systems ....................................... 152
Law ............................................................. 152
Marketing and Organisation Behaviour .................. 153
Engineering Faculty (see Schools)
Design Centre ................................................ 39
Design. School of (also see Graphic Design. Industrial Design) ............................................. 303

Diploma (see also Graduate Diploma)
Diploma of Art (Graphic Design) .......................... 305

Directorate (see Chancellery)

Disabled Students
Counselling .................................................... 9
Equity Unit ...................................................... 12
Parking .......................................................... 13

Disciplines. Arts Faculty
Asian Languages and Cultures ............................ 106.112
Italian Language and Culture ............................ 106.113
Media. Literature and Film ............................... 106.113
Philosophy and Cultural Inquiry ......................... 106.114
Political Studies ............................................. 106.114
Psychology .................................................... 106.114
Sociology ....................................................... 106.115

Divisions
Corporate ....................................................... 5
Higher Education ............................................ 2.4
TAFE ............................................................. 2.4

Doctor of Philosophy
Applied Science ............................................. 60
Arts .............................................................. 120
Business ....................................................... 170
Engineering .................................................. 225, 227, 229, 237
Statute .......................................................... 35

Double Degree — Bachelor of Business
Bachelor of Arts (Language) ............................. 116, 162

Eastern Campus at Lilydale (see map inside back cover)
Courses offered ............................................. 5
Description .................................................... 5
Introduction .................................................. 2
Library ......................................................... 7
Student Services ............................................. 9
Student Union .............................................. 16

Economics
Bachelor of Arts .............................................. 116
Bachelor of Business ...................................... 159

Economics Department (see Business Faculty) ........ 152

Education. Welfare and Research Department.
Student Union .............................................. 16

Electrical Engineering. School of (see
Engineering Faculty) ....................................... 210

Electrical Power and Control. Bachelor of
Engineering ..................................................... 226

Employment. Student
Part-time and vacation ..................................... 10
Graduate placement and full-time ....................... 9

Energy Systems Engineering Centre .................... 39

Engineering
Courses
Bachelor of Engineering
Civil ........................................................... 223
Communication and Electronic .......................... 226
Computer Systems ......................................... 226
Electrical Power and Control ............................ 226
Manufacturing (Chemical) ................................ 231
Manufacturing (Production) .............................. 231
Mechanical .................................................... 232

Bachelor of Technology ....................................
Air-conditioning ............................................. 221, 222
Aviation ....................................................... 230
Building Surveying ......................................... 223
Chemical Technology ..................................... 221, 222
CAD/CAM .................................................... 221, 222
Fire Technology ............................................. 221, 222
Manufacturing Technology .............................. 221, 222
Productivity Management ................................. 221, 222

322
Graduate Diplomas
Air-conditioning ........................................ 233
CAD/CAM ........................................ 233
Chemical Engineering .................................. 233
Civil Engineering Construction ...................... 224
Computer Integrated Manufacture .................. 234
Computer Systems Engineering ...................... 227
Entrepreneurship and Innovation .................... 228
Maintenance Engineering ................................ 234
Management ........................................... 228
Manufacturing Technology ............................ 235
Risk Management ...................................... 235
Faculty .................................................. 209
Subject details .......................................... 237

Enrolment Regulations (see also Application Procedure)
Amendments to
Personal details .......................................... 24
Subjects (adding or withdrawing) ..................... 24
Conditions .............................................. 23
Confirmation of records ................................ 24
Fees ...................................................... 23
Identity cards .......................................... 25
Leave of absence ........................................ 24

Enrolments. Numbers
Full-time and part-time .................................. 2
Entrepreneurship. Master of ........................... 229

Entrance Requirements (see also Application Procedure and specific faculties)
General ................................................. 21
Undergraduate .......................................... 21
Postgraduate ............................................ 22

Entrepreneurship and Innovation. Graduate Diploma .................................................. 228

Environmental Health
Bachelor of Applied Science ......................... 54
Honours year ........................................... 45

Equal Opportunity Administration. Graduate Diploma .................................................. 118

Equal Opportunity Office (see Equity Unit) .......................................................... 12

Ethel Hall .................................................. 15

Examination (see also Academic statement; Assessment regulations)
Irregularity ............................................... 25
Notice board ............................................. 25
Reassessment (appeals etc.) ........................... 31
Regulations ............................................. 27
Results (categories, processing) ...................... 28
Special examinations ................................... 29
Timetables ............................................... 27

Exemptions. Applications for (see specific faculties)

Faculties
Applied Science ........................................ 43
Arts ................................................................ 105
Business ................................................... 151
Engineering .............................................. 209

Fees
General Service ........................................ 23
HECS ................................................. 23,24
Late fees .................................................. 23
Refund of fees .......................................... 24

