Please note

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## 1992 Calendar

### January
1. New Year's Day
2. Swinburne re-opens
13. VCE (HSC) results
27. Australia Day

### February
3. **SCT** semester 1 begins
10. **SCT** all other classes begin
SIT enrolment period begins for Round 1 offers through VTAC: Engineering (alternate entry only)
17. **SIT** teaching begins: Graphic Design and Engineering (final year only)
20. **SIT** enrolment period begins for Round 2 offers through VTAC
24. **SIT** teaching begins: Applied Science, Arts, Business and Engineering (years I-IV)

### March
9. Labour Day
31. **SIT** last day for withdrawal from a first semester subject, unit or course without penalty of failure*
**SIT** Census date for HECS (semester 1)
**SIT** and **SCT** last day for applications for refund of General Service Fee

### April
8. **SCT** last day for subject variations to enrolment for semester 1
10. **SIT** Applied Science, Business classes end for Easter break
**SCT** classes end for Easter break
15. **SIT** Arts, Engineering, Design classes end for Easter break
23. **SIT** Arts, Engineering, Design classes resume after the Easter break
25. Anzac Day
27. **SCT** classes resume after the Easter break
29. **SIT** Graduation ceremony

### May
20. **SIT** Graduation ceremony
31. **SIT** last day for application for awards for students completing courses in semester 1, 1991

### June
8. Queen's Birthday
12. **SIT** Business semester 1 examination period begins
15. **SCT** semester 1 examination period begins
**SIT** semester 1 examination period begins: Applied Science, Arts and Engineering
18. **SCT** certificate and award presentation ceremony
26. **SIT** and **SCT** semester 1 examination period ends
**SCT** semester 1 classes cease

### July
3. **SCT** Apprentice classes end for semester 1
6. **SIT** inter-semester break begins
13. **SIT** Design classes resume for semester 2 (except **SIT** Design)
20. **SIT** and **SCT** classes resume for semester 2

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

### September
18. **SIT** classes end for mid-semester break
24. **SIT** Graduation ceremony
25. **SCT** last day for application for awards for students completing courses in December 1992
28. **SCT** classes end for mid-semester break
**SIT** Arts and Design classes resume after mid-semester break

### October
5. **SCT** and **SIT** Applied Science, Business and Engineering classes resume after mid-semester break
14. **SIT** Graduation ceremony

### November
3. Melbourne Cup Day
6. **SIT** Business semester 2 examination period begins
9. **SIT** semester 2 examination period begins: Applied Science, Arts and Engineering
20. **SIT** semester 2 examination ends
23. **SCT** semester 2 examination period begins
30. **SCT** last day for application for awards for students completing courses in December 1992

### December
4. **SCT** semester 2 examination period ends
17. **SCT** semester 2 ends
24. Swinburne closes for Christmas break

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SIT: Swinburne Institute of Technology  
**SCT**: Swinburne College of TAFE  
HECS: Higher Education Contribution Scheme

* 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 Institute of Technology or Swinburne College of TAFE and shall not be deemed to constitute a contract on the terms thereof between Swinburne Institute of Technology or Swinburne College of TAFE and a student or any third party. Both divisions 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; Swinburne Limited.

Equality of educational opportunity is Swinburne policy.

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

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general information

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swinburne institute of technology

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applied science

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arts

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business

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engineering

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school of design

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film and television school
Swinburne

Swinburne was established in 1908 under the name of 'Eastern Suburbs Technical College'. The first students were enrolled in 1909, when classes were begun 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 Hon. 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, agricultural, commercial and other fields of learning (including the liberal arts and the humanities) in institutions other than in the universities of Victoria'.

The range of courses and the various levels at which they were offered grew to such an extent that in 1969, the boys and girls technical schools were taken over by the Victorian Education Department while the college remained as an autonomous institution.

An extensive 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 Victoria Post-Secondary Education Commission established. Under the new arrangements, Swinburne Council was given power to grant bachelor degrees. The first of these were awarded at a conferring ceremony held on Thursday 21 May 1981 at the Camberwell Civic Centre.

To facilitate operations, teaching is carried out within two divisions, under the control of one council. They are: Swinburne Institute of Technology — a tertiary institution and a member of the Unified National System offering courses for professional qualifications (diploma and degree of Bachelor) and higher degrees (Master and PhD). In 1991 were 387 full-time and 3,546 part-time students.

Swinburne College of Technical and Further Education — a technical and further education college, offering courses at middle and para-professional level, covering Associate Diploma, Advanced Certificate, apprenticeship, VCE and access programs. A number of specialist courses are provided also, for industry and the community. Enrolments in 1991 were 1,067 full-time and 3,382 part-time students.

Hawthorn Campus

The campus at Hawthorn covers an area of approximately four hectares, approximately 7 km from the City of Melbourne. It is close to Glenferrie railway station, is well served by other means of public transport and is in close proximity to parklands.

Eastern Campus at Mooroolbark

In 1982 Swinburne will commence undergraduate programs and some postgraduate studies at its Eastern Campus at Mooroolbark, offering the same excellence of academic programs as already established at the Hawthorn Campus.

The opening of the new Eastern Campus will provide a small friendly environment, easily accessible and directly serving the tertiary educational needs of the outer eastern metropolitan region with all the amenities of a modern tertiary institution and natural bushland setting.

Subject to final planning approval.

Coat of Arms

The coat of arms conferred on Swinburne by the College of Arms on 25 June 1969 is based on the coat of arms of the Swinburne family.

At a period during the 12th-13th century, when the northern counties of England were ruled by the Scots, a knight of France came to the aid of Queen Margaret of Scotland. She rewarded him with a grant of land in what is now Northumberland, on the banks of the Swin Burn, a small river that flows into the North Tyne, where he built a castle. He became known as William Swinburn(e) and soon the county reverted to the crown of England.

The Swinburne family coat of arms in medieval times was silver with three boars' heads in triangular formation. In the 17th century, during the wars between the Stuart Kings and the Parliament of England, the Swinburnes fought for the royalists. After the restoration of Charles II in 1660, the head of the family was created a baronet for his services. The crest became a baronet's coronet, with the boar's head rising from it and the coat of arms, divided horizontally red and silver, was charged three cinquefoils counter-charged.

Swinburne holds a unique place among educational institutions in Australia in the link that persists between it and the founder and his family. The conferring of a modification of the family's coat of arms preserves and strengthens that link.

The arms: the basic colours of red and white, and the cinquefoils charged on the shield, commemorate the arms of the Swinburne family. The omission of the third cinquefoil which appears in the family coat and the addition of the Bordure and the Mullets (Stars) are what are known heraldically as 'differences', which may often serve to indicate an association with another armigerous body or family. The four Mullets in Cross symbolise the Southern Cross.

The crest: the demi-Boar and the cinquefoil perpetuate the Swinburne connection; the book is symbolic of learning.

The motto: the College of Arms' translation of the motto is: Achievement through learning.
General Information

Swinburne Council

Membership as at 12 August 1991

Appointees of the Governor-in-Council
C.M. Burnup, BA(SIT), DipEd(LaT)
J.J. Eastwood, BA(Hons), DipEd(Melb) (Vice-President)
J.P. Hall, BE(Elec)(Melb), FAIM
J.D.W. Martin, BArch, GradDipT&RP
M.A. Puglisi, LLB(Melb), Barrister and Solicitor (Vic) Supreme Court
B. Van Ernst BA, BEd(Mon), MED(LaT), TPTC, MACE
Nominee of the Minister for Education
M.A. Johns, BBus(SIT), MCom(Melb), AASA, CPA
Members elected by the Council of Swinburne
T.W. Brown, FCA
T.P. Bruce, LLB(Melb)
T.P. Coman, DipAppChem(STC), FRAcI (President)
J.M. Harrison, CBE, AM, FAIM
A. Polis, BA, DipEd(Melb)
J. Short
H.S. Wragge, AM, MEngSc, BEE, FIEAust, FIEE
Member ex officio
Professor J.G. Wallace, MA, MED(Glas), PhD(Brist), FASSA
(Director and Chief Executive Officer)
Member elected by Academic Board
F.X. Walsh, BA(Melb), BEd(Mon)
Member elected by Board of Studies
G.A. Harrison, DipMechEng(CIT), BSc(Melb), TTTC(Vice-President)
Member elected by academic staff, SIT
G.C.J. Moriono, BA(Mon), DipSocStud(Melb), GradDipEd(Haw)
Member elected by academic staff, SCT
K.E. Mathisson, BA(Hons), DipEd
Members elected by general staff
N.H. Nilsen
I.A. Douglas, BA(N'tle), MSc(Strath)
Member elected by students, SCT
G.A. Brownlee
Member elected by students, SIT
E.M. Abram, BA(SIT)
Council Secretariat
Secretary
F.G. Bannon, BCom(Melb), FCPA, ACIS, ACIM, LCA
Executive Officer
A.J. Miles, BSc(Melb), BEd(Mon)

Directorate

Director, Swinburne Institute of Technology and
Swinburne College of TAFE
Professor J.G. Wallace, MA, MED(Glas), PhD(Brist),
FASSA
Associate Director
F.G. Bannon, BCom(Melb), FCPA, ACIS, ACIM, LCA
Director, Swinburne College of TAFE
G.A. Harrison(Acting), DipMechEng(CIT), BSc(Melb), TTTC

Office of the Director

Project Officer
S.J. Krul, BA(Hons)(Massey), MAITEA
Corporate Division

Director
J.G. Wallace, MA(Glas), MEd(Glas), PhD(Brist), FASSA

Associate Director
F.G. Bannon, BCom(Melb), FCPA, ACIS, ACIM, LCA

Buildings, Grounds and Services
Manager
S. Blackburn (Acting)

Maintenance Officer
Vacant

Management Services Officer
D. Sharp

Central Technical Workshops
Manager
G. Nettleship, CEng, MIMarE

Catering Department
Manager
Vacant

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

Equal Opportunity Officer
M. Jones, CertEd(Wales), BEd(VicC), MEdThesis (Mon)

Finance Department
Manager
J. Vander Pal, DipAccy(PTC), BBus(SIT), AASA, CPA, RCA

Systems Accountant
J.F. Rayner, BSc(Melb), DipEd(Melb)

Divisional Accountant, SCT
P Wilkins, BBus(VicC), GradDipAIS(GT), AASA

Divisional Accountant, SIT
P Hotchin, BA(Deakin), GradDipBusAdmin(SIT), AASA, CPA

Freedom of Information Officer
S.P. Jervis, BA(Adel)

Human Resources Department
Manager
P.D. Mudd, BE(NSW), AFAIM

Safety Co-ordinator
A. Skolnicki, BAppSciFIT, GradDipIndHyg(Deakin)

Planning and Information Systems
Manager
R.D. Sharma, BSc(Tas), DipEd(Tas), GradDipOpsRes(RMIT)

MDedAdmin(New Eng). PhD

Institutional Promotion and Development
Manager
Vacant

Publicity and Information Unit
Head
N. Manning

Swinburne Press
Manager
A.D. McNaughton

Registrar’s Department
Registrar
G.L. Williamson, BSc(Adel), GradDipAppSci(SIT)

Assistant Registrar (Applied Science)
M.M. Hickey, BA(Deak)

Assistant Registrar (Arts)
H.M. Ralston, BCom(Melb)

Assistant Registrar (Business)
M. Conway, BA(Griffith), MAITEA

Assistant Registrar (Engineering)
A.L. Dews, BBus(SIT), ARMIT

Assistant Registrar (Services)
L. Scharf-Evans, BS in Foreign Service (G’town)

Assistant Registrar (Student Administration)
P.E. Kocak, BEd(Mon)

Security Department
Chief Security Officer
N. Burke

Swinburne Student Services
Manager
Z. Burgess, BA(Mon), MEd(CounSmon), GradDipEdPsych(Mon), MAprelim(Melb), MAPsS, VAFT, AIM

Eastern Campus at Mooroolbark

Contact Associate Professor BC McDonald, Manager Academic Programs, on 728 2477 or general enquiries 819 8444.

Situated on the site of the former MDA Grammar School in Edinburgh Rd., Mooroolbark, the new Swinburne Eastern Campus will provide courses in the Business, Applied Science, Arts and Engineering Faculties. The proposed courses in the Bachelor of Business in Accounting, Marketing and Economics/Marketing and the Bachelor of Applied Science in Mathematics and Computer Science with students undertaking the same programs as students at the Hawthorn Campus. Arts majors proposed in the Bachelor of Arts are Psychology and Media, offering subject links with relevant Business areas. The Engineering Faculty proposes to offer the common first year of its degree. Engineering will also have a presence with some later year and graduate studies in Electrical Engineering. This will establish a complete and fully accredited tertiary environment by having place programs ranging from first year undergraduate to Masters and PhD studies.

The first student intake at the campus is planned for 1992 and is expected to total approximately 300 students across the four faculties. Student numbers will grow to a maximum of around 620 by 1994 and will remain at this level for the foreseeable future.

* Subject to final planning approval.

Swinburne Services

Library and Information Technology Services

Library
Swinburne Librarian (Acting)
P.C. Simmenauer, BA(Melb), DiplLib(NSW), AALIA

Administration
E. Turner, CertAppSciLibTech, CompBusAppCer

Audiovisual
A. Davies, BA(Melb), GradDiplLib(MCAE)

M. Hawkins, CertAppSciLibTech

A. Steere, AssDiplAppSciLibTech

Periodicals
B. Jones, BScSciLib(Chambery)

G. Barnes, BA(UNE)

H. Hazard, BA(Syd), DiplLib(Mon)

Technical Services Librarian (Acting)
K. McGrath, BA(Mon), GradDiplLibship(RMIT), AALIA

Acquisitions/Collection Management
L. Elston, BScSciLibship(RMIT)

M. Austin, BA(Mon), DiplEd(Mon), GradDiplLibship(MCAE)

A. Copeland, BScSciLibTech

L. Charles, AssDiplAppSciLibTech

G. Evans, CertAppSciLibTech

Library
Swinburne Librarian
P.C. Simmenauer, BA(Melb), DiplLib(NSW), AALIA

Head, Information Technology Services
K. Anderson, MA(Grad), BSc(Melb), DipEE, MIEast, MACE, TTTC

GradDipAIS(CIT), GradDipAppSc(S1T)
GradDipOpsRes(RM1T)
GradDipBusAdmin(SIT), DiplAppSci(SIT)
GradDipAIS(CIT), GradDipAppSc(S1T)
GradDipBusAdmin(SIT), DiplAppSci(SIT)
GradDipAIS(CIT), GradDipAppSc(S1T)
GradDipBusAdmin(SIT), DiplAppSci(SIT)
GradDipAIS(CIT), GradDipAppSc(S1T)
GradDipBusAdmin(SIT), DiplAppSci(SIT)
GradDipAIS(CIT), GradDipAppSc(S1T)
GradDipBusAdmin(SIT), DiplAppSci(SIT)
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GradDipBusAdmin(SIT), DiplAppSci(SIT)
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GradDipBusAdmin(SIT), DiplAppSci(SIT)
GradDipAIS(CIT), GradDipAppSc(S1T)
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GradDipBusAdmin(SIT), DiplAppSci(SIT)
Information Technology Services

Information Technology Services is located in room BA309 of the Business and Arts Building, and is available for use by all full-time and part-time staff of both divisions.

The services offered include the local area network, booking and screening of educational films; audio and video recording; including micro-teaching; 35mm slide and overhead projector transparency making; general photographic assignments; high speed audio duplicating, sound studio production and editing, and production of computer-based learning resources.

Intending users of audio and video studio recording facilities are advised to consult with the staff of Information Technology Services well in advance of the recording date.

Slide projectors, overhead projectors, audio and videotape recorders, equipment for projecting computer output and other audiovisual equipment are available for short term loan.

Library rules for students

Persons entitled to use the library

The library is available for the use of all full-time and part-time students and staff of Swinburne Institute of Technology and Swinburne College of TAFE who accept the following rules.

Members of the general public, including past students and staff are welcome to read or use audiovisual facilities within the library, provided that they too, accept the rules. They may also borrow from the library on payment of a membership fee to the Swinburne Library Information Service. The Swinburne 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 Institute of Technology and Swinburne College of TAFE.

Full-time and part-time students of Swinburne Institute of Technology and Swinburne College of TAFE.

Registered borrowers from other educational institutions with which Swinburne has a reciprocal borrowing arrangement. Registered members of the Swinburne Library Information Service.

Such other persons or organisations as the Swinburne Librarian may from time to time approve as borrowers.

Hours of opening

Normal hours of opening for the library during semester are:

Monday to Thursday: —8.45am to 10.00pm

Friday: 8.45am to 8.30pm

Note: Loans, reserve desks and photocopying facilities close 15 minutes before the library.

Saturdays: 12.00noon to 5.00pm

From early March to the last Saturday in the end-of-year examination period, except Easter Saturday and four Saturdays in July.

Sundays: 10.00am to 5.00pm

See notice board and bulletin board on the library's on-line catalogue for starting times each semester.

Public holidays

Anzac Day: 2.00pm to 8.30pm

Queen's Birthday: 8.45am to 8.30pm

Show Day: 2.00pm to 8.30pm

Cup Day: 8.45am to 8.30pm

Closed on all other public holidays.

Vacations and non-teaching periods

During these periods the library is open for a limited number of hours, Check notice boards outside the Library entrance for details or ring the Library Inquiry Desk on 819 8330.

Details of all variations from the normal hours will be posted on notice boards in the library, provided that they too, accept the rules. They may also borrow from the library on payment of a membership fee to the Swinburne Library Information Service. The Swinburne Librarian, or the senior staff member on the premises, may refuse entry to the library to any person not registered as a borrower.

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displayed on the bulletin board on the library's on-line catalogue.

**Student loans**

Loans to students are available only on presentation of a current Swinburne identity card and acceptance of the following conditions:

**General**

All material borrowed must be recorded at appropriate issue points before the patron enters the security gate to leave the library. All material borrowed must be returned by the date and time indicated. With the exception of audiovisual, periodical and overdue items, items borrowed should normally be returned through the chutes located outside the main entrance. Audiovisual and periodical material should be returned to the appropriate return chute inside the library. Overdue items should be returned to the **overdues** counter.

**Borrowing periods**

**Books**

The normal loan period for most books is a fortnight. This period may be extended for a further fortnight provided another user has not already placed the item on hold and it is not overdue. Books on the open shelves which are in moderately heavy demand are available for 3-day loan. They may be borrowed at any time of the day but may not be renewed. These loans must be returned half an hour before the library closing time on the due date.

**Audiovisual items**

Videocassettes marked ‘HOME LOAN’ are available for two-day loan. Most audiovisual material may be borrowed for classroom use. Audiocassettes and art slides are available for weekly loan. Language tapes are available for monthly loan but are non-renewable.

**Periodicals**

Unbound periodicals, including annuals and irregular publications but excluding display items are available for 24-hour loan. This material may be borrowed after 9.00am and must be returned before the library closes the following day. Second copies of periodicals are available for one week loan.

**Counter reserve**

Most material in this collection may be borrowed for a period of two hours for use in the library. A small number of items are available for overnight loan. This material may be borrowed after 4.00pm (3.00pm on weekends) and should be returned by 9.00am the next day, or is available for up to 24-hour loan after 4.00pm for part-time students.

**Periodical reserve collection**

Most material in this collection may be borrowed for use in the library only. Some unbound popular magazines are also housed in periodicals reserve, and may be borrowed as specified in 4.23 above.

Items not available for loan outside the library:

These include material in the reference collection (distinguished by the location symbol ‘R’ in the call number), rare books (‘V’), and archive collections (‘AR’), microfims or microfiche, and those materials marked ‘Not for loan’ or ‘Display’.

Bound periodicals, newspapers, indexes, abstracts and government publications from the deposit collection may not be borrowed.

Holds may be placed on books which are out on loan at the inquiry section of the loans counter.

Fines. Loans are issued subject to the imposition of penalties for late return as below. Fines will not increase once the item has been returned.

Fortnightly, weekly and monthly loans — per item $0.50 per day or part thereof overdue, to a maximum of $5.00, suspension of borrowing privileges and withholding of examination results.

Items not returned by the date specified when recalled —

$10.00 per item, suspension of borrowing privileges and withholding of examination results.

All short-term loans (7 days or less), excluding audiocassettes — per item $1.25 per day or part thereof overdue to a maximum of $5.00, suspension of borrowing privileges and withholding of examination results.

Overnight loans — per item:

First day: $0.50 per hour late, to a maximum of $5.00 per item, suspension of borrowing privileges and withholding of examination results.

Loans from reserve collections (Within the library building) per item: $0.50 per hour late, to a maximum of $5.00, suspension of borrowing privileges and withholding of examination results.

Reciprocal borrowing applications

Authorisations for reciprocal borrowing will not be issued to students who have accrued $30.00 or more in fines during the **previous** twelve months.

Inter-library loans

Students otherwise eligible for inter-library loans but who have exceeded the fine limit (see 4.5.5) will also have inter-library requests refused.

Lost or damaged library material

If an item is lost or damaged the loss or damage must be reported immediately to the **overdues** section. The borrower shall be responsible for the replacement cost plus a processing charge or the cost of repair.

Identity cards

Cards are not transferable. A current Swinburne identity card must be produced when borrowing, otherwise service will be refused.

Lost ID cards may be replaced at Student Administration for a fee of $5.00.

**Photocopying**

Users must abide by the relevant provisions of the Copyright Act.

**Rules for general conduct**

Eating is not permitted in areas of the library open to the public.

Drinking, except from the drinking fountains, is not permitted in areas of the library open to the public.

Playing games is not permitted in the library.

Smoking is not permitted in the library.

It is a condition of entry to the library that bags and cases may be inspected on leaving.

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. Quiet study conversation areas are located on levels 2 and 3 and in conversation rooms. Complete silence must be **observed** on levels 1 and 4 and the stair lobbies on levels 3 and 4.

Any person who, in the opinion of a library staff member and the Librarian-in-Charge, 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 their ID card and give their name on request.

Offenders will be responsible for all damage caused, and will be subject to disciplinary action which may include exclusion from the library, suspension of borrowing privileges, and withholding of examination results.

If a student is dissatisfied with any punitive action taken by the library they may have the issue reviewed in accordance with Swinburne’s official Grievance Procedures (see Swinburne handbooks).

Power to alter rules

One or more of the rules may be changed from time to time by the Director, on the recommendation 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 Director and to the library and ITS Committee.

Student Services
Manager
Z. Burgess, BA(Mon), Med(Couns)(LaT), Grad Dip Ed Psych(Monash), MAPs Psych(Lanc), MAPsS, VAF, AIM
Administrative Officer
M. Manele, BSc(Stirl), BeD(Couns)(LaT)
Advising Centre for Women
(For further information see page 10)

Student Counselling staff
Head
J. Burgess, BSc(Melb), G Dip Ed Couns(RMIT), Grad Dip Human Services Research(Philipp), EdD(Umass), MA(Linguistics)(Lanc), MA(Couns)(Auck)
Student Counsellors
B. Jenkins, BeD(MACAE), G Dip Ap Psych(Couns)(SIT)
R. Kelly, BA(Melb), Dip Ed(Mon), MA(Linguistics)(Lanc), MA(Couns)(Auck)
R. McDonald, BA(Melb), Dip Ed Psych(Mon), MAPsS
C. McLeod, BBEsc(Hons)(LaT), Dip Ed(LaT), MAPsS

Receptionist
J. Ralph
Housing, Part-time Employment and Financial Advice
B. Graham, BA App Sc(Pharm)(TCAE)

Careers Services Staff
Head
R. Ware, BA(LaT), G Dip Ed(MSC), Post G Dip Careers (VicColl)
Careers Counsellor
R.C. Waite, BA, G Dip Ed(Finders), G Dip Ed Couns(Sal)
Schools Liaison Officer
L.E. Baron, BA(RMIT), Dip Ed(LaT)
Careers Information Officer
K. Wheaton, BA(Ballarat), Grad Dip Ap Sc 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, MEd, BS(Lond)
Sister
A. Hart, RN(Vic)
Administrative Assistant
J. Wright

Swinburne Student Services
The following services are available to all students:
Careers — course information
schools liaison program
counselling
Counselling — psychological educational financial
Health
Housing
Part-time employment

Manager's Office
Location: BA206
Tel: 819 8423
Student Counselling
Location: room 206, level 2, Business and Arts Building
Telephone: 819 8025

The Student Counselling Service is available to students, staff, former students, parents and partners of students. The service is free and strictly confidential.

Counsellors help in areas such as loneliness, adjustment to life at Swinburne, subject choice, deferment, choosing a course, examination anxiety, exclusion, vocational choice, studying part-time, leave of absence, academic difficulties, concern about others, study problems, marital and pre-marital counselling, relationships, disabilities, sexuality, family, financial problems, career planning and decisions, and student allowances. 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 Counselling Service is open from 9.00am to 5.00pm on Monday, Tuesday, Thursday and Friday and from 9.00am to 8.00pm on Wednesday. The service operates on both a fixed appointment and 'drop-in' basis.

Careers Services
Location: Room EW108 Conference Centre (opposite Glenferrie Train Station)
Telephone: 819 85218023

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.

The Careers Library is maintained with up-to-date information about courses from TAFE to postgraduate levels, careers news, and one graduate employment. Students can receive assistance in processing and understanding the information available.

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.

Careers Services is open throughout the year from 9.00 a.m. to 5.00pm Monday to Friday.
Student Health
Location: laneway behind library between John and William Street
Telephone: 819 8483 & 819 8703

The service is available to all students. It is free and strictly confidential. The service is available to staff for emergency treatment only.

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 (audiogram) and referral information (e.g. physiotherapy, dental care and local doctors).

The service is open during teaching time, Monday to Friday: 8.45am — 5.00pm.

Doctor by appointment — 4 hours daily.

Nurses available for consultation 9.00am-5.00pm.

Student housing, part-time employment and financial advice

Location: BA206, level 2, Business and Arts Building.

Telephone: 819 8882.

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.

Advice 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.

The office is open from 9.00am to 5.00pm Monday to Friday.

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.

The Student Counselling Service is located in room 206 on level 2, Business and Arts Building.

Telephone: 819 8025.

Student assistance schemes

AUSTUDY

The Commonwealth Government provides financial assistance for students aged 16 and over engaged in full-time secondary or tertiary study. To be eligible, students must meet certain requirements regarding previous study, income, other awards held, etc.

As from 1 January 1991 the following weekly benefits were available. These will be adjusted in 1992.

How much is the maximum AUSTUDY living allowance?

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

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

Enquiries should be made to Student Finance.

Telephone: 819 8882.

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 of up to $121.00 a week ($6341 a year).

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

Some students are eligible for a fares allowance.

There is an education supplement of 30.00 p.w. ($1.560) for certain groups of pensioners and beneficiaries (normal AUSTUDY requirements must also be met).

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 DDS office.

Child Care Assistance for Sole Parents

Assistance is available to sole parents without access to a Commonwealth subsidised child care place. A student in this situation will be required to meet the first $15 per week for one child and the first $17 per week for two or more children.

The remaining cost of a place up to a fee of $100 per week will be met by the Government.

Information about child care places that attract this assistance is available from AUSTUDY Offices.

Aboriginal Secondary Assistance Scheme (ABSTUDY)

For students of Aboriginal or Torres Strait Islander descent undertaking an approved full-time or part-time tertiary course, or undertaking full-time secondary schooling, or who are 14 years of age on 1 January 1991 and go to primary school.

This scheme is administered by DEET.

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.

<table>
<thead>
<tr>
<th>Rate</th>
<th>Weekly maximum 16-17 years</th>
<th>18 and over</th>
<th>Special</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>62.05</td>
<td>74.55</td>
<td>88.40</td>
</tr>
<tr>
<td>Away</td>
<td>102.40</td>
<td>113.25</td>
<td>134.30</td>
</tr>
<tr>
<td>Independent: single</td>
<td>102.40</td>
<td>113.25</td>
<td>134.30</td>
</tr>
<tr>
<td>married without child(ren)</td>
<td>102.40</td>
<td>113.25</td>
<td>121.60</td>
</tr>
<tr>
<td>married with child(ren)</td>
<td>121.60</td>
<td>121.60</td>
<td>121.60</td>
</tr>
</tbody>
</table>

(159.75 for sole parents)
The amount you receive depends on how many children you get family allowance for, and whether you rent accommodation privately.

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

For further information about any of the schemes mentioned contact Student Finance, BA206, Business and Arts Building.

Telephone: 819 8882.

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.

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

The Centre 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.

Advising Centre for Women at Swinburne
The Advising Centre for Women has a two-fold purpose:

1) to provide careers and course advice for women interested in pursuing studies in Business, Engineering and Applied Science.

2) to provide a support service for women studying in the above areas.

For more information please contact:
The Advising Centre for Women
463 Burwood Road, Hawthorn 3122
Ph: 819 8633

Catering Department
The Cafeteria is located above the Ethel Swinburne Hall (shown as building no. 10 on campus map on inside back cover of this Handbook). Entrances are from the corner of John Street and Burwood Road, from level 3 of the South Engineering Building and level 3 of the new Union Building.

The Cafeteria provides a range of hot food including casseroles, sandwiches, cakes, fruit, home-made soup and vegetarian lines. We also have a range of fruit juices, yoghurt and hot drinks.

The Department also operates a Coffee Shop in the SCT area. Hot and cold drinks and food are available.

The Staff Dining Room is located on level 3 of the South Engineering Building, Room no. SE318.

Mooroolbark Campus
Amenities building
Range of hot food including casseroles, sandwiches, cakes, fruit, hot and cold drinks.

Central Technical Workshops
Manager
G. Nettleship, CEng, MIMarE, 819 8326

The technical workshop manufactures teaching aids and prepares experimental work for staff and students (in consultation with lecturers).

Equipment available includes lathes, milling machines, sheet metal, welding facilities including aluminium and stainless steel.

The instrument workshop repairs and maintains instrumentation in the electronic, mechanical, electrical, and to a minor degree, optical fields. Some manufacturing for student projects in consultation with lecturers, is also undertaken.

Chaplaincy
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 those 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 you clarify whatever is happening in your 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. Kelly, 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 combination of structured and free choice experiences have created a warm, relaxed program. The children are encouraged to go at their own pace, to develop their own style, to find their own solutions and enjoy their own creativity.

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

Computer Centre
Manager
M. Plunkett, B.Ec(Ade1)
Enquiries
S. Allan
Telephone: 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 main-stream 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.

(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 computing 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 the non-teaching sector 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 account is 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.

**Education Unit**

Head, Education Unit
B. Hawkins, BA(New Eng), MEd(Melb), MACE, 819 8384

The function of the Education Unit is to assist the teaching and learning departments throughout the Institute by keeping them informed of developments in education and related disciplines through seminars, workshops and a newsletter; by working with staff who are developing and introducing new methods and courses; by channelling funds to staff who need to be relieved temporarily of teaching duties or who require special equipment or other arrangements in order to introduce new methods of technology; and by providing facilities for research into specific educational topics.

**Equal Opportunity Office**

Equal Opportunity Officer
Location: 463 Burwood Road

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, Equal Opportunity Officer on 819 8855.

**Overseas Student Unit**

Manager
I.A. McCormick, BCom(Melb), MAadmin(Mon), FASA, CPA

Overseas Student Advisors
Catherine Chu, BA(Mon)
Ida Lee, BA(Mon)
Molly Liu
Sonia Lee

Secretary
Doreen Pun, DipComm(HKBC)

Location
473 Burwood Road, Hawthorn 819 8151

The Overseas Student Unit is responsible for the recruitment and welfare of overseas students studying at Swinburne. All applicants from non-residents of Australia wishing to study at Swinburne should be lodged with the Unit.

Students are met at Melbourne airport, attend special orientation classes and are enrolled through the Unit. The co-ordination of the on-going welfare of overseas students is also the responsibility of the Unit.

**Publicity and Information Unit**

Head
N. Manning, 819 8847

Handbook and Course Brochures
H. Hayes, DipArts(Media), DipEd, 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 the Swinburne Institute of Technology and College of TAFE. 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 Swinburnews, the Annual Swinburne handbook, an internal staff newsletter and the staffing and resourcing of the Enquiries Office.

One of the unit’s highest priorities is to actively promote Swinburne’s public profile and the quality and range of education offered. To this end, the unit plays a major role in the co-ordination and organisation of exhibitions which includes Swinburne’s annual Open Day.

**Hire of Swinburne facilities**

Outside groups wishing to use Swinburne facilities should contact the P.I.U. to discuss their requirements. Swinburne lecture theatres and classrooms may be booked for use 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, 819 8172.

**Student parking**

Enquiries
Buildings, Grounds and Services, 819 8243 or 819 8760

Limited off-street car parking facilities are provided for students, part-time and full-time. No charge is made.

**Conditions of use**

Use of these facilities is strictly at the car owner’s risk and is subject to:
- a current Swinburne parking permit or sticker valid for the car park in question being clearly displayed on the windscreen;
- availability of space in the car park;
- the car being within a marked parking bay; and
- the driver’s observance of directions given by any of Swinburne’s Parking or Security Officers.

**Packing permits**

Available free of charge from Buildings, Grounds and Services. Student ID card is required.

**Part-time students**

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

**Short course students**

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

**Hours of access**

The main car parks are opened at 7.45am and close at 10.00pm.

**Infringement of parking rules**

Failure to comply with parking regulations could incur a Parking Infringement Notice of up to $40. Under the Road Safety Act 1986, the fines are enforceable in court.
Those who abuse the system are also liable to have their parking privileges withdrawn and the parking permits for their cars revoked.

Students with disabilities
Consideration is given to the provision of reserved spaces for students with physical disabilities.

Enquiries should be directed to Student Administration.

Motorcycles and bicycles
Convenient parking for motorcycles is available in John Street, while the Business and Arts Building and Applied Science Building car parks offer undercover racks for bicycles.

Location of car parks
On-campus parking areas are indicated on the map on the inside back cover of this Handbook. In addition, the staff car parks in Wakefield Street (except for marked reserved bays) 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.

Swinburne Press
Manager
D. McNaughton, 819 9123

The publications department was established in 1962 with a staff of three and one duplicating machine. Over the years this department has developed into the Swinburne Press with a staff of 12 and a full offset printing capacity.

The Press is primarily designed to give a fast print service geared to meet requirements for the production of class notes, students material and various types of administrative stationery. The major requirement is for single colour work but in addition the Press has a limited line colour production capacity.

In support of its printing element the Press operates a small bindery to collate, staple and trim publications and a computer typesetting service.

Swinburne Press is registered under the Business Names Act 1962 and is a recognised printing and publishing house.

Swinburne Student Bookshop Co-operative Limited
Manager
R. Wilkens, 819 8225

General enquiries: 819 4406

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 A.G.M.’s and are also eligible to be elected a Board member of the Co-operative as per the society’s rules.

To become a member of the Co-op 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-op to receive your discount.

How to make the best use of the services offered by your bookshop
Familiarise yourself with the many services offered by your bookshop. Here is a convenient list for your information.

We sell:
— Text and references, novels, and general interest books.
— Secondhand books.
— Full range of stationery supplies.
— Full range of office supplies.
— Gifts, cards, wrapping paper and novelties.
— Audio and video cassettes.
— Film and film processing.
— 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 arrive and place a personal order at the information counter to secure a copy when supplies become available.

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

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 Co-operative, situated in the Union Building, John Street, Hawthorn.

Services

- Text and references, novels, and general interest books.
- Secondhand books.
- Full range of stationery supplies.
- Full range of office supplies.
- Gifts, cards, wrapping paper and novelties.
- Audio and video cassettes.
- Film and film processing.
- 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 arrive and place a personal order at the information counter to secure a copy when supplies become available.

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

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 Co-operative, situated in the Union Building, John Street, Hawthorn.
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 representing the members operates within the realms of the consumer advocate and lobbyist. Successful outcomes on behalf of membership has been dependent on good student representation and a core of professional and staff working together and 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 and has become increasingly effective by the year in serving the membership.

Membership and its aims

The Student Union is an incorporated association under the Victorian Government's Association Incorporation Act 1981. Under this Act the Student Union is a legal entity and member of the authorities of Swinburne Ltd and other educational institutions. The purposes for which the Student 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 Ltd 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 Ltd.

The 1991 Executive of the Union consisted of:

President
Esther Abram

Vice-president
Geoff Brownlee

Activities Director
Vacant

Education Director
Lisa Ferguson

Media Director
Marilyn Gunta

Finance Director
Jeremy Edwards

The role of the Executive is to control and manage the business and affairs of the Union. The meetings of the Executive occur at least once a month from February to November and is open to all members.
The affairs of the Union fall principally into the following areas: education, welfare, services, social activities, and media. These areas are governed by management committees, whose responsibility it 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 from 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 preceeding year's audited financial statement. In October or November of each year the Executive convenes a Budget Meeting. At this meeting the proposed Budget for the next financial year is presented by the 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 with other new and returning students. A program of activities for the week is available prior to the commencement of Orientation.

Club and Societies
For further information about activities functions call the Activities Officer on 819 8520. The Activities Officer is responsible for co-ordinating and assisting the student based clubs and societies on campus. Those active in 1991 included:

- ACES (Association of Civil Engineering Students)
- ASPS (Association of Swinburne Psychology Students)
- Baha’i Faith
- BIT (Bachelor of Information Technology PClub)
- BFC (Blood Film Club of Swinburne)
- Christian Association
- Croatian Club
- Explorers Club
- Greek Club
- Italian Club
- Korean Club
- Marantha Christian Fellowship
- MEKs (Mechanical Engineering Klub of Swinburne)
- Mental Health Club
- Photographic Society
- Students for Christ
- SAM (Swinburne Association of Marketing)
- SCABS (Swinburne Chemical and Biology Students)
- SIS (Swinburne Islamic Society)
- SOKA (Swinburne Overseas Students Association)
- Swinburne Business Chapter of Engineers
- SWINISS (Swinburne Jewish Students Society)
- SPACE (Swinburne Production Chemical Engineers)
- SYE (Swinburne Young Engineers)
- Vietnamese Society

Wargaming and Role-Playing Society

Women's Support Network

For further information on clubs and societies (e.g. how to start a club, applying for affiliation and financial support from the Union etc.) see the Activities officer.

Union van
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 both Swinburne Institute and Swinburne College of TAFE who have paid their union fees are automatically covered by accident insurance. This insurance scheme covers accidents, 24 hours a day. 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 2156/2656/2966/8520/8553.

Union Staff
The following are a list of staff.

- Union President
- Secretary
- Education Co-ordinator
- Student Advocacy and Campaigns Officer
- Education Research Officer
- Activities Officer
The Contact/Information Desk 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 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. The Contact/Information Desk operates Monday to Thursday from 9.00am to 6.00pm, Friday from 9.00am to 4.00pm, and is located in the Student Services Centre (opposite Ethel Hall in John Street).

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.

The Student Union provides a free legal service for full and part-time students. The solicitor is available every Tuesday during the academic year, between 2.15pm and 6.15pm. Appointments must be made at the Union Office, on 819 8520.

The Student Union provides a free legal service for full and part-time students. The solicitor is available every Tuesday during the academic year, between 2.15pm and 6.15pm. 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 Department 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 the department and can be contacted at the Union Office, 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 coursework 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, Anti-Education Tax, Travel Concession for all Tertiary Students, and Stop the Closure of the TAFE College.

All students interested in participating in social action to achieve beneficial change and progress can attend the Management Committee meetings by contacting the Union Desk (Union Office), or by ringing same on 819 2966.

**Student publications**

The Student Union publishes one weekly newspaper called "The Swine". "The Swine", published on Thursday, covers broader news and entertainment. It provides a forum for students to present and discuss their views on all matters. This publication is produced by the Student Union Media Office. Contributions by students including graphics, cartoons and articles are welcomed. If you want to learn how its done, contact the Student Union Media Director or come to the Office. The Student Union also produces a free diary and Year planner which are available from the Contact Desk and at re-enrolment.