Film (see Media, Literature and Film. Arts Faculty; Animation)
Finance and Taxation. Graduate Certificate .... 164
Financial Assistance Schemes. Student (see Loans; Assistance Schemes)
Finance. Bachelor of Business ....................... 159
Finance. Corporate. Graduate Diploma .......... 166
Fire Technology. Bachelor of Technology ......... 221,222

Graduate Certificates
Business Administration ................................ 162
Business Information Technology .................. 164

Graduate Diplomas
Accounting .................................................. 164
Air-conditioning ........................................... 233
Animation In Interactive Multimedia .............. 316
Applied Colloid Science ................................ 37
Applied Psychology ...................................... 117
Biomedical Instrumentation ........................... 56
Business Administration ............................... 164
Computer Systems Engineering ...................... 234
Computer Integrated Manufacture .................. 234
Chemical Engineering .................................. 233
Civil Engineering Construction ...................... 224

Computer Integrated Manufacture .................. 234

Corporate Finance ...................................... 166
Entrepreneurship and Innovation .................... 228
Equal Opportunity Administration .................. 118
Industrial Chemistry/Biochemistry ................. 228
Industrial Engineering .................................. 227
Industrial Microbiology ................................ 58
Japanese ................................................... 118
Japanese for Professionals ............................. 119

Japanese for Professionals ............................. 119

Japanese for Professionals ............................. 119

Management ............................................. 234
Management Systems ................................... 228
Manufacturing Technology ........................... 235
Marketing Modelling .................................... 167
Organisation Behaviour .................................. 167

Organisation Behaviour .................................. 167

Risk Management ........................................ 235
Social Statistics .......................................... 58
Urban Research and Policy ......................... 119

Graduate studies. see Postgraduate Studies

Graphic Design
Bachelor of Arts ........................................ 305
Hawthorn Campus ....................................... 305
Prahran Campus ......................................... 305
Diploma of Art .......................................... 305
School of Design ........................................ 303

Grievance Procedure (for students) ............... 30

Hawthorn Campus (see map inside back cover)

Bookshop ................................................ 13

Courses offered .......................................... 20

Courses offered .......................................... 20

Centres ................................................... 37

Centres ................................................... 37

Library .................................................... 7

Library .................................................... 7

Sports Association ..................................... 17

Sports Association ..................................... 17

Student Services ....................................... 9

Student Services ....................................... 9

Student Union .......................................... 14

Student Union .......................................... 14

Health (see Environmental Health)
Health and Welfare. Student ......................... 9

HECS ................................................... 23,24

HECS ................................................... 23,24
Hire of Swinburne Facilities .................................................................
Honours year (see Bachelor Degrees) .................................................
Housing and Planning Centre ............................................................. 39
Housing, Student .................................................................................. 10
Identity Cards ....................................................................................... 25
Industrial Chemistry/Biochemistry, Graduate Diploma ......................... 58
Industrial Democracy Centre ................................................................. 39
Industrial Design, Bachelor of Arts ....................................................... 311
Industrial Microbiology, Graduate Diploma ........................................... 58

Information Technology (see also Computer Courses) 55,162
Bachelor of Information Technology ..................................................... 168
Master of Business .................................................................................. 59
Master of Information Technology ......................................................... 170

Innovation and Enterprise, School of (see Engineering Faculty) ................. 211

Instrumentation, see
Biomedical instrumentation
Graduate Diploma ................................................................................. 56
Masters .................................................................................................. 60
Computing and Instrumentation
Bachelor of Applied Science ................................................................ 51
Medical Biophysics and Instrumentation
Bachelor of Applied Science ................................................................ 50
Honours year .......................................................................................... 45
Scientific Instrumentation, Honours year ............................................... 45

Insurance, Personal Accident ............................................................... 15

Interdisciplinary Majors
Asian Studies ....................................................................................... 111
Australian Studies .................................................................................. 111

International Student Unit ................................................................. 13

Italian
Bachelor of Arts ...................................................................................... 113
Bachelor of Arts/Bachelor of Business (Double degree) ....................... 116,162

Italian Language and Culture Discipline
(Arts Faculty) .......................................................................................... 106,113

Japanese
Bachelor of Arts ...................................................................................... 112
Bachelor of Arts/Bachelor of Business (Double degree) ........................ 116,162
Graduate Diploma in Japanese ............................................................... 118
Graduate Diploma in Japanese for Professionals .................................... 119
Master of Arts in Japanese ...................................................................... 120

Korean, Bachelor of Arts........................................................................... 112
Bachelor of Arts/Bachelor of Business (Double degree) ........................ 116,162

Laboratory for Concurrent Computing Systems ..................................... 39

Languages (see Italian, Korean, Japanese or Vietnamese)
Bachelor of Arts, Honours year strand .................................................. 117

Law (see Business Law) .......................................................................... 117

Law Department (see Business Faculty) ................................................. 152

Learning Services .................................................................................. 24

Leave of Absence .................................................................................. 24

Legal Advice, students .......................................................................... 15

Library
Borrowing regulations and conditions of use 
Eastern campus .....................................................................................
Hawthorn campus ................................................................................
Prahran campus ...................................................................................