**Club printing**

Clubs and societies can have their publicity material printed by the Student Union Media Office at minimal cost.

**Campus Typing**

Campus Typing is a quick efficient typing service available to help you complete your assignments and gain the best possible results.

We will word process your assignments, job applications, resume, letters and theses, all printed out on a high quality Apple Laser Printer.

**Student Computer Centre**

Desperately seeking computers

Now there is a solution, students will have access to an ergonomically designed Computer Centre, consisting of 24 brand new computers and access to popular software packages, such as Microsoft Word 4, Database III, Lotus 123, as well as your own software packages.

For further information contact Andrea at Campus Typing, 4th floor S.U. Building or telephone 819 2966 or 8553.

**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 plastic with cardboard backing. Available at Campus Typing, 4th floor Union Building for a mere $2.00.

**Tax Return Lodgement Advisor**

Prior to the period when Tax returns have to be completed for lodgement, the Union organises 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.

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**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

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 three 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, Motorcvcle, Netball, Nordic skiing, Orienteering, Sailboarding, SCUBA diving, Skydiving, Snowski, Soccer, Squash, Surfing, Tai Chi, Taekwondo, Taekwondo, Tennis, Volleyball and Waterskiing.

Swinburne competes in many intercampus sports and recreation events throughout the year. Affiliation with Victorian and Australian college 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.
Swinburne Institute of Technology

Director
Professor J.G. Wallace, MA, MEd(Glas), PhD(Brist), FASSA

Faculty of Applied Science
Dean of Faculty
Professor J.G. 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), MACOM, MIEEE
Acting Head, Department of Mathematics
J.R. Iacono, BA, MSc(Mon), TPTC
Head, Department of Physics
Professor R.B. Silverstein, BSc(Hons)(Mon), PhD(Melb), MAIP, MIBME, MACPSM

Faculty of Arts
Dean of Faculty
Professor L.A. Kilminster, BA(Qld), MA(ANU), PhD(LaT), MAPsS
Chair, Department of Humanities
R.L. Love, BSc(Qld), CHPS(Canlab), MA, PhD(Melb)
Head, Department of Psychology
K.J. Heskett, BA(Hons)(Queens), MA(Dub), PhD(Dunelm), CPsiychol, AFBPS, MAPsS
Chair, Department of Social and Political Studies
P.J. Love, BA(Hons), MA(LaT), PhD(ANU)

Faculty of Business
Dean of Faculty
MC. Frazer, BSc(Hons)(Mon), GradDipEdTerm(DDIAE), MAdmin(Mon), PhD(Camb), AIMM, MAIP, MACE
Acting Head, Department of Accounting
WC. Nash, BCom, DipEd(Melb), MBA(CranIT)
Head, Department of Information Systems
D.G. Adams, BCom(Melb), MAdmin(Mon), TSTC
Head, Department of Economics
J.B. Wielgosz, BCom(Hons), MA, DipEd(Melb)
Acting Head, Department of Law
J.B. Wielgosz, BCom(Hons), MA, DipEd(Melb)
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, BMacE, MEngSc, MEd(Melb), PhD(Cantab), ASMB(Ball'tt), FIEAust, FAIM, MACE, AAP, MAIMME, MAIAA
Deputy Dean (Administration)
N. Zorbas, BE(Hons)(WAust), MEd, MEngSc(Melb), MIEEE, FAEAust
School of Civil Engineering and Building
Associate Dean
R.B. Sandie, BCE, MEngSc(Melb), FIEAust, MASCE, MACE
School of Electrical Engineering
Associate Dean
B.A. Neyland, BEE(Melb), DipEd(FTC), ME(Melb), TTTC, MIEAust
School of Innovation and Enterprise
Director
Professor L.M. Gillin, BMacE, MEngSc(Melb), PhD(Cantab), ASMB(Ball'tt), FIEAust, FAIM, MACE, AAP, MAIMME, MAIAA
School of Mechanical and Manufacturing Engineering
Associate Dean
WG. Teague, DipMechEng(CIT), BComm, BE(Mech), MEngSc(Melb)

School of Design
Head of School
D.G. Murray, BA(Graphic Design)(SIT), TTTC

Film and Television School*
Head of School
J. Sabine, BA(ANU)
Manager, Academic Programs
BCom, DipEd(Melb), FASA, CPA

* The Film and Television School will become part of the Victorian College of the Arts as from 1 January, 1992.

Composition of Academic Board
Members ex-officio
President of Council
Director
President, Student Union
Deans (4)
Head, School of Design
Head, Film and Television School
Manager, Academic Programs (Eastern Campus)
Associate Professor BC.
FAS, CPA

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.
1 member of the academic staff of the Film and Television School elected by those staff.
10 members of the academic staff of Swinburne Institute of Technology elected by and from those staff.
6 members drawn from and elected by the general staff of Swinburne Institute of Technology, and the general staff of the Corporate Division.
6 members elected by and from the enrolled students of Swinburne Institute of Technology.

Total membership 46
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 Chemistry
- Computer Aided Biochemistry
- Medical Biophysics and Instrumentation
- Computer Science
- Environmental Health
- Computing
- Instrumentation
- Mathematics and Computer Science

**Psychology/Psychophysiology**

**Bachelor of Arts (BA)**
- Australian Studies
- Economics
- Film and Television*
- Graphic Design
- Historical and Philosophical Studies
- Italian
- Japanese
- Korean
- Literature
- Media Studies
- Political Studies (can include Australian studies)

**Psychology**
- Psychology and Psychophysiology

**Sociology**
- Bachelor of Arts (honours) (BAhons)*

Four strands are available:
- cultural studies
- languages
- psychology
- social science

* From 1 January 1992, this course will be administered by the Victorian College of the Arts.

**Bachelor of Business (BBus)**
- Accounting
- Computing
- Economics-Marketing
- Marketing

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

**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)**
- 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 areas:

**Diploma of Art (DipArt)**
- Graphic Design

**Diploma of Building Surveying (DipBld Surv)**
* Subject to accreditation.

Postgraduate

Graduate diplomas

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

- Accounting
- Air-conditioning
- Applied Colloid Science
- Applied Psychology
- Biomedical Instrumentation
- Business Administration
- Business Information Technology
- CAD/CAM
- Chemical Engineering
- Civil Engineering Construction
- Computer Integrated Manufacture
- Computer Science
- Computer Systems Engineering
- Corporate Finance
- Entrepreneurship and Innovation
- Equal Opportunity Administration
- Film and Television
- Industrial Chemistry
- Industrial Microbiology
- Japanese
- Japanese for Professionals
- Management
- Management Systems
- Manufacturing Technology
- Market Forecasting
- Market Research
- Market Research
- Risk Management
- Scientific Instrumentation
- Social Statistics
- Urban Research and Planning

* From 1 January 1992, this course will be administered by the Victorian College of the Arts.

Graduate Certificates

- Business Administration GCertBusAdmin
- Employee Relations GCertEmpRelS

**Note**: all these courses will be offered for new students in 1992.

Degree of Master

By coursework:

- Master of Applied Science (MAppSc)
  - Master of Applied Science (BApplied Science)
  - Master of Applied Science (Biomedical Instrumentation)
  - Master of Applied Science (Information Technology)
  - Master of Arts in Counselling Psychology
  - Master of Business (MBA)
- Master of Business Administration (MBA)
- Master of Business (Organisation Behaviour)
- Master of Engineering Manufacture (MEng)
- Master of Engineering (Information Technology) MEng
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 satisfied one of the following:
   1.1 Completed successfully a Year 12 course of study accredited by the Victorian Curriculum and Assessment Board (VCAB), or completed a course deemed equivalent by VCAB;
   1.2 Satisfied the requirements of an approved Victorian Certificate of Education (Tertiary Orientation Program) at a Victorian technical school or TAFE college;
   1.3 Obtained, prior to 1979, grades of D or higher in at least four subjects at the Higher School Certificate examination or satisfied the requirements of Victorian adult matriculation;
   1.4 Gained a qualification deemed by the Institute to be the equivalent of any of the above.

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
- Form E

For students studying VCE in 1991, copies of the form are available through the schools and colleges concerned.

Requirements for specified courses are set out in the relevant faculty sections.

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 Applied Science, 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:
- Applied Science 17 January 1992
- Art — Graphic Design 27 September 1991
- Engineering 17 January 1992

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

Part-time

Part-time courses are offered in all faculties except 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:
- Applied Science 17 January 1992
- Arts 17 January 1992
- Business 10 January 1992
- Engineering 17 January 1992

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 1992 may apply for a deferment until 1993. Applications must be addressed to the Registrar, and must be made at the time an offer is received. Students who have been granted 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 22 November 1991
- Social Statistics 22 November 1991
- All other courses 17 January 1992
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.

Awarding department means the department or, where courses are organised on a faculty basis (Applied Science, Fine Arts and Technology) the particular faculty board on the basis that the enrolment will be 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 amendment of the Student Administration section of the Registrar’s Department; the singular includes the plural.

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

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

Conditions of enrolment

Enrolment at Swinburne Institute of Technology is conditional upon:

- the information which is supplied by the applicant to the Institute upon which an offer of a place 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 Institute;
- the undertaking of the student to abide by the regulations procedures and standards of conduct of Swinburne Institute of Technology and to grant to the Registrar the authority to provide appropriate authorities who have permitted a particular student to enrol at the Institute, 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 (non-credit) enrolments

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

Single subjects studied in this way can not subsequently be credited towards a degree or diploma at Swinburne. The minimum fee per semester for single subject (non-credit) enrolments in 1992 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 1992 had not been determined. As a guide, the fee for 1991 was:

- Full-time students: $162.00
- Part-time students: $76.00
- Students studying in the cooperative mode: $90.00

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.

For all Institute 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
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

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 Swinburne Institute of Technology have to make a contribution to the cost of their studies. In 1991 the annual charge was $1,993.00 for a full-time student (or $996.50 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-time 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 1992.

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 $5.00 service charge, if notice of the withdrawal is lodged at the Student Administration Office, Administration Building, prior to 31 March 1992 for semester 1 and 31 August 1992 for semester 2.

No refunds of fees will be made where a student withdraws from study after 31 March 1992 for semester 1 and 31 August 1992 for semester 2.

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 1992 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 at 'upfront' payees where a student withdraws from the course on, or before 31 March for semester 1 and 31 August for semester 2. Students who require a refund must apply to the Assistant Registrar, Student Administration. A copy of the receipt must be provided.
Postgraduate fees refunds
Refer HECS refunds.

Confirmation of Institute records
The Institute 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.

To assist in the checking process, a computer-printed statement of enrolment will be posted to each student approximately four weeks after the commencement of each semester. 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 1992 or
(b) for subjects concluding at the end of the second semester 31 August 1992.

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 1992 for semester 1, or for semester 2, prior to 31 August 1992.

HECS liability
Students who withdraw from subjects or total enrolment after 31 March 1992 for subjects concluding at the end of the first semester or after 31 August 1992 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 May 1992 will still incur a HECS liability for semester 1. Students who withdraw from a full year subject after 31 August 1992 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 1992 (for subjects concluding at the end of the first semester) or 31 August 1992 (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 faculty concerned. 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 1992 General Service Fee only if their application is received prior to 31 March 1992 for semester 1 or 31 August 1992 for semester 2. 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 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*
Preamble
The aims 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 any amendments to enrolment. The Academic Board believes that a variety of forms of assessment should be accepted for courses at Swinburne Institute 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 Master and Bachelor, and the awards of Graduate Diploma, Diploma and Associate Diploma awarded by the Swinburne Council to persons who have completed a course of study at Swinburne Institute of Technology.

Awarding department
The department of Swinburne Institute 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 Director 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 4 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.

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

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 Institute 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 Institute 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 Institute of Technology established under section 4 of these regulations.

Student Administration Office
Room AD109 in the Administration Building.

Teaching department
The department of Swinburne Institute 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 Institute 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 Institute 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 teaching 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 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;
4.5.2 determine the assessment categories to be used for the particular year.
4.5.3 Determine the minimum standards 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 4.6.6 prior to the issue to candidates.
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;
4.6.7.2 check each electronic calculator in the possession of a candidate to ensure that such instrument does not exceed the level of sophistication approved by the subject panel.
4.6.8 Ensure that examination scripts and assignments are promptly marked and the results are accurately recorded.
4.6.9 Ensure that a review of the examination script is conducted for any candidate for whom an application for special consideration has been lodged.
4.6.10 Ensure that a review of the examination script is conducted for any candidate whose initial result is a fail or on the borderline between assessment categories.
4.6.11 In the event of the subject panel being unable to reach agreement in respect of any of the matters listed under section 4.5, in consultation with the head of department, resolve the issue in question.

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.
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 Institute 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 Institute 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 Institute;

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

7. 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.
7.2 Processing results

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

- **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.

7.2.2 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.

7.3.4 As soon as the final result has been determined, the subject convener shall submit an Alteration to Result form, via the head of department, to the dean for onward transmission to the faculty board.

7.3.5 The Student Administration Office shall notify the dean of the awarding faculty of any deferred result which has not been finalised within two months of the date of publication of the deferment. The faculty board must deal with the matter at its next meeting.

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

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 Institute 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 Institute, after notice to that effect had been posted by the Registrar to the student at the address most recently recorded in the Institute records for the particular student.

Any student may, on application to the Student Administration Office, 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 Director.

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

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 results, 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 Student Administration 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 Student Administration Office will take action on the dean's signature.

Any alteration to a result for which an extension of time to complete has been granted under section 7.3.3 or 8.4, 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.

A special examination may be granted by the Chief Examiner.

Where a student is absent from the whole or part of an examination due to illness or other misadventure, Application under this clause must be lodged at the Student Administration Office not later than midday on the seventh working day after the day of the examination; or

A student whose work during the academic year or whose performance in an examination or in an assessment has been affected by illness or other serious cause may apply in writing to the Registrar for special consideration by the subject panel concerned.

Applications 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 Student Administration Office not later than midday on the third working day after the conclusion of the day of the examination.

No examination is held, application must be made before the end of the first week of the examination period.

Application for special consideration 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.

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.

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.

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.

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.

A student whose work during the academic year or whose performance in an examination or in an assessment has been affected by illness or other serious cause may apply in writing to the Registrar for special consideration 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 Student Administration Office not later than midday on the third working day after the conclusion of the day of the examination.

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.

No application will be considered after the publication of results.
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 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 relevant 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.
   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 (SIT), member of teaching staff (SCT) 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 Division. The Dean or Head of Division 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 preference is 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.
   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;
8. Formal procedure

8.1 If a grievance cannot be successfully conciliated by the Head of Department and signed by the complainant and the respondent, the complaint will proceed to the Appeals Committee.

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

8.3 The Appeals Committee will comprise:
   a) not upholding the case;
   b) re-admitting the student who has been excluded from a course.

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 Equal Opportunity Officer 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) if the complaint contains allegations of behaviour outlawed by Federal or State Government anti-discrimination legislation or Council Policy on Equal Opportunity, the Equal Opportunity Officer will attend the Appeals Committee meeting and advise the Committee accordingly. The Equal Opportunity Officer will not have voting rights.
   b) if the complaint contains allegations of behaviour outlawed by Federal or State Government anti-discrimination legislation or Council Policy on Equal Opportunity, the Equal Opportunity Officer will attend the Appeals Committee meeting and advise the Committee accordingly. The Equal Opportunity Officer will not have voting rights.
   c) reparation be made to the complainant for any loss of academic credit or achievement suffered as a consequence of the behaviour.
   d) if the complaint contains allegations of behaviour outlawed by Federal or State Government anti-discrimination legislation or Council Policy on Equal Opportunity, the Equal Opportunity Officer 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 Director together with documentation of the grievance.

Actions which may be taken are limited to:

a) not upholding the case;

b) re-admitting the student who has been excluded from a course.

c) reprimanding the respondent.

d) ensuring that the complainant is not excluded from a course.

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 Equal Opportunity Officer if the grievance includes allegations of behaviour outlawed under State or Federal Government anti-discrimination legislation or Council Policy on Equal Opportunity.
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 Equal Opportunity Officer 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/herself 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 Division.
14.2 A complainant may at any stage of the informal procedure seek the assistance of the Dean or Head of Division 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) Equal Opportunity 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:
Committee means the Higher Degrees Committee of the Academic Board;
Council means the Council of Swinburne Ltd;
Institute means Swinburne Institute of Technology;
Faculty Board means the sub-committee of the Institute’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 Institute. Degrees shall be designated as follows:
   Master of Applied Science
   Master of Arts
   Master of Business
   Master of Engineering

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 candidacy shall have:
   4.1.1 qualified, at a sufficiently meritorious standard, for a degree of the Institute (in a field relevant to the work proposed) or such other degree as the Committee may deem equivalent for this purpose; or
   4.1.2 qualified for an award judged by the Committee to be of relevant character and appropriate standard; and have experience which the Committee 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 Committee except with the support of the faculty board.

4.3 **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.

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 by the candidate, in:
- 5.1 a department of the Institute, or
- 5.2 industrial, commercial, governmental, educational or research organisations approved by the Committee, 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 Committee.

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 Committee may grant a period of intermission of candidature on such conditions as the Committee sees fit.

7. **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 member of the academic staff of the Institute.

If the program is carried out within the Institute, 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 Institute. 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 Committee shall, on the recommendation of the faculty board, 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 Committee may decide, the Committee requires a report on the progress of each candidate. The report is prepared by the supervisor(s), 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 Committee. At least two of the copies must be bound.
9.2 The thesis must be typed 1½ spaced, in English, on A4 size paper, and conform to any other specifications prescribed by the Committee.
9.3 Repealed.
9.4 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.
9.5 With the Committee’s prior approval a candidate may submit work other than in the form set out in 9.2 and 9.3.

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 Institute.

The name 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 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 in the course of the program being undertaken for the degree shall, unless otherwise determined by Council on the advice of the Committee, be the property of Swinburne Limited.
12. Confidentiality
In general the public should have access to the material contained in a thesis once the degree has been awarded. 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 Committee 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 and provided the Committee’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 Committee may restrict access to the second volume for a specified period.

Where the thesis has only one volume, the Committee, on receipt of a request in writing from the candidate and supported by 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 Committee.

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

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.

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 Ltd;
Institute means Swinburne Institute of Technology;
Faculty Board means the sub-committee of the Institute’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 developmental 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 Institute 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 Institute. 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 Institute 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 Institute 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 Institute 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 Institute, be accepted as a publication for the purpose of this statute.

7. In the event of joint publication, the applicant shall provide the Institute 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).

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

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

10. A candidate may not submit for examination work previously submitted for any previous academic qualification.
11. In the first instance three copies of the publication shall be forwarded to the Registrar of the Institute 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.

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

13. 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 Institute.

14. 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.

15. Each examiner shall assess the publication submitted as either:
   (a) pass,
   (b) fail.

16. 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.

17. 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.

18. 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
   Committee means the Higher Degrees Committee of the Academic Board;
   Council means the Council of Swinburne Ltd;
   Institute means Swinburne Institute of Technology;
   Faculty Board means the Sub-Committee of the Institute 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:
      (a) a thorough understanding of the relevant field of study;
      (b) a discernable contribution in the field of study.

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

3.4 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:
      (a) a department of the Institute, or
      (b) an industrial, commercial, governmental, educational or research organisation approved by the Committee, or
      (c) 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:
      (a) 36 calendar months for a full-time candidate from the date of commencement;
      (b) 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 a 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 Institute 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 candidature shall not exceed 12 months unless the Committee deems the circumstances to be exceptional.

7. 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 Institute.

If the program is carried out within the Institute, 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 Institute. 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
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 1½ 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 Institute. 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;
(e) that an appropriate Masters degree be awarded;
(f) that the degree be not awarded.

Each examiner should indicate whether the report is to be made available to the candidate in whole or in part. In the case where an oral examination is requested by an examiner, such examination shall be held in accordance with procedures determined by the Committee.

In the case where the Committee, after considering the reports of the examiners, decides that the degree be awarded subject to the inclusion in the thesis of minor specified amendments, such amendments shall be made and submitted to the Registrar within three months of the candidate being notified of the Committee’s decision.

In the case where the Committee, after considering the reports of the examiners, decides that the thesis be returned to the candidate for major revision, the revised thesis must be submitted to the Registrar within twelve months of the candidate being notified of the Committee’s decision; the thesis may be submitted only once in its revised form and upon re-examination the examiners may recommend only that the thesis be passed or failed. Unless otherwise determined by the Committee the revised thesis shall be examined by the same examiners as performed the initial examination.

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 in the course of the program being undertaken for the degree shall, unless otherwise determined by Council on the advice of the Committee, be the property of Swinburne Limited.

12. Confidentiality
In general the public should have access to the material contained in a doctoral thesis once the degree has been awarded. Where a program of research is carried out in or in conjunction with the type of organisation referred to in 4.2.2 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 Committee 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 and provided the Committee’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 Committee may restrict access to the second volume for a specified period. Where the thesis has only one volume, the Committee, 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 Committee.

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

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 Applied Colloid and BioColloid Science
Co-ordinator
Prof. D.E. Mainwaring, Department of 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 base area of expertise in Colloid Science has been broadened to include some Biochemistry. Major areas of applied research now include integrated projects combining diverse skills such as wastewater treatment (utilising adsorbing colloid flotation) for the removal of toxic heavy metals, anions and organics to Biological techniques of cellular degradation for the complete treatment of toxic organics. Combined with more traditional areas of Colloid Science such as coal pelletisation and surface structure, these and other multidiscipline projects provide an avenue for the teaching of Colloid Science at an advanced (postgraduate) level and has resulted in the training of a large number of postgraduate students.

The Centre also promotes the teaching of Colloid Science at all levels — undergraduate and postgraduate, course-work and research only degrees. It also acts as a contact point for visiting members of staff from other academic institutions, companies or government authorities, both local and overseas. Visitors often give lectures and discuss research activities which proves advantageous to the quality of teaching at both undergraduate and postgraduate (particularly course-work postgraduate) levels as an integral part of their training. Some of the work undertaken inevitably involves the development of equipment or processes which may be patented, covered under secrecy agreement or be available for publication in the international literature.

Swinburne Centre for Applied Neurosciences

Director
Prof. R.B. Silverstein, Department of Physics, 819 8273
The Swinburne 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. 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 Biomedical Instrumentation

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

The Centre was established in 1989 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 magnetoencephalography, impedance tomography computers in the intensive care environment, detection of driver fatigue, electromyography applied to muscle fibre characterisation, effects of electromagnetic fields on tissue, optical-fibre plethysmography, Doppler ultrasound signal processing, etc.

Other aims of the Centre include:
- To offer a facility enabling individuals to pursue undergraduate and postgraduate studies in biomedical instrumentation.
- To offer short courses sewing 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
Associate Professor W. Thompson, School of Manufacturing and Mechanical Engineering, 819 845919372

Administration Officer Ms. H. Evans 819 8600. Fax: 819 8264

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 institutes.

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 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
John Morieson, 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

Charter
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.

Media and Telecommunications Centre

The Media and Telecommunications Centre, established in 1988, 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 monographs on film, television and general media subjects;
- research consultancies on telecommunications and media in the Pacific, Asia and Australia.

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.

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, 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
Chair
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 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, Dean, 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
Denis 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
Kerrie 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
T. Burke, Department of Social and Political Studies, 819 8109

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. The Centre has excellent support facilities including a computer assisted telephone survey system.
Centre for Women's Studies
Chair
T. Castleman, Department of Social and Political Studies, 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.
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Department of Science and Technology

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### Applied Science courses

#### Degree of Bachelor of Applied Science

The full-time degree courses are normally programs of cooperative education which extend over eight semesters (four years) and include two semesters of industry based learning. Whilst the Faculty of Applied Science is committed to cooperative education, if no placement is found before the academic component of the course is completed, the student will be permitted to take out their degree without the industry-based learning segment. They comprise either two major studies chosen from cooperative education, computer-aided biochemistry, medical biophysics, computing, instrumentation, and mathematics or the group of subjects which constitutes the environmental health course. Students involved in the Industry Based Learning segment spend a total of twelve months gaining professional experience in industry, business, commerce, government, or related industries. Depending on their area of study, some degree courses may also be studied on a part-time basis during the day.

#### Degree of Bachelor of Information Technology

This is a full-time degree course extending over three years of an average of forty-four weeks per year. It comprises computing units and supporting disciplines relating to the needs of business, selected specialist studies and periods of industry-based learning which provide a practical understanding of computing in industry. Swinburne awards a scholarship to each student admitted to the course. Scholarship levels are expected to be an average of $9300.

#### Graduate Diploma courses

The Faculty of Applied Science offers graduate diploma courses in the following areas of study:
- Biomedical Instrumentation
- Computer Science
- Industrial Chemistry
- Industrial Microbiology
- Operations Research
- Social Statistics

These courses are available for part-time (evening) study only and are designed to be completed over a two-year period. Computer Science is also offered as a full-time course.

#### Degree of Master of Applied Science

A part-time program is offered leading to the award of Master of Applied Science in Applied Colloid Science by coursework. The program extends over two years (two semesters) and is designed to be completed over a two-year period.

#### Degree of Doctor of Philosophy

A full-time or part-time program is offered leading to the award of Doctor of Philosophy by research. Individual applications for candidature for the degree of Doctor of Philosophy in Applied Science may be made through the Faculty of Applied Science. Intending applicants should, in the first instance, contact the Assistant Registrar (Applied Science), 819 8481.
Professional recognition
The courses leading to degrees in applied science with a double major in computer-aided applied chemistry or computer-aided biochemistry are recognised by the Royal Australian Chemical Institute.

The courses leading to a degree and including the major in computing are recognised by the Australian Computer Society as satisfying the academic requirements for membership.

The courses leading to a degree and including the major in mathematics are recognised by the Australian Society of Operations Research as satisfying the academic requirements for membership.

The courses leading to a degree and including majors in medical biophysics and instrumentation is recognised by the Australian Institute of Physics and the Australian Association of Physical Scientists in Medicine as satisfying the academic requirements for membership.

The courses leading to the degree in Applied Science (Environment + Health) are recognised by the Health Department of Victoria and the Australian Institute of Environmental Health.

Career potential
The applied science courses at Swinburne cover a very wide range of career opportunities. Brief descriptions of the areas of application of the courses are as follows:

Computer-aided Chemistry
As well as being proficient in laboratory chemistry, the modern chemist requires a working knowledge of computers.

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.

Computer-aided Biochemistry
Biochemistry is the study of the chemistry of living matter based on principles of organic, physical and analytical chemistry. As well as understanding biology, and working with biochemicals and biochemical instrumentation, the modern biochemist has to make extensive use of computers.

Computers are used to control instrumentation in investigations ranging from alcohol levels in blood to vitamin concentrations in food. Computers are also used to control industrial processes such as fermentations and food processing.

Graduate biochemists are employed in a wide variety of industries — the manufacture of vaccines and pharmaceuticals, preparation of food products, beverages and stock-feeds 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.

Medical Biophysics
Medical Biophysics is the study of human physiological processes together with the instrumentation used to monitor and control them.

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 their duties may involve biomedical research, routine clinical measurement responsibility, the development of specialised electronic equipment and the maintenance of equipment already in operation. They are employed in most hospital departments including cardiology, neurology, thoracic medicine, physical sciences, anaesthesiology and medical electronics.

Computing
The advent of electronic computers has created a whole new range of employment opportunities, and the use of computers and their uses is becoming increasingly necessary for graduates in the physical and biological sciences.

Graduates will be employed in various areas depending on the combination of major studies chosen. For example, a student who had majored in computing and instrumentation could be concerned with special purpose control computers for the control of real-time processes such as power generation, steel processing or the manufacture of chemical materials. A computer-aided chemistry graduate could be interested in the simulation of complex chemical processes while a mathematics and computer science graduate would be well trained to tackle the solution of the usually intractable problems found in applied mathematics.

Scientific Instrumentation
The study of instrumentation provides students with a sound basis in measurement and instrumentation principles and their use in the development of instrumentation systems for various areas of applied science and technology.

The course includes studies of both computer-based and non-computer-based instruments, used in isolation or as systems, and their applications to imaging, nuclear, optical and general scientific and industrial laboratories. Emphasis is on electronic techniques, analogue and digital signal processing and on the basic interfacing of transducers with microprocessors and computers.

This field of study is unique to Swinburne and is an appropriate major to be combined with either medical biophysics or computing.

Mathematics
Mathematics is the foundation and language of science and technology. Increasingly it is also playing a key role in business and the social sciences such as sociology, psychology and medical research. Mathematical solutions to problems are becoming much more available with the advent of modern computers.

The main thrust of this course is Operations Research which is the application of scientific methodology to solving the problems of industry, commerce and government. ‘OR’ is supported by the study of applied statistics which deals with the collection and interpretation of data, and by the study of traditional mathematics itself. A feature of the course is the pre-professional consulting experience obtained by working on real practical projects.

The mathematics major sequence provides valuable experience for potential operations researchers, management scientists, project leaders, statisticians, economic analysts, quality control scientists, systems analysts, computer scientists and teachers.
Environmental Health
This course is the only recognised training for environmental health officers in Victoria. 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 and the Dandenong Valley 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 and pollution control.

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.

Information Technology
The degree course in information technology commenced in 1988 as part of a three-year National Pilot Co-operative Education Program in Information Systems. The course equips graduates to meet the shortage of professionals in the application of information technology within business and industry. The grounding in both Information Technology technical areas and in managerial skills prepares them for future roles in the management of industry and commerce.

It is expected that graduates will initially obtain employment in information systems and information technology areas in industry and commerce and later move into more general management positions.

Entrance requirements

Bachelor of Applied Science courses
Standard entry to the first year of the degree course requires satisfactory completion of a Year 12 course of study in a Victorian secondary school, or its equivalent.

Computer-aided Chemistry, Computer-aided Biochemistry
Year 12
Prerequisite Group 1 subjects: Chemistry and a branch of Mathematics.
VCE prerequisites: Units 3 and 4 of chemistry and 6 units of VCE mathematics.

Associate Diploma
Applicants who have completed an Associate Diploma in Applied Science (Laboratory Technology) in appropriate subjects may undertake a bridging program and be admitted at second year level.

Special Entry
There will be a special entry scheme for up to fifteen students lacking year twelve chemistry. Students entering under this scheme must have passed year twelve Biology and Mathematics. Such students will not be required to undertake SC108 Biology but will undertake a special program whereby the normal chemistry program of five hours per week in semester one is augmented by extra chemistry tuition. Such students would come ‘on stream’ at the beginning of semester two.

Medical Biophysics and Instrumentation
Year 12
Prerequisite Group 1 subjects: Physics and a branch of Mathematics. Recommended additional Group 1 subject: Chemistry. Students who have taken accredited Group 2 subjects are considered for admission.

Victorian Certificate of Education (Tertiary Orientation Program)
Students who have satisfactorily completed subjects equivalent to the above are considered.

Special Entry
There will be a special entry scheme for up to fifteen students lacking year twelve physics. Students entering this scheme must have passed year twelve Biology (or a similar subject) and Mathematics. Such students will not be required to undertake SC108 Biology, but will undertake a special program. The normal physics program of five hours per week in semester one is replaced with a program of nine hours.

Computing and Instrumentation
Year 12
Prerequisite Group 1 subjects: A branch of Mathematics. Highly recommended Group 1 subject: Physics. Students who have taken accredited Group 2 subjects are considered for admission.

Special Entry
A number of places will be offered to students who do not have a pass in Physics. These students will undertake a special first year program.

Victorian Certificate of Education (Tertiary Orientation Program)
Students who have satisfactorily completed subjects equivalent to the above are considered.

Computer Science
Year 12
Prerequisite Group 1 subjects: A branch of Mathematics.

For specific entrance requirements to study combinations of majors other than those above, please contact the Assistant Registrar on 819 8481.

Environmental Health
Year 12
Preference will be given to applicants who have completed Year 12 Mathematics and Chemistry.

Victorian Certificate of Education
From 1993 applicants will be considered if they have 6 units of VCE mathematics and at least one of chemistry, physics and biology. Bonus points will be awarded for chemistry. Students who have satisfactorily completed subjects equivalent to the above are considered.

Swinburne College of TAFE students who have satisfactorily completed a Science/Engineering course are guaranteed entry to the first year.

Note: The course is the statutory training course for environmental health officers in Victoria.

Mathematics and Computer Science
Victorian Certificate of Education
At least six units of Mathematics, with Units 3 and 4 chosen from Space and Number, Reasoning and Data, Change and Approximations, Extensions (Change and Approximations). Approximations).
Bachelor of Information Technology

Year 12
Prerequisite Group 1 subject: a branch of Mathematics. Victorian Certificate of Education (Tertiary Orientation Program)

Students who have satisfactorily completed a course equivalent to the above are considered.

Applications may also be required to attend an interview and/or undertake an aptitude test.

Psychology and Psychophysiology

Students who have satisfactorily completed a course equivalent to the above are considered.

A limited number of places is available for mature age entry students who have satisfactorily completed a course equivalent to the above.

Graduate Diploma of Applied Science

For this qualification students undertake a program of study in one of the following areas:

- Applied Colloid Science
- Biomedical Instrumentation
- Industrial Microbiology
- Operations Research
- Social Statistics

Entry to Computer Science, Biomedical Instrumentation, Industrial Chemistry, Operations Research and Social Statistics is open to applicants with a first tertiary qualification in medicine, biological sciences, engineering and social science (for Social Statistics). 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 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.

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.

Master of Applied Science (Applied Colloid Science)

Entry requirements are specified as the Graduate Diploma of Applied Science (Applied Colloid Science).

For progression from the Graduate Diploma to the Masters course, students would normally be expected to have attained an average of at least distinction in four of the Graduate Diploma advanced subjects. Direct entry into the Masters course is open to suitable applicants with a Swinburne degree with distinction in Medical Biophysics and Instrumentation or have an honours degree (or equivalent) in a relevant area.

Master of Applied Science (Information Technology)

Entry requirements are specified as the Graduate Diploma in Computer Science.

For progression from the Graduate Diploma in Computer Science to the third year of the Master of Applied Science course, students would normally be expected to have attained Credit in SK712 and an average of at least Credit throughout their Graduate Diploma in Computer Science studies.

Students with an honours degree in 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.

Degree of Doctor of Philosophy

Entry is open to applicants who have qualified for the award of the degree of Master of the Institute (in a field relevant to the work proposed) or the equivalent of the foregoing. Applicants shall have demonstrated to the Higher Degrees Committee of the Academic Board a capacity for research and investigative work in the area of study proposed.

Special entry

Special provision is made whereby applicants may be accepted to the first year of the undergraduate courses with less than the normal entry requirements.

The scheme is not available to applicants who are less than 23 years of age or who have within the last three years failed any formal entry assessment. Selection is based on the relevance of the applicants' employment and their educational background, particularly in the appropriate prerequisite subjects. Applicants may be required to undertake a special entry test or to attend an interview.

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 College of TAFE 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.
Application for admission
Application should be made on the appropriate form, obtained from and lodged as follows:
- Full-time first year of all undergraduate courses: Victorian Tertiary Admissions Centre
- Part-time all years of all courses (including Graduate Diplomas): Swinburne Institute of Technology
- Full-time later years of all undergraduate courses: Swinburne Institute of Technology
- Special entry — all courses: Swinburne Institute of Technology

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 $25.00. 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 relevant 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.

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 a new syllabus. Students who are in doubt about their courses should consult their mentors before attempting to re-enrol.

Assessment of student performance regulations
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. It is expected that students will attend all lectures, classes, demonstrations, tutorials, and practical sessions. In addition, satisfactory completion of the tasks and prescribed work in all subjects is a failure in the subject. 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. Assessment of student performance is carried out in accordance with the Assessment Regulations set out in the Swinburne Institute of Technology section of the Handbook. In addition, the Faculty of Applied Science operates, under the following regulations, a scheme of passing by years.

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
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>
</tr>
</thead>
<tbody>
<tr>
<td>HD</td>
<td>&gt;85</td>
</tr>
<tr>
<td>D</td>
<td>75–84</td>
</tr>
<tr>
<td>C</td>
<td>65–74</td>
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<tr>
<td>P</td>
<td>60–64</td>
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<tr>
<td>P*</td>
<td>50–59</td>
</tr>
<tr>
<td>N*</td>
<td>40–49</td>
</tr>
<tr>
<td>N</td>
<td>&lt;40</td>
</tr>
</tbody>
</table>

1.3.2 Automatic Faculty Pass
Except as stated in clause 1.3.4 an automatic Faculty Pass will only be awarded to students whose minimum subject assessment is N* in no more than two subjects, and which satisfies the following formula:

\[ \sum (n_i x_i - 55n_i) \geq 0 \]
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 appeal. 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. 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 three and four years of academic study plus one year of paid industry based learning. The industry based learning 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 reducing 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 für 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).

Hancock Prize
A prize awarded to the best student completing the course leading to the award of the masters degree or the Graduate Diploma in Applied Colloid Science.

T.G.O. Jordan Memorial Prize
A prize donated 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.

Course details
Bachelor of Applied Science

To qualify for a degree, a student must complete successfully one of the following courses:
1. double major in computer-aided chemistry;
2. computer-aided biochemistry;
3. medical biophysics combined with instrumentation;
4. computing combined with instrumentation;
5. mathematics combined with computer science;
6. double major in computer science;
7. environmental health;
8. psychology and psychophysiology.

The structures of courses 1 to 7 are described below. Courses combining the single major computer-aided chemistry with instrumentation, computing or mathematics are also offered on an individual basis, subject to the approval of the Faculty Board.

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

As the courses are being reaccredited for 1991 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.

Part-time courses
Some courses may be available for part-time study structured in such a way as to enable completion in six or more years.

Part-time students must undertake at least eight hours of class time per week.

A limited number of part-time places will be offered in undergraduate courses. Intending applicants should note there are no separate evening classes and attendance will be required during the day. Details of part-time programs are available from the Assistant Registrar (Applied Science) and from the heads of the teaching departments.

Part-time courses also include two semesters of relevant work experience. The Institute does not arrange for work experience for part-time students.

1. 2051 Double major in Computer-aided Chemistry

This course provides a thorough basis for a career as a professional, industrial or research chemist. It also makes the chemist proficient in modern computer technology building on essential industrial experience.