Lilydale Campus (see Eastern Campus)

Literature, Bachelor of Arts ................................................................. 113

Loans, Student ....................................................................................... 10

Maintenance Engineering, Graduate Diploma ......................................... 234

Management, Graduate Diploma of Engineering .................................. 228

Management Systems, Graduate Diploma of Business .......................... 166

Manufacturing
Bachelor of Engineering
Chemical................................................................................................ 231
Production ............................................................................................. 231
Bachelor of Technology .......................................................................... 221

Manufacturing Technology, Graduate Diploma ...................................... 235

Maps of campuses (see inside back cover of handbook) ....................... 39

Market Modelling, Graduate Diploma .................................................. 167

Marketing and Organisation Behaviour Department (see Faculty of Business) 153

Marketing, Bachelor of Business .......................................................... 159

Marketing Strategy Centre ...................................................................... 39

Masters degree
By research and thesis
Applied Science ...................................................................................... 59
Arts ........................................................................................................... 119
Business ................................................................................................. 170
Engineering ............................................................................................ 225,227,237

By coursework
Study areas
Applied Colloid Science ........................................................................ 59
Biomedical instrumentation .................................................................... 60
Business Administration .......................................................................... 169
Computer Integrated Manufacture ......................................................... 235
Construction ............................................................................................ 224
Counselling Psychology .......................................................................... 119
Enterprise Innovation ............................................................................. 229
Information Technology ......................................................................... 168
Japanese .................................................................................................. 120
Organisation Behaviour .......................................................................... 169
Social Statistics ....................................................................................... 60
Technology ............................................................................................... 224,235
Urban Research and Policy ..................................................................... 120

Mathematics and Computer Science, Bachelor of Applied Science ........ 52

Mathematics Department (see Applied Science Faculty) ....................... 44

Mechanical and Manufacturing Engineering, School of (see Engineering Faculty) 211

Mechanical, Bachelor of Engineering ..................................................... 232

Media and Telecommunications Centre ................................................ 39
Media. Literature and Film (Arts Faculty) ........................................... 106
Literature ....................................................................................... 113
Media Studies .............................................................................. 113
Media Studies. Bachelor of Arts ....................................................... 113
Medical Biophysics. Bachelor of Applied Science. Honours year .......... 45
Medical Biophysics and Instrumentation. Bachelor of Applied Science ...... 50
Medical Biophysics and Instrumentation. Bachelor of Applied Science (Honours year) .................. 45
Microbiology. Industrial. Graduate Diploma ....................................... 58
National Korean Studies Centre ....................................................... 40
Office of Research and Graduate Studies ......................................... 21, 22
Office of the Vice-Chancellor ......................................................... 3

Organisation

Behaviour
Graduate Diploma ........................................................................ 167
Master of Business ................................................................. 169
Overseas Student Office (see International Student Unit) .................. 13
Parks
Parking
Car parks ......................................................................................... 13
Enquiries ......................................................................................... 13
Permits. etc. .................................................................................... 13
Part-time study .............................................................................. 21

Philosophy (see Doctor of)
Philosophy and Cultural Inquiry (Arts Faculty) .................................. 106
Physics Department (see Applied Science Faculty) ........................... 45
Policy (see Urban Research and Policy)

Political Studies
Bachelor of Arts ........................................................................... 114
Discipline (Arts Faculty) ............................................................... 106

Postgraduate Studies (see Doctor of Philosophy; Graduate Certificates; Graduate Diplomas; Masters Degree)
Full list .......................................................................................... 20, 21

Prahran Campus (see map inside back cover)

Bookshop
Courses offered ................................................................................ 14
Introduction ..................................................................................... 6
Library .............................................................................................. 2
Student Services .............................................................................. 7
Student Union .................................................................................... 9

Prizes (see Scholarships and Awards)
Productivity Management. Bachelor of Technology .......................... 222

Psychological Services Centre ......................................................... 40

Psychology
Bachelor of Arts ........................................................................... 114
Department (Faculty of Arts) ......................................................... 106
Graduate Diploma in Applied Psychology ....................................... 117
Honours year ................................................................................... 117
Master of Arts in Counselling Psychology ..................................... 119
Professional Doctorate in Psychology ............................................ 120