Full-time course
(1990 syllabus)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC154</td>
<td>Chemistry</td>
</tr>
<tr>
<td>SC108</td>
<td>Biology</td>
</tr>
<tr>
<td>SC190</td>
<td>Computer Science</td>
</tr>
<tr>
<td>SM108</td>
<td>Mathematical Methods</td>
</tr>
<tr>
<td>SP106</td>
<td>Physics or</td>
</tr>
<tr>
<td>SP108</td>
<td>Physics</td>
</tr>
<tr>
<td>SC155</td>
<td>Chemistry</td>
</tr>
<tr>
<td>SC254</td>
<td>Chemistry</td>
</tr>
<tr>
<td>SC208</td>
<td>Biology</td>
</tr>
<tr>
<td>SM104</td>
<td>Mathematics</td>
</tr>
<tr>
<td>SP220</td>
<td>Instrumental Science 2</td>
</tr>
<tr>
<td>SC370</td>
<td>Chemistry</td>
</tr>
<tr>
<td>SC590</td>
<td>Computer's in Chemistry</td>
</tr>
<tr>
<td>SC553</td>
<td>Applied Chemistry</td>
</tr>
<tr>
<td>SC590</td>
<td>Applied Chemistry</td>
</tr>
<tr>
<td>SC520</td>
<td>Instrumental Science 3</td>
</tr>
<tr>
<td>SC508</td>
<td>Industry Based Learning</td>
</tr>
<tr>
<td>SC608</td>
<td>Industry Based Learning</td>
</tr>
<tr>
<td>SC708</td>
<td>Chemistry</td>
</tr>
<tr>
<td>SC490</td>
<td>Computers in Chemistry</td>
</tr>
<tr>
<td>SC414</td>
<td>Industrial Problem Solving</td>
</tr>
<tr>
<td>SC430</td>
<td>Scientific Communication 4</td>
</tr>
<tr>
<td>SC453</td>
<td>Applied Chemistry</td>
</tr>
<tr>
<td>SC460</td>
<td>Practical Chemistry</td>
</tr>
<tr>
<td>SP420</td>
<td>Instrumental Science 4</td>
</tr>
<tr>
<td>SC506</td>
<td>Industry Based Learning</td>
</tr>
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<td>SC608</td>
<td>Industry Based Learning</td>
</tr>
<tr>
<td>SC570</td>
<td>Chemistry</td>
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<td>SC590</td>
<td>Computers in Chemistry</td>
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<td>SC708</td>
<td>Scientific Communication</td>
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<td>SC553</td>
<td>Applied Chemistry</td>
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<td>SC560</td>
<td>Practical Chemistry</td>
</tr>
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<td>SC670</td>
<td>Chemistry</td>
</tr>
<tr>
<td>SC690</td>
<td>Computers in Chemistry</td>
</tr>
<tr>
<td>SC653</td>
<td>Scientific Communication</td>
</tr>
<tr>
<td>SC660</td>
<td>Practical Chemistry</td>
</tr>
</tbody>
</table>

* SC155 Chemistry is only available to students admitted under the special entry scheme for students lacking Year 12 chemistry but having Year 12 biology. Such students do not undertake SC108 Biology.

| Faculty of Applied Science | |

* SC5 is a major supporter of this course, providing funds for the purchase of molecular graphics equipment as well as being a continuing supporter of our cooperative program.
2. 2052 Computer-aided Biochemistry

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.

Full-time course
(1990 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC164: 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>5</td>
</tr>
<tr>
<td>SP107: Physics</td>
<td>4</td>
</tr>
<tr>
<td>SC95: Chemistry</td>
<td>7</td>
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<table>
<thead>
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<th>Semester 2</th>
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<tbody>
<tr>
<td>SC254: Chemistry</td>
<td>12</td>
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<tr>
<td>SC208: Biology</td>
<td>6</td>
</tr>
<tr>
<td>SM214: Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>SP220: Instrumental Science</td>
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<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Hours</th>
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<tbody>
<tr>
<td>SC370: Chemistry</td>
<td>6</td>
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<tr>
<td>SC380: Practical Chemistry</td>
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</tr>
<tr>
<td>SC360: Computers in Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>SC362: Biochemistry</td>
<td>2</td>
</tr>
<tr>
<td>SC318: Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>SC365: Practical Biochemistry</td>
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<table>
<thead>
<tr>
<th>Semester 4</th>
<th>Hours</th>
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<tbody>
<tr>
<td>SC470: Chemistry</td>
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<tr>
<td>SC480: Practical Chemistry</td>
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</tr>
<tr>
<td>SC490: Computers in Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>SC414: Industrial Problem Solving</td>
<td>2</td>
</tr>
<tr>
<td>SC430: Scientific Communication</td>
<td>1</td>
</tr>
<tr>
<td>SC462: Biochemistry</td>
<td>2</td>
</tr>
<tr>
<td>SC418: Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>SC465: Practical Biochemistry</td>
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<table>
<thead>
<tr>
<th>Semester 5</th>
<th>Hours</th>
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<tbody>
<tr>
<td>SC508: Industry Based Learning</td>
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<table>
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<tr>
<th>Semester 6</th>
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<tr>
<td>SC608: Industry Based Learning</td>
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<table>
<thead>
<tr>
<th>Semester 7</th>
<th>Hours</th>
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<tbody>
<tr>
<td>SC570: Chemistry</td>
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<td>SC590: Practical Chemistry</td>
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<tr>
<td>SC580: Computers in Chemistry</td>
<td>3</td>
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<tr>
<td>SC578: Scientific Communication</td>
<td>1</td>
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<td>SC588: Analytical Biochemistry</td>
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</tr>
<tr>
<td>SC565: Practical Biochemistry</td>
<td>6</td>
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<tr>
<td>SC504: Human Biochemistry</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 8</th>
<th>Hours</th>
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<tbody>
<tr>
<td>SC670: Chemistry</td>
<td>4</td>
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<tr>
<td>SC690: Practical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>BS681: Business &amp; Management</td>
<td>4</td>
</tr>
<tr>
<td>SC668: Scientific Communication</td>
<td>1</td>
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<tr>
<td>SC662: Analytical Biochemistry</td>
<td>2</td>
</tr>
<tr>
<td>SC664: Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>SC665: Practical Biochemistry</td>
<td>4</td>
</tr>
</tbody>
</table>

SC108 Chemistry is only available to students admitted under the special entry scheme for students lacking Year 12 chemistry but having Year 12 biology. Such students do not undertake SC108 Biology.

ICl 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.

3. 2061 Medical Biophysics and Instrumentation (2054 Biophysics/Instrumental Science as per semesters 5, 6, 7 and 8)

This combination is unique to Swinburne and is designed to produce research and development staff for hospitals and industry. The course offers the student a firm grounding in instrumentation and life sciences. Medical biophysics has a clinical orientation and consists of two parallel streams, human physiology and biophysical instrumentation. Instrumentation provides a sound foundation in instrumentation principles and considers the design and use of both single instruments and multi-instrument systems.

Full-time course
(1990 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</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</td>
<td>5</td>
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<tr>
<td>SP107: Physics</td>
<td>5</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC255: Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>SM315: Mathematical Methods</td>
<td>4</td>
</tr>
<tr>
<td>SP210: Introduction to Instrumentation</td>
<td>4</td>
</tr>
<tr>
<td>SP209: Physics</td>
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</tr>
<tr>
<td>AB215: Complementary Studies</td>
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<tr>
<td>SP224: Introductory Biophysics</td>
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<table>
<thead>
<tr>
<th>Semester 3</th>
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<tbody>
<tr>
<td>SP309: Physics</td>
<td>3</td>
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<tr>
<td>SM315: Mathematical Methods</td>
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<tr>
<td>SP310: Analogue and Optical Techniques</td>
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<tr>
<td>SP330: Digital Fundamentals</td>
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<tr>
<td>SP324: Biophysical Systems A</td>
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<td>SP325: Biophysical Systems B</td>
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<th>Semester 4</th>
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<td>SM415: Mathematical Methods</td>
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<tr>
<td>SP401: Experimental Techniques</td>
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<td>SP409: Physics</td>
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<tr>
<td>SP410: Analogue Devices and Applications</td>
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<td>SP430: Interfacing and Nuclear Techniques</td>
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<tr>
<td>SP424: Clinical Monitoring A</td>
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<td>AB513: Brain &amp; Behaviour</td>
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<td>SP509: Physics</td>
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<tr>
<td>SP510: Scientific Instrumentation</td>
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<tr>
<td>SP530: Scientific Instrumentation B</td>
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</tr>
<tr>
<td>SP524: Neurosciences A</td>
<td>4</td>
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<tr>
<td>SP525: Applied Biophysics A</td>
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<table>
<thead>
<tr>
<th>Semester 8</th>
<th>Hours</th>
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<tr>
<td>SC601: Chemical Instrumentation</td>
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<tr>
<td>SP602: Special Project</td>
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<tr>
<td>SP610: Instrumentation Systems A</td>
<td>4</td>
</tr>
<tr>
<td>SP630: Instrumentation Systems B</td>
<td>4</td>
</tr>
<tr>
<td>SP624: Neurosciences B</td>
<td>4</td>
</tr>
<tr>
<td>SP625: Applied Biophysics B</td>
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</tr>
<tr>
<td>SP626: Applied Neurosciences</td>
<td>2</td>
</tr>
<tr>
<td>SP609: Physics</td>
<td>2</td>
</tr>
</tbody>
</table>

* Changes to the syllabus may occur in 1991. Details of subjects available on enrolment.
4. 2056 Computing and Instrumentation

The computing major involves the study of algorithms used in the solution of mathematical, engineering and business problems, and the implementation of these in a suitable algorithmic or business-oriented language. The work is supplemented during the latter years of the course by studies in computer architecture and computer graphics.

The 'software' emphasis in computing is complemented by the strong 'hardware' orientation of scientific instrumentation. Areas of study in this major include nuclear and optical instrumentation together with a strong emphasis on information processing, digital and analogue electronics.

Full-time course
(1990 syllabus)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
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<td>SP1200</td>
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<td>SQ302</td>
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<td>Semester 4</td>
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<td></td>
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<tr>
<td>SQ402</td>
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<tr>
<td>SQ407</td>
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<td>SP623</td>
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<tr>
<td>SP630</td>
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</tr>
<tr>
<td>SP658</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SP663</td>
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</tbody>
</table>

At least one of the three SX elective subjects must be chosen from the Computer Science electives offered.

Students enrolled in Z056 prior to 1989 will undertake alternative semesters 7 and 8, as follows.

<table>
<thead>
<tr>
<th>Semester 7 (Alternative)</th>
<th>Faculty of Applied Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK504</td>
<td>Computer Science 5</td>
</tr>
<tr>
<td>SM519</td>
<td>Mathematical Methods</td>
</tr>
<tr>
<td>SP501</td>
<td>Signals and Systems</td>
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<tr>
<td>SP510</td>
<td>Scientific Instrumentation A</td>
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<tr>
<td>SP530</td>
<td>Scientific Instrumentation B</td>
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</table>

Semester 8 (Alternative)

<table>
<thead>
<tr>
<th>Semester 8</th>
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<tbody>
<tr>
<td>SQ613</td>
<td>Computer Science Team</td>
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<tr>
<td>SP613</td>
<td>Project</td>
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<tr>
<td>SP630</td>
<td>Instrumentation Systems B</td>
</tr>
<tr>
<td>SP658</td>
<td>Computer Graphics A</td>
</tr>
<tr>
<td>SP663</td>
<td>Elective 3</td>
</tr>
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</table>

5. 2059 Mathematics and Computer Science

The solution of many problems faced by business, industry and government can be facilitated by the use of mathematical and statistical models. The mathematics major concentrates on the operations research approach to problems such as inventory control, scheduling, or allocation. Many operations research and statistical studies in these and other areas can be facilitated by the use of mathematical and statistical models. The mathematics major concentrates on the solution of mathematical, engineering and business problems, and the implementation of these in a suitable algorithmic or business-oriented language. The work is supplemented during the latter years of the course by studies in logic, programming techniques and systems science.

Full-time course
(1991 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
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<tr>
<td>SQ107</td>
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<tr>
<td>Semester 2</td>
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</tr>
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<td></td>
</tr>
<tr>
<td>SQ506</td>
<td>3</td>
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</tbody>
</table>

Computer Science Elective 1

One subject chosen from:

| SQ306 | Human Computer Interaction |
| SQ500 | Concurrent Programming |
| SQ501 | Functional Programming |
| SQ502 | UNIX Systems Programming |
| SQ508 | Computer Graphics A |
| SQ509 | Artificial Intelligence A |
6. 2060 Computer Science

The course features a blend of the traditional core curriculum of computer science together with studies in software engineering which will equip graduates with the skills necessary to participate in and/or manage teams of computing professionals who are developing large scale software systems.

Studies in computer science concentrates on programming skills in the language Ada and C, the study of algorithms, and in the use of operating systems. Techniques of designing and building systems of software are studied in software practice also provides extensive practical experience of working in teams which are developing large software systems for real clients.

Full-time course

(1991 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours week</th>
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<tbody>
<tr>
<td>BS514 Business Studies/Economics</td>
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<tr>
<td>SM120 Mathematics 1</td>
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<tr>
<td>SQ100 Programming in Ada</td>
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<tr>
<td>SQ103 Software Practice 1</td>
<td>6</td>
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<tr>
<td>SQ107 Introduction to Computer Science</td>
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<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours week</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS513 Business Studies/Accounting</td>
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<tr>
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<tr>
<td>SQ100 Programming in Ada</td>
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<tr>
<td>SQ103 Software Practice 1</td>
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<tr>
<td>SQ506 Information Analysis</td>
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<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Hours week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ301 Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>SQ300 UNIX/C</td>
<td>3</td>
</tr>
<tr>
<td>SQ303 Software Practice 2</td>
<td>3</td>
</tr>
<tr>
<td>SQ304 Software Engineering</td>
<td>3</td>
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<tr>
<td>SQ305 Database</td>
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<td>SQ306 Human-Computer Interaction</td>
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<table>
<thead>
<tr>
<th>Semester 4</th>
<th>Hours week</th>
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<tbody>
<tr>
<td>SQ403 Software Practice 2</td>
<td>6</td>
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<tr>
<td>SQ402 Operating Systems</td>
<td>3</td>
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<tr>
<td>SQ404 System Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>SQ407 Data Communications</td>
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</tbody>
</table>

Note: SQ303 Software Practice 3 may be undertaken within the Faculty of Applied Science only.

7. 2062 Psychology and Psychophysiology

This course may be undertaken within the Faculty of Applied Science or the Faculty of Arts.

The course which is unique to Swinburne, aims to produce graduates who are qualified to take up professional careers in psychology. It will contribute towards qualification for associate membership of the Australian Psychological Society and will be a suitable introduction to occupations involving aspects of clinical 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 under Department of Psychology, Faculty of Arts.

Full-time course (Applied Science only)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours week</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY100 Psychology</td>
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<tr>
<td>SC106 Biology</td>
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<tr>
<td>SP135 Monitoring Instrumentation</td>
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</tr>
<tr>
<td>SM120 Mathematics</td>
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<td>SC133 Chemistry</td>
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<table>
<thead>
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<th>Hours week</th>
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<tbody>
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<tr>
<td>SP231 Monitoring Technology</td>
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<tr>
<td>SP232 Introductory Psychophysiology</td>
<td>4</td>
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<tr>
<td>SC208 Biology</td>
<td>4</td>
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<tr>
<td>SK290 Computing</td>
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</tbody>
</table>
Faculty of Applied Science

Semester 3
AY201 Developmental Psychology 4
SP331 Neurohumoral Bases of Psychophysiology 8
SM278 Design and Measurement 2A 4

Semester 4
AY201 Social Psychology 4
SP431 Psychophysiology of Perception 8
SM279 Design and Measurement 2B 4

Semester 5
AY311 Methods and Measures 2
AY312 The Psychology of Personality 3
SP527 Neurophysiology of the Normal Brain 5
SP528 Applied Psychophysiology 5

Semester 6
AY313 Cognition and Human Performance 3
AY314 Counselling and Interviewing 2
SP631 Neurophysiology of Mental Disorders 5
SP632 Psychophysiology Project 5

8. H050 Environmental Health

This course is the statutory qualifying course for environmental health officers in Victoria. It takes the form of a four-year program of cooperative education in which students attend the institute for a total of six semesters, and gain practical work experience for two semesters. Swinburne arranges the work experience for full-time students.

Full-time course
(1991 syllabus)

Semester 1
AB2100 Behavioural Studies and Communication (1) 2
MP107 Engineering Drawing 2
SC100 Environmental Health 2
SC104 Biology 4
SC1500 Introductory Chemistry 5
SM110 Mathematical Methods 3
SP121 Physical Science 3

Semester 2
BD141 Introductory Law 2
SC252 Biological chemistry 5
SC209 Biology 6
SK2100 Computer Science 2
SM2100 Applied Statistics 3
SP221 Physical Science 3

Semester 3
AB510 Behavioural Studies and Communication (2) 2
SA203 Building Standards 4
BS2530 Environmental Health Law 4
ME240 Environmental Engineering 4
SC3400 Food Processing and Analysis 4
SC340 Microbiology 4

Semester 4
BS2540 Legal Procedure and Evidence 4
SC451 Food Microbiology 5
SC467 Environmental Health Practice (1) 5
SC468 Environmental Science 5
SC469 Epidemiology 3

Semesters 5 and 6
SA509 Industry Based Learning
SA608 Industry Based Learning

1050 Bachelor of Information Technology

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 $9,300.

Segment 1
IT101 Computer Fundamentals
IT102 Introduction to Programming
IT103 Business Applications and Systems 1
IT104 Management and Communications
* Non-competing Elective

Segment 2
IT201 Decision Analysis
IT202 COBOL programming
IT203 Business Applications and Systems 2
IT204 Accounting
* Non-competing Elective

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 4 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
IT509 Software Engineering 1
Specialist units ♤
At least two of these must be taken from the subjects marked with an asterisk.
IT502 Systems Software 2
IT505 Knowledge Engineering
IT506 Expert Systems
IT507 Computer Graphics and Imaging 1
IT511 Systems and Information Analysis 2
IT522 Systems Software 3
IT523 Data Base Management Systems 3
IT556 Artificial Intelligence ♤
IT567 Computer Graphics and Imaging 2
IT589 Software Engineering 2

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.

Postgraduate courses

Graduate Diploma of Applied Science

This qualification is awarded to students who have completed one of several approved programs of subjects. Programs are offered in Biomedical Instrumentation, Computer Science, Scientific Instrumentation, Industrial Chemistry, Operations Research and Social Statistics.

Options are designed as two-year part-time courses offered only in the evening and extending over four fourteen-week semesters, except for Industrial Chemistry which is a one-year full-time course, and Computer Science which is also offered as a one-year full-time as well as a two-year part-time course.

Not all subjects, nor all options are available in any one year, student demand being taken into account in determining which subjects or options will be offered.

2084 Biomedical Instrumentation

(1983 syllabus)

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.

To qualify for the award a student must complete eight of the subjects listed below of which one must be the Project Unit. 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 the Head, Physics Department.

Introductory unit

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP555 Introduction to Biophysical Systems</td>
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</tbody>
</table>

Biomedical units

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP531 Biophysical Systems and Techniques</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SP532 Clinical Monitoring Techniques</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Instrumentation units

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP541 Signal and Image Processing</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SP545 Instrument Interfacing and Programming</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SP547 Instrument Electronics</td>
<td>4</td>
<td></td>
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</tbody>
</table>

Project unit

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP535 Biomedical Project</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

The following subjects are available as alternatives for part of the course if sufficient demand exists.

2088 Computer Science

(1989 syllabus)

This option is for graduates who require a specialised and practical training in the related areas of computer programming and software engineering and their applications to information technology. The emphasis is on the acquisition of systems development skills in the UNIX environment.

To qualify a student must complete the nine subjects listed below. These form a one-year full-time program or a two-year part-time (evening) program. 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.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ700 Programming in C</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SQ702 Systems Programming</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SQ703 Software Development Project</td>
<td>4 (for two semesters)</td>
<td></td>
</tr>
<tr>
<td>SQ704 Software Engineering</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>SQ705 Database</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SQ707 Computer Systems</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SQ709 introduction to Artificial Intelligence</td>
<td>4 (for a semester)</td>
<td></td>
</tr>
<tr>
<td>SQ710 Advanced C Programming</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SQ717 Data Communications</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Z081 Applied Colloid Science

(1989 syllabus)

This course is for graduates with a background in chemistry who have a professional interest in the application of colloid science to industrial problems.

The program includes a variety of topics designed to cover the requirements of a wide range of industries. It comprises, in the first two semesters, a compulsory core of lectures and associated practical work which acquaints the student with the fundamental properties of colloids and interfaces, followed in the next two semesters by a series of elective subjects from which two are chosen.

The program is a two-year part-time course, the timetable specifying eight hours per week (two evenings) for four fourteen-week semesters.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCC30 Properties of Colloids</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>SCC31 Colloid Experimental Techniques</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>SCC32 Elective Subject</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
Semester 4
Elective subject 8

*The elective subjects are chosen from the following list:
- SC532 Emulsion Technology
- SC534 Polymeric Flotation
- SC535 Surface Coatings
- SC536 Corrosion and Protection of Metals
- SC538 Adsorption of Aqueous Pollutants

These subjects will not all be offered in any one year. Their availability will be determined by student demand. The list may be augmented to meet students' requirements.