Psychology and Psychophysiology
Bachelor of Applied Science ......................................................... 54
Bachelor of Arts ............................................................................. 115
Psychophysiology (see above)
Publications
Publicity and Information Unit ...................................................... 13
Student ........................................................................................... 16
Publicity and Information Unit ...................................................... 13
Radio Station .................................................................................... 15
Reading Room. students ................................................................ 15
Recognition of prior learning (see appropriate faculty or course entry) 5
Registrar ........................................................................................ 5
Research (see Masters and Doctor of Philosophy by research; Office of Research Graduate Studies)
Risk Management. Graduate Diploma .......................................... 235
Refunds (HECS. Other fees) ........................................................... 24
Reports .......................................................................................... 22, 29
Results
Alteration to ................................................................................... 29
Categories ...................................................................................... 28
Examinations ............................................................................... 27
Processing ...................................................................................... 28
Reassessment ............................................................................... 31
Regulations (see Assessment Regulations) ....................................... 25
Statement (see Academic Statements) ............................................ 22
Scholarships and Awards (see also specific faculty listings) .............. 11

Schools
Design .......................................................................................... 303
Faculty of Engineering
Civil Engineering and Building ...................................................... 210
Electrical Engineering ................................................................. 210
Innovation and Enterprise ........................................................... 211
Mechanical and Manufacturing .................................................. 211

Science (see Applied Science; Computing Courses; Social Science (Arts Honours year))
Science Education Centre ............................................................... 40
Science Shop ................................................................................... 41
Services
Learning ......................................................................................... 6
Student ........................................................................................... 8
Swinburne ....................................................................................... 6
Single subjects .............................................................................. 23
Social Statistics
Graduate Diploma .......................................................................... 58
Graduate Certificate ...................................................................... 56
Masters ......................................................................................... 50
Social Sciences
Bachelor of Arts. Honours year ..................................................... 117
Societies and Clubs ................................................................. 15
Sociology
Bachelor of Arts ......................................................................... 115
Discipline (Faculty of Arts) ......................................................... 108
Special entry (see also specific faculty/ course) ............................. 21
Sports Association .......................................................................... 17
Staff (see also specific faculty)
- Chancellery
- Corporate Division
- Higher Education Division
- TAFE Division
- Student Activities (see Student Union)
- Statistics (see Social Statistics)
- Statute
- Degree of Master (by publication)
- Degree of Master (by research)
- Doctor of Philosophy
- Student Assistance
- Bookshops
- Disabilities (see Disabled Students)
- Financial Assistance Schemes (Austudy, loans, etc.)
- Health and Welfare Unit
- Parking
- Sports Association
- Student Bookshops
- Student Services
- Advising Centre for Women
- Careers and course information
- Counselling
- Employment
- Graduate placement and full-time
- Part-time and vacation
- Health
- Housing
- Student Union
- Activities
- Appeals and Advocacy Unit
- Campaign and Pressure Group Co-ordination Centre
- Cafes
- Clubs and Societies
- Coffee Lounge
- Computer Centre
- Contact/Information desk
- Education, Welfare and Research Department
- Insurance - Personal Accident
- Legal Adviser
- Office
- Publication, Printing and Binding
- Radio Station
- Reading Room
- Tax Return Adviser
- Tool Library
- Typing Service
- Union Bus
- Subjects (see appropriate faculty)
- Subject Details — subjects listed in each course outline are detailed at the end of each faculty entry in order of subject code
- Suweying. Building (see Building Suweying)
- Swinburne, George (founder)

Swinburne University of Technology
- Academic Board
- Chancellery
- Coat of Arms
- Corporate Division
- Council
- Courses. Higher Education Division (see under specific faculties)
- Councils. TAFE Division (see separate handbook)
- Divisions (see separate entry under Division)
- Eastern Campus at Lilydale (see entry under Eastern)
- Faculties (see entry under faculties)
- Geographical locations
- Hawthorn Campus (see entry under Hawthorn)
- History
- Prahran Campus (see entry under Prahran)
- Services
- Staff (see separate entry under Staff)
- Timetables
- Exam
- Other (see appropriate faculty office)
- Taxation and Finance. Graduate Certificate
- Taxation Research and Advisory Centre
- Technology. see
- Bachelor of Technology
- Chemical Technology
- Information Technology (see Computer Courses)
- Fire Technology. Bachelor Degree
- Master of Technology
- Manufacturing Technology
- Tool Library
- Typing Service
- Undergraduate (see Degrees; Diplomas)
- Union. Student
- Urban and Social Research Centre
- Urban Research and Policy
- Graduate Diploma
- Master of Arts
- Vietnamese
- Bachelor of Arts
- Bachelor of Arts/Bachelor of Business (Double degree)
- Welfare
- Women. Advising Centre for
- Womens Studies Centre
- Word Processing Centre

326