2082 Industrial Microbiology
(1989 syllabus)

This course is for graduates or diplomates in chemistry, biochemistry or other life sciences, or engineering (though it is not necessarily restricted to these fields), whose professional 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 (two evenings) per week for four fourteen-week semesters.

List of subjects

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Max points</th>
<th>Hours weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS720</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>SC720</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SC721</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SC722</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>SC723</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SC724</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SC725</td>
<td>4</td>
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<tr>
<td>SC726</td>
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<td>SC727</td>
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<tr>
<td>SC728</td>
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<td>SC729</td>
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<td>SC730</td>
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<tr>
<td>SC731</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SC732</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Semester 2
SC733 Employment Experience
BS721 Business and Management

2086 Social Statistics
(1989 syllabus)

The course is designed for graduates in the social sciences who have a professional interest in improving their quantitative and statistical skills. It is also suitable for graduates of other disciplines who have a need to gain statistical skills particularly in the area of computer based analysis and interpretation.

To qualify a student must complete the eight subjects listed below. These form a two-year part-time (evening) program which entails an involvement of eight hours per week.

Subject code | Hours week |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SM731</td>
<td>4</td>
</tr>
<tr>
<td>SM732</td>
<td>4</td>
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<tr>
<td>SM733</td>
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<tr>
<td>SM734</td>
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<tr>
<td>SM735</td>
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</tr>
<tr>
<td>SM736</td>
<td>4</td>
</tr>
<tr>
<td>SM737</td>
<td>4</td>
</tr>
<tr>
<td>SM738</td>
<td>4</td>
</tr>
</tbody>
</table>

2087 Operations Research
(1989 syllabus)

The course is aimed primarily at graduates with a quantitative background, and aims to supplement the student's professional education with a more specialised and practical training of an applied type, which will enable them to pursue careers in operations research.

The course is subdivided into units of four hours per week (two hours of lectures, two hours of workshops) for one semester.

The workshops will provide students with significant access to the Institute's hardware and software, enabling hands-on experience devoted to practical and research work. Two units will normally be taken each semester.

* Course details over page.
The semester units have been structured so that students may undertake a research project at their place of work. This project is to be reported as a minor thesis. The program is a two-year part-time course comprising two hours of lectures per week plus a research project. The research project is expected to be equivalent to five hours per week. Research may be undertaken at the place of employment, with the Swinburne Colloid Laboratory or similar institutions.

A feature of this course is the contribution to the lecturing service by leading researchers from academic and industrial organisations within Australia.

The semester units have been structured so that students may commence the course in February or July of any year.

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### Table of Units and Credits

#### Semester 1

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Title</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM721</td>
<td>Introduction to Operations Research</td>
<td>4</td>
</tr>
<tr>
<td>SM722</td>
<td>Stochastic Methods in OR 1</td>
<td>4</td>
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</table>

#### Semester 2

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Title</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM723</td>
<td>Mathematical Methods in OR 2</td>
<td>4</td>
</tr>
<tr>
<td>SM724</td>
<td>Stochastic Methods in OR 2</td>
<td>4</td>
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</tbody>
</table>

#### Semester 3

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Title</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM725</td>
<td>Project Management</td>
<td>4</td>
</tr>
<tr>
<td>SM726</td>
<td>Operations Research in Industry 1</td>
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</tr>
</tbody>
</table>

#### Semester 4

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Title</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC727</td>
<td>Operations Research in Industry 2</td>
<td>4</td>
</tr>
<tr>
<td>SM728</td>
<td>Major Project</td>
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</tbody>
</table>

#### ZO90 Master of Applied Science by research

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Title</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZO91</td>
<td>Master of Applied Science (Applied Colloid Science) by coursework</td>
<td>16</td>
</tr>
</tbody>
</table>

**Note:** The above table is not complete and is illustrative. For detailed course structure, please refer to the actual course handbook or official source.

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**Semester 4**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Title</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC713</td>
<td>Colloid Interaction Theory</td>
<td>2</td>
</tr>
<tr>
<td>SC714</td>
<td>Colloid Research Project</td>
<td>5</td>
</tr>
</tbody>
</table>

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### Subject Areas

- **ZO92 Master of Applied Science (Information Technology)**
  - **(1989 syllabus)***
  - **Hours/week**
  - **Subject**
    - SK802 Expert Systems
    - SK803 Database Technology
    - SK805 Advanced Software Engineering
    - SK806 Machine Learning
    - SK807 System Analysis and Design
    - SK808 Object-Oriented Programming
    - SK809 Expert Systems architecture
  - **Additional units may be offered in some of the areas:**
    - Software Engineering using Ada and its Programming Support Environments,
    - Formal methods for Software Development,
    - Embedded Systems and Concurrency
  - **SK812 Project and Thesis**
- **ZO93 Master of Applied Science (Biomedical Instrumentation)**
  - **Hours/week**
  - **Subject**
    - SC710 Dispersion Forces and Thin Films
    - SC714 Colloid Research Project
    - SC711 Electrical Double Layer, Steric Stabilisation and Polymer Theory
    - SC714 Colloid Research Project
    - SC715 Adsorption and Waste Treatment
    - SC714 Colloid Research Project

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Graduates at Bachelor's degree level who have shown a high standard of academic achievement may be admitted to candidacy for the degree of Doctor of Philosophy in 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, governmental, educational or research organisation.

Copies of the Statute for the degree of Doctor of Philosophy by research and application forms are available from the Registrar's Office.

### Subject details

Subject codes are listed in numerical order within the following groups.

#### Code
- SA: Applied Science
- SC: Chemistry
- SQ: Computer Studies
- SM: Mathematics
- SP: Physics
- AB: Liberal Studies
- BS: Business
- CE: Civil Engineering
- EA: Chemical Engineering
- EE: Electrical and Electronic Engineering
- IT: Information Technology
- ME: Mechanical Engineering
- MP: Manufacturing Engineering

#### SA203 Building Standards

Four hours per week for one semester

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 veneer and cavity brick dwellings. Examination of foundations, footings, external and internal loadings, framing and roof structures.

Water disposal theory with reference to vented, vented modified, single stack, single stack modified systems. Standards of installation, applications and inspection methods.

Consideration of various forms of construction practices related to concrete, steel, timber and masonry.

Relevant provisions of building and plumbing legislation, codes and standards.

Plan review technique.

#### SA508 Industry Based Learning

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.

**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:** Professional practice of the health surveyor in government and industry. Concepts of environmental health.

**Administration:** The structure and role of State and Local Government agencies involved in environmental health and pollution control.

A brief overview of appropriate legislation that the health surveyor 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 SC106 Biology.
SC108 Biology
Four hours per week for one semester
A first-year subject of the degree course in computer-aided chemistry/biochemistry.

Seven hours per week for one semester.
A first year subject of the degree course in computer-aided chemistry and computer-aided biochemistry taken by students who have not reached Year 12 chemistry standard. Quantitative aspects of chemical reactions. Acids/bases — strong and weak, pH, solvolysis of ions, buffers, indicators. Properties of chemical reactions: extent and equilibria; gaseous equilibria; solution equilibria; kinetics; applications. Energy from chemical reactions: heat energy — thermochemistry; Hess's law; electrical energy — redox; galvanic cells; electrode potential; Nernst equation; applications. Chemistry of metals: general properties, distribution economic importance and environmental problems; metallic bonding; heavy metals in food and water; analysis of metals; corrosion and protection of metals. Practical chemistry: equilibria; kinetics; thermochemistry; redox; chemistry of metals. SC208 Biology
Six hours per week for one semester
A first-year subject of the degree courses in computer-aided chemistry/biochemistry. 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: anatomy of the respiratory system; gas exchange and transport; control of respiration. The properties of haemoglobin. Renal system and water balance: structure of the kidney and urinary system. Basic renal processes. Regulation of extracellular volume and osmolarity. Digestive system: the arrangement and functions of the digestive system. Skeletal system: calcium regulation, structure of bone. Anatomy of the skeleton. Muscular system: types of muscle and their roles. Immune systems: reticulo endothelial system. Inflammation, phagocytosis, lymphocytes, cell-mediated immunity, antibody-mediated immunity. Nervous system: nerves and excitability; transmission, the synapse; simple reflex arc. Overview of functions and structures in the central nervous system. Endocrine system: functions. Major glands, their products and functions. Reproductive system: anatomy, gametogenesis, contraception, pregnancy. Integration of body systems: responses to stresses such as exercise, shock. Practical work in the course includes use of the microscope in the examination of cells and tissues, the testing of body parameters and physiological functions. Extensive use is made of charts, biological models and equipment as spirometers and microcomputers. 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

A first-year subject in the degree course in environmental health. Organic chemistry: alkenes, alkenes, benzene and derivatives; alcohols, aldehydes, carboxylic acids; esters, ethers; amines, amides; IUPAC nomenclature; polymers. Chemistry of living cells: cellular homeostasis; major organic groupings in tissues; biologically useful energy and ATP. Protein structure and function: relation to catalysis, transport, pumping. Membrane structure and function; membrane potentials; impulse transmission. Generation of ATP; glycolytic pathway; anaerobic ATP generation; Krebs' cycle; fatty acid oxidation; electron transport; oxidative phosphorylation. Practical work: illustrative of some of the above topics.

SC254 Chemistry


SC318 Microbiology

A second-year subject in the degree course in computer-aided biochemistry. Basic microbiology: general anatomy of the bacterial cell. Structure and function of bacterial components: Bacterial nutrition and growth. Types of bacteria and composition of media for growth. Special growth techniques — anaerobic, enrichment. Counting techniques. Sterilisation methods. Immunology: basic tenets; immunochemistry to include the mechanism of production of antibodies and antigens. Vaccination and immunisation. Practical work will be conducted in conjunction with the above topics.

SC349 Microbiology

A second-year subject of the degree course in environmental health. Basic microbiology: general anatomy of the bacterial cell. Structure and function of bacterial components: Bacterial nutrition and growth. Types of bacteria and composition of media for growth. Special growth techniques — anaerobic, enrichment. Counting techniques as a method for measuring bacterial growth. These will also include simple field techniques such as 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 3.5.13 of immunology to include the mechanism of production of antibodies and antigens. Vaccination and immunisation.

SC353 Applied Chemistry

A second-year subject in the degree course in computer-aided chemistry. Industrial energy sources: coal, oil, natural gas, shale and nuclear. Production and use of synthetic gas. Coal conversion processes. Inorganic reactions: a study of the major classes of inorganic reactions and associated equilibria. Application of such reactions to the separation and identification of common metal cations and anions in multi-component solutions and commercial products. This component of the course is done as practical work. Kinetics of complex reactions: consecutive, parallel and reversible first-order reactions; non-equal initial concentrations; enzyme kinetics; free radical and chain reactions; the internal combustion engine and air pollution; batch and flow reactions. Introduction to the chemical industry and chemical processing: fluid flow; heat transfer; separation processes; process analysers; process control.

SC360 Practical Chemistry

A second-year subject in the degree course in computer-aided chemistry. Quantitative analysis: manual titration, computer-controlled automatic 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


SC365 Practical Biochemistry

A second-year subject in the degree course in computer-aided biochemistry. Laboratory exercises associated with the properties of biomolecules, quantitative determination of biomolecules, isolation and preparation of biomolecules, enzyme preparations and assays, enzyme kinetics. Computer simulation will be used in conjunction with a laboratory exercise in the teaching of enzyme kinetics.

SC370 Chemistry

A second-year subject in the degree course in computer-aided chemistry and computer-aided biochemistry. 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 and UV/Visible spectra. Descriptive inorganic chemistry: chemistry of the main group elements.
SC380 Practical Chemistry

Four hours per week for one semester
A second-year subject in the degree course in computer-aided biochemistry.
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 and computer-aided biochemistry.
Company organisation and communications: problem-solving, example case study, chemical economics, chemistry case study, decisions case study.

SC414 Industrial Problem-Solving

Two hours per week for one semester
A second-year subject in the degree course in computer-aided chemistry.

SC418 Microbiology

Three hours per week for one semester
A second-year subject in the degree course in computer-aided biochemistry.
Taxonomy and identification of the major groups of pathogenic bacteria with particular reference to those organisms which are associated with food poisoning (e.g. Staphylococcus, Salmonella) and whose pathogenic characteristics might be associated with ingestion of food.

SC430 Scientific Communication

One hour per week for one semester
A second-year subject in the degree course in environmental health.

SC451 Food Microbiology

Four hours per week for one semester
A second-year subject in the degree course in environmental health.

Food Hygiene
Microbiological factors — micro-organisms involved in food spoilage (especially in relation to the dairy, meat, wine, canning and bottling industries). Conditions that promote or inhibit food spoilage during food handling and storage. Pathogenic micro-organisms commonly transmitted via foods. Methods used to minimise unwanted microbial growth.

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 sanitisation 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.

SC453 Applied Chemistry

Two hours per week for one semester
A second-year subject in the degree course in computer-aided chemistry.

Organophosphorus/silicon chemistry. Basic NMR. Preparation, reactions and reaction mechanisms of organophosphorus and silicon compounds, using examples of industrial importance. An introduction to basic proton NMR is also included.

Polymer chemistry: classification of polymers. Introduction to polymerisation reactions, including industrial polymerisation processes. Characteristic properties of polymers and their measurement, including molecular weight determinations and crystallinity by X-ray spectroscopy.

SC460 Practical Chemistry

Seven hours per week for one semester
A second-year subject in the degree course in computer-aided chemistry.

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.

Techniques used will include thin layer chromatography, gel filtration, 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.

Domestic waste water management: the design, approval and inspection of sewerage disposal methods in non-sewered areas. Septic tanks and conversion methods. Transpiration, filtration and soil adsorption.

Food establishment legislation and inspection methodology: for example, food premises, eating houses, food factories and markets. Licenced 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 of the degree course in environmental health.
Meteorology: Atmospheric variables, measurement of humidity, air
pollution, atmospheric stability, inversion, plume behaviour, local
effects.
Water science: Purity, tolerable solutes, desirable solutes, standards,
analysis. Swimming pool chemistry.
Domestic chemistry: Chemistry in the household (detergents,
pesticides, renovating chemicals, motor chemicals, swimming pool
chemicals, proper handling and disposal of domestic chemicals).

SC469 Epidemiology Three hours per week for one semester
A second year subject in the degree course in environmental health.
Overview, nature and scope of epidemiology. Nature, transmission and
control of various diseases of public health importance including:
exotic diseases, sexually transmitted diseases, myco-bacterial 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.
Descriptive inorganic chemistry: selected compounds of main group
elements — thermodynamics of formation, chemistry.
Organic chemistry: acidity, basicity. Carbonions, application to
synthesis. Aromatic compounds.
Infrared 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.
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 chem-
istry and computer-aided biochemistry.
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.
Control mechanisms operating in living organisms. Steroid and trophic
hormone effects. Their target tissues and activities at the enzyme and
nucleic acid levels. Also includes amplification of signals through
receptors, types of receptors and synthetic analogues modifying the
signals. Abnormal hormone patterns and their relationship to disease
processes. The role of chemical analysis in the treatment and
diagnosis of disease.
Clinical biochemistry.
Organisation of clinical laboratories automation and quality control.
Computers in the clinical laboratory.

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 of the degree course in environmental health.
Students are introduced to research methods, both quantitative and
qualitative, in preparation for a major research project.

SC530 Properties of Colloids Eight hours per week in one semester
A core subject of the graduate diploma course in applied colloid
science.

SC531 Colloid Experimental Techniques Eight hours per week in one semester
A core subject of the graduate diploma course in applied colloid
science.

SC532 Emulsion Technology Eight hours per week in one semester
An elective subject in the graduate diploma course in applied colloid
science.

Faculty of Applied Science

SC509 Research Skills
A fourth year subject of the degree course in environmental health.
Students are introduced to research methods, both quantitative and
qualitative, in preparation for a major research project.

SC530 Properties of Colloids
A core subject of the graduate diploma course in applied colloid
science.

SC531 Colloid Experimental Techniques
A core subject of the graduate diploma course in applied colloid
science.

SC532 Emulsion Technology
An elective subject in the graduate diploma course in applied colloid
science.

Faculty of Applied Science
Practical work
Basic methods of emulsion preparation; the identification of emulsion type; particle size and viscosity of emulsions; assessment of stability; the effect of emulsifier type on interfacial tension and on the electrokinetic properties of emulsions; the design and preparation of emulsions in a specific area (e.g. microemulsions, cosmetic emulsions); foaming and antifoaming agents; minor project work.

SC533 Polymer Flocculation
Eight hours per week in one semester
An elective subject in the graduate diploma course in applied colloid science.

Principles

Applications
General principles of water treatment — selected case studies (e.g. iron removal, removal of emulsified oils). Floculation of clays, paint pigments, etc.

Practical work
Assessment of stability; methods for screening flocculants; effect of floculant dosage, type and molecular weight on floc formation; the co-operative effect of metal ions and polyelectrolytes; effect of PH on floculation; floc building; floculation and filtrability; analytical methods for determining low concentration of flocculants; minor project work.

SC534 Mineral Processing Chemistry
Eight hours per week in one semester
An elective subject in the graduate diploma course in applied colloid science.

Principles
Minerals analysis — XRF, XRF, electron microscope. Particle liberation — crushing, grinding, classifying (brief coverage of these areas). Mineral flotation — wetting, hydrophobicity. Activators, frothers, collectors and depressants — solution properties, behaviour. Flocculation of sulphides — semiconductor properties of the mineral; action of collectors and metal ions. Coal flotation. Flocculation of silicates, oxides, etc. Chemistry of mineral slurries. Floculation of minerals — selective floculation, fine particle recovery, etc.

Applications
Selected experiments in mineral analysis; particle size analysis; interfacial properties of minerals — zeta potential, surface charge; adsorption of collectors; contact angle and bubble pick-up techniques; flotation studies. — Hallimond tube, Fuerstenau cell, Vacuum flotation techniques; role of pH, Eₚ and metal ion concentration in flotation; selective floculation; selected case studies; minor project work.

SC535 Detergency
Eight hours per week in one semester
An elective subject in the graduate diploma course in applied colloid science.

Principles
The origin, manufacture, nature and use of detergents. The principal types of detergents, the role of additives, etc. Detergent action — adsorption at interfaces, wettabili ty and contact angles. Solution properties of detergents — micelle formation, phase diagrams, solubilisation, surface tension, etc. The differences in behaviour between cationic, anionic and non-ionic detergents. Methods of analysis (e.g. ranging from cloud point determination and two-phase titrations to infra-red and NMR analysis). Detergent biodegradability (brief treatment).

Applications
Detergent formulation for specific needs, e.g. softeners, conditioners, emulsification, etc. Particular case studies are dealt with here.

Practical work
The adsorption of detergents — degree of adsorption, effect on contact angle; effect on Zeta potential; solution properties of detergents — surface tension, critical micelle concentration, phase diagrams; detergent analysis — titrations, instrumental analysis; experiments on selected problems are e.g. removal of lanolin from wool, formulation of hair shampoos, etc.); minor project work.

SC536 Surface Coatings
Eight hours per week in one semester
An elective subject in the graduate diploma course in applied colloid science.

Principles

Applications
Selected case studies with a strong emphasis on tailoring a particular coating for a specific surface.

Practical work
The structure of silicone coatings and their correlation with wettability and adhesive strength; formulation of a simple paint; rheology properties; dispersion of pigments; preparation of resins; preparation and characterisation of latices; characterisation of coated surfaces (e.g. by electronmicroscope); minor project work.

SC537 Corrosion and Protection of Metals
Eight hours per week in one semester
An elective subject in the graduate diploma course in applied colloid science.

Principles
1. Equilibrium electrochemistry (brief treatment). Elementary aspects: redox reactions; electrochemical cells; Nerst equation; conventions. Thermodynamic effects: relationship between Eᵦ and equilibrium constant; effects of inert electrolytes, competing reactions and pH; Pourbaix diagrams; limitations in the use of the Nerst equation.

Applications
The complete corrosion cell. Corrosion current and factors affecting it — applications to protection and inhibition. Corrosion by pure water. Case studies drawn from the following areas are dealt with: corrosion by potable water and in the marine environment; corrosion in stream condensers: cathodic protection, sacrificial protection: metallic coatings; oxide protection; inorganic and organic protective coatings; dezincification of brass; materials of construction in a chemical plant; economic aspects in combating corrosion; minor project work.

Practical work
Measurement of equilibrium potentials, galvanopotentiostatic and potentiostatic techniques, practical experiments demonstrating inhibition, etc.

SC538 Adsorption of Aqueous Pollutants
Eight hours per week in one semester
An elective subject in the graduate diploma course in applied colloid science.

An overview of forces involved in adsorption from solution. Examples of uptake onto colloidal suspensions of toxic material such as heavy metals, anions, organics and polymers. Industrial significance of adsorption from solution and its implications for wastewater treatment. Practical aspects of adsorption phenomena, including experimental design.


An overview of wastewater treatment. The role of adsorption and other colloidal phenomena in wastewater treatment.
SC541 Microbiology
Three hours of theory per week for one semester
A subject of semester two of the graduate diploma course in industrial microbiology.
Introduction to microbiology: eukaryotic and prokaryotic microbes; algae, protozoa, fungi, bacteria, cyanobacteria. Microbial anatomy — introductory biochemistry of microbes. Microbial growth and control of microbial growth, including sterilisation and disinfection.

SC543 Microbiology
Three hours of theory per week for one semester
A subject of semester two of the graduate diploma course in industrial microbiology.
Identification of industrially imported microorganisms; microbial metabolism; fermentation, computer-controlled 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.
The practical work complements the theory and develops the skills of students in the handling of microorganisms.

SC545 Microbiology
Three hours of theory per week for one semester
A subject of semester three of the graduate diploma course in industrial microbiology.
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.
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.
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.

Applied Organic Chemistry

Faculty of Applied Science
SC567 Environmental Health (2)  
Three hours per week for one semester  
A fourth year subject of the degree course in environmental health.  
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.

SC568 Applied Food Science and Inspection  
Five hours per week for one semester  
A fourth year subject of the degree course in environmental health.  
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.  
Basic ecology: components of ecosystems, definitions, pathways for energy and materials in the biosphere, interactions among species, nutrient cycles and balances.  
Recycling. Assessment of environmental impact.  
Current issues: acid rain, greenhouse effect, ozone depletion, power generation and transmission.

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.  
Electrochemistry: fundamentals.

Liquid surfaces: surface chemistry and thermodynamics.  

SC580 Practical Chemistry  
Three hours per week in semester seven  
A fourth-year subject in the degree course in computer-aided biochemistry.  
Selected experiments in electrochemistry and surface chemistry.  
Qualitative and quantitative analysis of an unknown liquid mixture using distillation, chemical tests, physical measurements, an infra-red spectrometer, an NMR spectrometer, a mass spectrometer and a gas chromatograph.  
Selected experiments in electrochemistry and surface chemistry.  
Qualitative and quantitative analysis of an unknown liquid mixture using distillation, chemical tests, physical measurements, an infrared spectrometer, an NMR spectrometer, a mass spectrometer and a gas chromatograph.

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.  
Topics will be selected from the following list:  
1. Laboratory data handling  
2. Data bases  
3. Communications  
4. Laboratory automation  
5. Smart programs  
6. Chemometrics  
7. Molecular modelling

SC604 Biotechnology  
Three hours per week in semester eight  
A fourth-year subject in the degree course in computer-aided biochemistry.  
b) Fermentation technology, chemical requirements for growth and growth kinetics Batch, fed batch.  
Recombinant DNA technology. Aeration and oxygen transfer. Control of fermentation.  
c) Yeast technology: fermentations involving Saccharomyces cerevisiae in the production of alcohol, wines and beers.  
Descriptive include processing of harvesting materials, fermentation, biochemical reactions and enzymes. Variation in patterns and metabolism of enzymes in anaerobic and aerobic fermentations. Penicillin and cephalosporin production as examples of secondary metabolism in Penicillium chrysogenum and Cephalosporium acremonium.  
d) Enzyme technology. Industrial enzymes: sources, methods of production and industrial uses of a range of selected enzymes.  
Immobilised enzymes: cells, organelles and co-enzymes. Methods of immobilisation. Typical supports. Spacer groups. Practical applications of immobilised enzymes, cells and organelles in:  
— dairy, detergent, food and leather industries;  
— biochemical analysis;  
— clinical and pharmaceutical Industries.  
Protein engineering.  
f) Downstream processing: a qualitative consideration of the factors and problems involved in translating laboratory findings into pilot plant and finally production plant stages. Factors involved in scale-up to include environmental control factors, mixing relationships, power input, momentum factors, impeller speeds and volumetric 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 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.  

SC609 Health Promotion  
Two hours per week for one semester  
A fourth-year subject of the degree course in environmental health.  
The course begins by reviewing key concepts and strategies in community health: early identification, treatment, disease prevention, health promotion.  
After considering significant historical developments in the area of health education, the following topics will be treated:  
— social, cultural and psychological factors involved in health promotion and disease prevention behaviours;  
— health 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;  
— needs assessment techniques;  
— program evaluation strategies, performance indicators
SC653 Process Chemistry
Five hours per week in semester eight
A fourth-year subject in the degree course in computer-aided chemistry.
Extraction of metals: free energy relationships applied to metal extraction, thermodynamic basis of free energy relationships, Pyrometallurgy and processes for the extraction of metals from ores. Explanation of various aspects of these processes in terms of free energy relationships.

SC660 Practical Chemistry
Seven hours per week in semester eight
A fourth-year subject in the degree course in computer-aided chemistry.
Further analysis of the unknown solid using an infra-red spectrometer, an NMR spectrometer and a UV/visible spectrometer. Further analysis using an infra-red data station. Project.
Analysis of an unknown solid using an X-ray diffractometer, analysis of a food sample using an atomic absorption spectrometer with emission source and effect of pollution with regard to natural ecosystems and human health. Disposal of domestic and industrial wastes, including microbiological bases: physico-chemical and other methods. Hazardous and intractable wastes.

SC661 Environmental Analysis and Control
Four hours per week for one semester
A fourth-year subject in the degree course in environmental health.
Sampling and analysis of air, water, solids.
Analysis — review of analytical methods as applied to environmental analysis — techniques based on separation — techniques based on spectrophotometric properties — techniques based on spectrochemical properties. Use or process flow diagram.
Simple process calculations (stoichiometry, combustion, heat and mass balances).
Disposal and dispersal of effluents — stack heights, etc.
Case studies on industries of interest.

SC662 Analytical Biochemistry
Two hours per week in semester eight
A fourth-year subject in the degree course in computer-aided biochemistry.
Radioscopate methods. Immunohematology 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.
Experiments involving immunological assays. Exercises in clinical biochemistry.
Research Project.

SC667 Environmental Health Practice (3)
Two hours per week in one semester
A fourth subject in the degree course in environmental health.

SC668 Research Project
Eight hours per week for one semester
A fourth-year subject in the degree course in environmental health.
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.
Ion exchange and solvent extraction: principles and applications in industrial, laboratory and biochemical situations.

SC680 Practical Chemistry
Three hours per week in semester eight
A fourth-year subject in the degree course in computer-aided biochemistry.

SC707 Scientific Communication 7
One hour per week in semester 7
Training and practice in the presentation of oral reports on industry based learning 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.

SC710 Dispersion Forces and Thin Films
Two hours per week for one semester
A subject of the masters course in applied colloid science.

SC714 Biophysical Aspects of Materials
Four hours per week in one semester
A subject in the degree course in environmental health.

Faculty of Applied Science
SC711 E.D.L., Steric and Polymer Theory
Two hours per week for one semester

A subject of the masters course in applied colloid science.

Electrical double layer theory
Review of Gouy-Chapman-Stern-Grahame models including the concept of inner and outer £3. OTZ doublets, and in experimental evidence from the merron-solution interface. Discussion of solvation theory. Use of computer to simulate solvation of polymeric and polymer latices. Adsorption of small ions at interfaces.

Steric stabilisation and polymer theory

SC713 Colloid Interaction Theory
Two hours per week for one semester

A subject of the masters course in applied colloid science.

Interaction theory
Calculation of free energy of interaction for the cases of: constant charge, constant potential, constant charge and potential. Calculation of forces of interaction.

Concentrated dispersions
Fundamental considerations: radial distribution function, g(r); relationship between g(r) and S(Q); potential of mean force and link to g(r); interaction free energy; interaction between solute and solvent; calculation of equilibrium thermodynamics properties from g(r) by exact and approximate techniques. Analysis of experimental systems — order-disorder phenomena.

Scattering of electromagnetic radiation
Extension of the classical limit average theories of light scattering to electromagnetic radiation, including Rayleigh, Mie, and Raman scattering. Application to concentrated colloidal systems, e.g. microemulsions, latices and pigment dispersions. (Note: Q is the scattering vector.)

SC714 Research Project
A subject of the masters course in applied colloid science.

A research project will be undertaken which results in a minor thesis. The project topic will follow detailed discussion between each candidate and supervisor. The project will run for the duration of the course.

SC715 Adsorption and Waste Treatment
Two hours per week in one semester

A subject of the masters course in applied colloid science.

The role of electrostatic and solvation forces involved in adsorption from solution. The concept of structure makers and structure breakers. Examples of uptake onto colloidal suspensions of toxic material such as heavy metals, anions, organics and polymers.

Forces involved in steric stabilisation and polymer flocculation. Interaction free energy, solvency and solution theory. Thermodynamics of polymers in solution and adsorbed onto colloidal particles.

An overview of wastewater treatment. The role of adsorption and other colloidal phenomena in wastewater treatment. Theory of clean-up techniques, e.g. alum flocculation, biological treatment of waste, cellular foam microbial degradation and adsorbing colloid flotation.

SC720 Applied Chemical Techniques
Four hours per week for one semester

A subject in the graduate diploma in industrial chemistry.

A selection of topics from the following:
- Chromatography: GC and HPLC
- Spectroscopy: IR, UV/Visible, atomic and NMR
- Mass spectrometry and X-ray methods
- Electrochemistry
- Liquid surfaces
- Chemical and automatic analysers
- Chemical data processing: software packages, data stations, laboratory automation

SC721 Properties of Colloids and Interfaces
Four hours per week for one semester

A subject in the graduate diploma in industrial chemistry.


Throughout the lecture course, strong emphasis is given to applying the basic concepts and principles to practical examples of the uses of colloids.

SC722 Food Chemistry
Two hours per week for one semester

A subject in the graduate diploma in Industrial chemistry.

Food processing
Introduction to processes used in the food industries for the preparation and processing of foods. Problems or potential problems associated with those processes that have implications for community health.

Food chemistry
Techniques used in the determination of the amounts of carbohydrate, protein and lipid in foods. Determination of the water content of foods. Determination of the calorie or joule contents of foods. Other manual and instrumental techniques used in food analysis (e.g., determination of sulphur dioxide, pesticide residues, etc.). Chemistry additives to foods will be considered under the following headings: chemical classes of food additives, historical aspects, permitted compounds, reasons for use, function, advantages, disadvantages, breakdown pathways, toxicity testing regulations controlling use.

Classes of chemical additives to be considered will include the following: preservatives, antioxidants, flavouring compounds, colouring compounds, sweetening agents, flavour enhancers, nutrients, emulsifiers.

SC723 Industrial Chemistry
Four hours per week for one semester

A subject in the graduate diploma in industrial chemistry.

Introduction to chemical processing
Flow diagrams, fluid flow, heat transfer, equilibrium constant, mass balance, energy balance, separation processes, process analysis, process control, example case study.

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 microbiological bases: physico-chemical and other methods. Hazardous and intractable wastes.

Students will also work in groups and each group will prepare a talk and written report on a selected process. A visit to a suitable industrial process will be included.
SC724  Polymer Chemistry
Four hours per week of lectures/tutorials/practical work.
A subject in the graduate diploma in industrial chemistry.
Principles of macromolecular chemistry
Surface coatings
Applications of protective organic surface coatings; non-convertible and convertible surface coatings, their chemistry and properties.
Practical polymer chemistry.

SC725  Practical Chemistry
Four hours per week of practical work
A subject in the graduate diploma in industrial chemistry.
A selection of experiments and projects in the areas covered in the following theory topics:
— applied chemistry techniques
— colloids
— food chemistry

SC726  Advanced Biochemistry
Two hours per week of lectures/tutorials
A subject in the graduate diploma in industrial chemistry.
For mechanisms in living organisms: Review of the mechanisms which operate in the whole organisms to maintain metabolic functions. Includes steroid and thyroid hormone effects, their target tissues and activities at the enzyme and nuclear acid levels. Also includes amplification of signals through receptors and synthetic analogues which modify signals. Applications to clinical chemistry and chemical pathology.

SC727  Biochemical Techniques
Three hours per week of lectures/tutorials
A subject in the graduate diploma in industrial chemistry.
Protein chemistry
Determination of secondary and tertiary structure. Use of antibodies and other chemical probes for determination of surface structure.
Techniques of molecular biology

SC729  Industrial Microbiology
Four hours per week of lectures and practical work
A subject in the graduate diploma in industrial chemistry.
Microbial growth and metabolism
Biochemistry of micro-organisms: metabolism — catabolic and anabolic metabolism; DNA and protein synthesis.
Metabolic control.
Microbial genetics and biotechnology
Genetics of prokaryotic micro-organisms.
Genetics of euukaryotic micro-organisms.
Plasmids.
Viral genetics.
Lytic cycle and lysogenic cycle in viruses.
Mutations and mutagenesis.
Genetic engineering: recombinant DNA technology; principles, applications and implications; containment requirements.
Microbial enzyme production. Uses in industry.
Immobilised enzyme technology.
Microbiology of foods: food production, contamination, poisoning, Wastewater treatment.
Micro-organisms and minerals recovery.
Micro-organisms and products of industrial importance.

SC730  Microbiology
Four hours per week of lectures and practical work
A subject in the graduate diploma in industrial chemistry.

SC731  Practical Biochemistry
Six hours per week of practical work
A subject in the graduate diploma in industrial chemistry.
The practical work covers a range of laboratory exercises and common techniques used in biochemical and biotechnological laboratories. These techniques include estimation of disulphide and thiol groups in proteins, fluorescence spectroscopy, affinity chromatography, fractionation using ultra centrifugation, antibody labelling techniques, gel electrophoresis and enzyme kinetics.

SC732  Practical Work
Four hours per week of practical work
A subject in the graduate diploma in industrial chemistry.
A selection of experiments and projects relevant to the needs of industry.

SC808  Scientific Communication 8
One hour per week in semester 8
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.

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 Waal's.
- Stoichiometry: mass-mass; mass-volume; volume-volume and redox calculations.
- Thermochemistry; rates of chemical reactions.
- Equilibria: acid-base, solubility, complexation, speciation.
- Practical work: Chemical reactions, titrations, pH measurement. Equilibria.

Semester Two:
- Organic chemistry: alkanes, alkenes, alkynes; benzene and derivatives; alcohols, aldehydes, carboxylic acids; ethers; amines, amides, IUPAC nomenclature; polymers. Chemistry of living cells; cellular homeostasis; major organic groupings in tissues biologically useful energy and ATP.
- Protein structure and function; relation to catalysis, transport, pumping.
- Membrane structure and function; membrane potentials; impulse transmission. Generation of ATP; glycolytic pathway; anaerobic ATP generation; Krebs' cycle; fatty acid oxidation; electron transport; 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.
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 Waal's.
- Stoichiometry: mass-mass; mass-volume; volume-volume and redox calculations.
- Thermochemistry; rates of chemical reactions.
- Equilibria: acid-base, redox, 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.
Food processing introduction to process used in the food industry for the preparation and processing of foods. Subject potential problems associated with those processes that have implications for community health.
- Food chemistry: techniques used in the determination of the amounts of carbohydrate, protein and lipid in foods. Determination of the amounts of micronutrients in foods. Methods used for determining the water content of foods. Determination of the calorie or joule contents of foods. Other manual and instrumental techniques used in food analysis (e.g., determination of sulphur dioxide, pesticide residues, etc.). Chemical additives to food will be considered under the following headings: chemical classes of food additives, historical aspects, permitted compounds, reasons for use, function, advantages, disadvantages, breakdown pathways, toxicity testing, regulations controlling use.
- Classes of chemical additives to be considered will include the following: preservatives, antioxidants, flavouring compounds, colouring compounds, sweetening agents, flavour enhancers, nutrients, emulsifiers.
- Practical work: Experiments in food analysis — 2 hours per week.

SK104 Computer Science 1A
Five hours per week for one semester.
A first-year subject of the degree course in computing.
- Computer organisation; hardware configuration; operating systems.
- Programming methodology in Ada; specification; problem solving.
- Top-down and bottom-up methods; selection and iteration.
- Data types; procedural abstraction; program style.

SK105 Computer Science 1B
Three hours per week for one semester.
A first-year subject of the degree course in computer science and mathematics and computer science.

SK149 Software Practice 1
Six hours per week in semester one, followed by four hours per week in semester two.
A first-year subject of the degree course in computer science.
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.

SK190 Computer Science 1 (Chemistry)
Five hours per week for one semester.
A first-year subject of the degree courses in computer-aided chemistry and biochemistry and medical biophysics and instrumentation.
Programming in BASIC
A comprehensive study of a reasonably advanced version of BASIC (example Turbo BASIC) including array and file handling. Problem solving skills.

SK204 Computer Science 2
Eight hours per week for one semester.
Prerequisite: SK104
A first-year subject of the degree course in computing.
- Advanced Programming: dynamic data structures; packages; abstract data types; generics; I/O models; exception handling.
- Introduction to relational databases — normalisation; SQL; introduction to database design.
- Format Specifications and Logic: set theory; propositional and predicate calculus; use of mathematics to specify programs; the Z specification language.

SK210 Applied Computing Methods
Two hours per week for one semester.
A first-year subject of the degree course in environmental health.
Software tools: an introduction to the main software tools and software used by environmental health specialists — job command languages, word processors, spreadsheets, databases, etc.
Computer software: an introduction to the use of Microsoft works.
Computer hardware: an introduction to micro-mini computer hardware architecture including peripheral devices, communications, sub-systems and current technology, I/O systems (graphics, OCR).

SK290 Computing
Four hours per week for one semester.
Assessment by examination and assignments.
A first-year subject for students completing the Psychophysiology major in Applied Science.
- Introduction to the personal computer; introduction to programming (e.g., BASIC or PASCAL).
SK341 Data Structures and Algorithms
Three hours per week for one semester
A second-year subject of the degree course in computer science, mathematics and computer science, and instrumentation and computer science.

SK342 UNIX/C
Three hours per week for one semester
A second-year subject in the degree courses in computer science, mathematics and computer science, and instrumentation and computer science.

SK349 Software Practice 2
Six hours per week for two semesters
A second-year subject of the degree course in computer science.

SK351 Systems Analysis
Two hours per week for one semester
A second-year subject of the degree course in computer science.

SK352 Human-Computer Interface
Two hours per week for one semester
A second-year subject of the degree course in computer science.

SK353 Data Base
Three hours per week for one semester
A second-year subject of the degree course in computer science.

SK441 Artificial Intelligence A
Four hours per week for one semester
A second-year subject in the degree course in computer science.

SK442 Artificial Intelligence Project
A second-year subject of the degree course in computer science (double major).
The completion of a project, generally related to the topics of SK441, using the basic concepts of AI research.

SK451 Software Engineering A
Three hours per week for one semester
A second-year subject of the degree course in computing and instrumentation, maths and computer science, and computer science.

SK452 Commercial Systems
Three hours per week for one semester
A second-year subject of the degree course in computer science.

SK453 COBOL Programming
Two hours per week for one semester
A second-year subject of the degree course in computer science.

SK471 Computer Architecture A
Two hours per week for one semester
A second-year subject of the degree course in computer science.

SK504 Computer Science 5
Nine hours per week for one semester
A final-year subject of the degree courses in mathematics and computer science, and computer science.

SK541 Computer Organisation B
Two hours per week for one semester
A fourth-year subject in the degree course in computer science.

SK542 Computer Graphics A
Three hours per week for one semester
A final-year subject of the degree courses in computer science.

SK543 Concurrent Programming
Three hours per week for one semester
A fourth-year subject of the degree courses in computer science.

SK549 Software Practice 3
Six hours per week in semester seven, followed by nine hours per week in semester eight
A fourth-year subject of the degree course in computer science.

Faculty of Applied Science

Programme in Computer Science

- Artificial Intelligence
- Software Engineering
- Commercial Systems
- COBOL Programming
- Computer Architecture
- Computer Organisation
- Computer Graphics
- Concurrent Programming
- Software Practice
SK551 Software Engineering B
Three hours per week for one semester
A third-year subject of the degree course in computer science. A fourth-year subject of the degree course in computer science.
Assessment is by tests and assignments.
This subject consists of lectures and tutorials studying software engineering principles and goals using Object Oriented techniques.
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.

SK552 Computing in the Human Context
Two hours per week for one semester
A fourth-year subject of the degree course in computer science. Computing in the Human Context: an exploration of social and organisational issues and their relationship with the computing professional.

SK553 Computer Architecture B
Three hours per week for one semester
A fourth-year subject of the degree course in computer science. Computer Architecture B: a study is made of 32-bit microcomputer based systems. It provides an in-depth examination of typical 32-bit processors and examines the factors in designing systems using such processors.

SK554 Translator Engineering
Three hours per week for one semester
A third-year subject of the degree course in mathematics and computer science.
Translator Engineering: an introduction to translation: introduction to formal language theory, finite automata, lexical analysis, and the parsing problem.

SK601 Trends in Computing
Thirty hours in one semester
A fourth-year subject of the degree course for students majoring in medical biophysics and instrumentation.
A study of some of the recent developments in the application of computer science to the software/hardware interface. Topics will be selected from the current literature and will include selections from secure data communications and data encryption, software tools supporting electronic circuit design such as silicon compilers, graphical schematic data capture, circuit simulation, the programming of programmable logic arrays and of parallel computers.

SK604 Computer Science 6
Nine hours per week for one semester
A final-year subject of the degree courses in mathematics and computer science and computing and instrumentation.
This subject is optional and will consist of a selection of units at the discretion of the Computer Science staff.

SK641 Data Communications
Three hours per week for one semester
A fourth-year subject of the degree courses in computer science and mathematics and computer science and computing and instrumentation.
An introduction to the terms and techniques used for computer-to-computer communication. Data link controls, physical aspects and terminal based networks are covered. Distributed computer systems; the electrical interference; local area networks; computer networks; OSI — Open system interconnect.

SK642 Artificial Intelligence B
Seven hours per week for one semester
A fourth-year subject of the degree course in computer science.
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.

SK643 Computer Graphics B
Four hours per week for one semester
A fourth-year subject of the degree course in computer science. A subject of the graduate diploma of applied science (computer science).
Computer Graphics B: basic 3-D graphics; drawing; projections; colour; theory; lighting models, ray-tracing; radiosity; data representation; animation.

SK651 Computer Architecture C
Two hours per week for one semester
A fourth-year subject of the degree course in computing and instrumentation.
Computer Architecture C: A study is made of 32-bit micro-computer based systems in this unit. It provides an in-depth examination of typical 32-bit microprocessors and examines the factors in designing systems using such processors.

SK661 Operating Systems
Two hours per week for one semester
A fourth-year subject of the degree course in computing and instrumentation.
This unit makes an in-depth study of one or more operating systems such as UNIX. The objective is to investigate the structure of real operating systems and the effect the structure has on programming in the operating systems environment.

SK662 Systems Programming
Two hours per week for one semester
A fourth-year subject of the degree course in computing and instrumentation.
This unit examines the software appropriate to systems programming as distinguished from applications software such as operating system commands, compilers, file management systems, security and user management. Case studies are drawn from a particular operating system such as UNIX where it is possible for students to access the source code and alter parameters of the operating systems.

SK702 Selections from Computer Science
Fifty-six hours in one semester
A subject of the graduate diploma of applied science (computer science).
This unit introduces students to the current trends in computer science. It is designed to be useful as a bridging unit or to allow more experienced students to explore areas of computer science which they have not covered in their undergraduate courses. Topics will be selected from the following list:
1. Functional Programming
2. Artificial Intelligence
3. Computer Communications
4. Secure Data Exchange
5. Computer Architecture

SK704 Software Engineering
Fifty-six hours in one semester
A subject of the graduate diploma of applied science (computer science).
A study of the problems confronting the software engineer in the development of modern computer software:
- Software evolution models and lifecycles;
- Requirement Analysis;
- Software Design;
- Implementation, testing and installation;
- Documentation standards;
- Workbench technologies.
SK705  Systems Programming
Fifty-six hours in one semester
A subject of the graduate diploma of applied science (computer science).
Introduction to the C programming language and UNIX operating system.
Language overview, major control structures, data structures, pre-processor commands, UNIX system interface and standard C libraries. Low level I/O function calls, the stat structure and stat function calls. Process control within UNIX. An overview of operating system. Shell programming basics, environment inheritance and the differences between the Bourne and Korn shells UNIX control of the solving algorithms;
- programming for artificial intelligence
- A subject of the graduate diploma of applied science (computer science).
SK708  Database Design and Implementation
Fifty-six hours in one semester
A subject of the graduate diploma of applied science (computer science).
A study of database design methods, internal storage management, mapping from the conceptual to the internal domain, query languages. A study in depth of a number of current database management systems for small to large scale applications will be made.
SK709  Introduction to Artificial Intelligence
Fifty-six hours in one semester
A subject of the graduate diploma of applied science (computer science).
The course will consider the central problems in the field of artificial intelligence and the concepts, tools and techniques used to solve them. Topics will be chosen from the following list:
- programming for artificial intelligence
- knowledge representation;
- solving problems by decomposition, search, etc.;
- control of the solving algorithms;
- logical inference.
SK710  Software Development Project
Fifty-six hours per semester for two semesters
A subject of the graduate diploma of applied science (computer science).
A series of lectures on software project management techniques will be given. The student’s major project will be started as early as possible in the course and will be on an approved topic, preferably industrially-based. The project will be completed in semester four and presented to the class and the assessment panel.
SK802  Expert Systems Programming
Fifty-six hours in one semester
A subject of the master of information technology. Expert systems design. Construction of shells; available tools; efficiency considerations.
SK803  Database Technology
Fifty-six hours in one semester
A subject of the master of information technology. Semantic databases; data models; E-R, RM/6, deductive databases, knowledge based databases, discourse understanding, natural language semantics.
SK805  Advanced Software Engineering
Fifty-six hours in one semester
A subject of the master of information technology.
Currently the emphasis is on object-oriented analysis, design and programming methodologies.
SK806  Machine Learning
Fifty-six hours in one semester
A subject of the master of information technology.
An adaptation of the symbolic and procedural (artificial neural nets) research to the production of expert systems and cognitive modelling.
SK807  System Analysis and Design Methodology
Fifty-six hours in one semester
A subject of the master of information technology.
The origins of systems methodologies: systems paradigm-based approaches (SSM); science paradigm-based approaches (SSADM); hybrid approaches (Multiview); frame work for evaluating methodologies.
SK808  Human Computer Interaction
Fifty-six hours in one semester
A subject of the master of information technology.
Study of formal, cognitive and usability approaches to developing effective human-computer interaction. Consideration is given to recent advances in both the technology and methodology of HCI and its theoretical underpinnings.
SK812  Project and Thesis
Two hundred and twenty-four hours over two semesters
A subject of the master of information technology. Students will devote two semesters of the course to a major project requiring the exercise of advanced research and development skills.
SM106  Mathematics
Three hours per week for one semester
A first-year subject in the degree course in psychology and psychophysiology.
Functions and graphs
Basic functions: 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 trigonometric functions. Logarithms. Inverse trigonometric functions. Other functions: the function f = 1/x. Limits and continuity, Quotients of polynomials. Asymptotes.
Differentiation
Integration
Integrals as limits of sums. Evaluating integrals of basic functions. Substitution methods. Integration by parts. First-order ordinary differential equations
Variables separable. Linear.
Matrices
Vectors
Components, addition, unit vector, position vectors. Scalar and vector products.
SM108 Mathematical Methods

A first-year subject of the degree course in computer-aided chemistry and computer-aided biochemistry.

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

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 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.

SM110 Mathematical Methods

A first-year subject of the degree course in environmental health.

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


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.

SM214 Mathematical Methods

A first-year subject of the degree courses in computer-aided chemistry and computer-aided biochemistry.

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 this subject.

SM127 Mathematics 1

A first-year subject of the degree course in computer science, and in mathematics and computer science.

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 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.

SM126 Applied Statistics 1

Two hours per week for one semester

Assessment by test, examination and assignments

A first-year subject of the degree course in mathematics in computer science.

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.
Regression and correlation
Scatterplots, the Pearson correlation coefficient, and linear least squares regression for one predictor. Applications to analytical chemistry.

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.

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 variable problems; sensitivity analysis; transportation problems; assignment problems. O R L.

Inventory control
Inventory systems: economic order quantity; backorders; continuous replenishment; quantity discount; safety stock under uncertainty.

Workshops
Introduction to problem solving and mathematical modelling. Report presentation: tabulation; graphical presentation of data.

SM226 Applied Statistics 2
Two hours per week for one semester
Assessment by tests/assignment and examinations

A first-year subject of the degree course in mathematics and computer science.

Applications of statistical methods
Continuous probability distributions, including exponential and normal; expected values of continuous random variables; applications.

Statistical inference
Drawing random samples from finite and infinite populations. The sampling distributions t 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/assignment and examinations

A first-year subject of the degree course in mathematics and computer science.

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 co-ordinates
Definitions: graphs of equations; transformation to and from Cartesian co-ordinates; 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 three variables: partial differentiation and applications; directional derivatives and gradients; tangent planes to surfaces; differentials and approximations; optimisation and applications.

SM240 Applied Statistics and Linear Algebra
Three hours per week for one semester

A first-year subject of the degree course in computer science.

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
Assessment by assignment and examination

A second-year subject of the degree course in mathematics and computer science.

Network analysis
Introduction; history; areas of application; network construction; event time and activity time analysis — slacks and floats; cost analysis; monitoring and control; resource allocation; alternative forms of networks; problems of data collection; practical applications.

Simulation
General philosophy; model construction; generation of random variables; validation of simulation output; sensitivity analysis; variance reduction techniques; applications 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 methods of time series forecasting.

SM326 Applied Statistics 3
Two hours per week for one semester
Assessment by tests/assignment and examinations

A second-year subject of the degree course in mathematics and computer science.

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
Assessment by tests/examination and assignments
A second-year subject of the degree course in mathematics and computer science.

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
Three hours per week for one semester
Assessment by tests, assignments, oral presentations and participation in tutorial classes and project teams.
A second-year subject of the degree course in mathematics and computer science.

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, barcharts, 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, expansion; extreme points and Hessian. Implicit function theorem. In addition, they will be expected to obtain formal approval for the work that they are undertaking from the appropriate staff member. In short, expansion; extreme points and Hessian. Implicit function theorem.

SM425 Operations Research 4
Four hours per week for one semester
Assessment by assignment, oral presentation and examination
A second-year subject of the degree course in mathematics and computer science.

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 optimal values; types of solutions; non-linear optimisation; unconstrained optimisation; constrained optimisation; method of Lagrange multipliers; Kuhn-Tucker theorem; numerical techniques: search gradients; quasi-Newton; penalty functions; sensitivity analysis. Markov chains and queuing theory.

Definitions of stochastic processes, Markov chains: transition matrix; steady state; absorbing chains; applications in decision-making. Queuing theory: transient and steady state; general Markov model (birth-death queuing models); Little's formula; single server; multiple server; queue; general population, general service rate capacity, limited population capacity, limited service rate capacity; network of queues; application of simulation in queuing systems; practical applications; use of a computer package.

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 semester 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.

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

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.

Multidimensional space
Real n-dimensional space; subspaces, hyperplanes and convex sets. Linear product: resolution; distance between points; open, closed, bounded sets; limits of sequences. Functions, limits and continuity.

Linear functions
Many forms 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
Two 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.

Applied research/project management
Further topics in the theory and practice of project management: decision-making; types of decisions; how to make decisions. Guest speakers from industry may be used. Tutorial classes are based on further experiential exercises in organisational behaviour following on from Project Management A.

Introduction to marketing
Students, typically working in groups, prepare and present a marketing strategy for a nominated player in a specific market.
SM519 Mathematical Methods

Three hours per week for one semester

Prerequisite: SM3400 or SM3415

Assessment by test/examination and assignments

A fourth-year subject of the degree course in mathematics and computer science.

Complex Analysis

Algebra and geometry of complex numbers, functions of a complex variable, Cauchy-Riemann equations, Cauchy's integral and residue theorems. Evaluation of real definite integrals.

Calculus of variations

Simple variational principles, Euler-Lagrange equation, with applications.

Orthogonal functions

Properties and applications.

Stochastic processes


Prescribed text


SM525 Operations Research 5

Four hours per week for one semester

Assessment by examination, assignment, oral presentation and project reports.

A third-year subject of the degree course in mathematics and computer science.

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 ARMA 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; or 1 cash flow, linear programming; corporate selling, computer approach; how models are acquired; broad guidelines of development; cost of development; preparing business plans; factors costs depend on; conditions for successful development; case studies. Use of computer packages such as FORESIGHT, Lotus.

Industrial project

The students, working in a group and supervised by a staff member who will act as team leader, normally undertake a consultancy project for organisations outside the institute (e.g. hospitals, industry, state bodies, etc.). Each group is expected to present planned progress reports on their project. At the conclusion of the project both oral and written reports are given to the clients.

SM526 Applied Statistics 5

Three hours per week for one semester

Assessment by test/examination and assignments

A third-year subject of the degree course in mathematics and computer science.

Sampling methods for Sample Surveys

The basic designs for sample surveys: simple random sampling, stratified sampling, systematic sampling and cluster sampling. Estimators for means, totals and proportions; variance estimation. The design effect; sample size determination; EPSEM samples. Practical issues and methods: questionnaire design, pilot surveys; mail, interviewer-based and telephone surveys.

Introduction to multivariate methods

An informal introduction to sampling from multivariate populations. The variance-covariance matrix, the multivariate normal distribution, multivariate means, Hotelling’s T² statistic, the multivariate analysis of variance. Wilk’s lambda.

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 their 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 or research based project.

SM625 Operations Research 6

Five hours per week for one semester

Assessment by examination, assignment, oral presentation and project reports

A four-year subject of the degree course in mathematics and computer science.

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 theory

Relevant cost in replacement models; cost equation; discount cash flow; item replacement; item that fail, mortality; 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 n/m shop-problems; applications; working with computer packages such as SAS/IT.

Mathematical programming

Branch and bound algorithm; applications in integer programming; other optimisation techniques such as separable and quadratic programming and heuristics may be discussed; industrial applications; use of computer packages.

Industrial project

The students, working in groups and supervised by a staff member who will act as team leader, normally undertake a consultative project for organisations outside the institute (e.g. hospitals, industry, state bodies, etc.). Each group is expected to present planned progress reports on their project. At the conclusion of the project both oral and written reports are given to the clients.

SM626 Applied Statistics 6

Three hours per week for one semester

Assessment by test/examination and assignments

A fourth-year subject of the degree course in mathematics and computer science.

Sample Surveys

Ratio estimation; sampling unequal clusters; PPS sampling, cluster homogeneity, weighting, non-sampling error.

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 analysis, econometric methods and design and analysis of experiments.

SM632 Social Change in the Modern World

Two hours per week

The course will consider the rapid pace of social change in modern industrial society. Attention will be given to the alterations which this brings about in patterns of culture, social structure and in social behaviour.
SM708 Industry Based Learning
A six-month period of industry based learning occurring as part of the
fourth year of the course leading to the degree of Bachelor of Applied
Science. Students are supervised by a member of the academic staff
and are required to submit a report to their employer and to their
supervisor.

SM721 Introduction to Operations Research
Four hours per week for one semester
A subject of semester 1 of the graduate diploma of applied science
(operations research)
The subject will cover operations research methodology and the inter-
disciplinary approach. In addition, the practical aspects of mathemat-
ical modelling will be illustrated by guest lecturers, society meetings,
case studies from the literature and practical exercises. Examples will
be drawn from traditional operations research techniques such as
simulation and mathematical information technology, as well as
modern developments in information technology such as decision
support systems and artificial intelligence.

SM722 Stochastic Methods in Operations Research 1
Four hours per week for one semester
A subject of semester 1 of the graduate diploma of applied science
(operations research)
Probability: laws of probability; conditional probability; random
variables and the basic probability distributions (geometric, binomial,
poisson, negative exponential, normal); expected values.
Statistics: description data analysis and presentation using summary
statistics and graphical methods. The basic methods of Exploratory
Data Analysis will be emphasised. The basic ideas of hypothesis
testing, including the sampling distributions.

SM723 Mathematical Programming
Four hours per week for one semester
A subject of semester 2 of the graduate diploma of applied science
(operations research)
Linear and integer programming: the simplex method and its variat-
ions, sensitivity analysis, transportation and assignment methods,
cutting plane techniques, branch and bound methods.
Dynamic programming: introduction to dynamic optimisation of deter-
nastic and stochastic models, recurrence relationships.
Mathematical optimisation: the non-linear programming, problem,
Karush-Kuhn-Tucker theorem, sensitivity analysis. Selected zero, first
and second order numerical techniques and the use of appropriate
software; applications in engineering and economics.

SM724 Stochastic Methods in Operations Research 2
Four hours per week for one semester
A subject of semester 2 of the graduate diploma of applied science
(operations research)
Design and analysis of experiments; an introduction to the basic ideas
development of experimental designs including factorial designs with interaction, the
analysis of variance.
Statistical modelling: univariate and multivariate linear models using
regression analysis; step-wise methods; the problems and pitfalls of
using regression analysis in practice.
Sample surveys: basic methods of survey design including stratified
sampling and cluster sampling, questionnaire design, survey and
census methods.
Computer packages such as Minitab, SAS and SPSS/CENSUS will be
used throughout the subject to apply the techniques to realistic OR
applications.

SM725 Project Management
Four hours per week for one semester
A subject of semester 3 of the graduate diploma of applied science
(operations research)
The activities involved in the management of projects: preparation of
proposals and reports; pre-feasibility and feasibility studies; forward
planning, detailed planning; project control, reporting; elements of
organisational theory and behaviour. Operations Research techniq-
ues such as critical path method and project evaluation and review
techniques will be introduced. Computer packages such as SASIOR,
NETCODE and Harvard Project Manager may be used.
Students will commence work on their major industrial project by pre-
paring proposals, pre-feasibility and feasibility studies. In this section
students will work in small groups under the limited supervision of a
member of staff. Additional projects may be used for practice at other
aspects of project management.

SM726 Operations Research in Industry 1
Four hours per week for one semester
A subject of semester 3 of the graduate diploma of applied science
(operations research)
Forecasting: an introduction to the philosophy of multi-line forecasting;
the AB/AC analysis of product lines; classical decomposition and
exponential smoothing as applied to stock movements, the aggrega-
tion of product data; the selection of forecasting packages to meet
the objectives of stock management.
Inventory models: Economic Order Quantity; inventory models under
uncertainty; purchasing models; techniques applicable to a manufact-
uring environment, such as MRP and Just In Time; computerised
inventory models will be discussed and some packages may be
introduced.
Distribution: Travelling Salesman problem; warehouse location; vehicle
fleet composition, inventory ramifications.

SM727 Operations Research in Industry 2
Four hours per week for one semester
A subject of semester 4 of the graduate diploma of applied science
(operations research)
Scheduling: the job-shop process; measures for schedule evaluation;
flow-shop scheduling; general nim job-shop problem.
Replacement theory: replacement of items that deteriorate;
preventative maintenance policies; group replacement policies; life
curves; conditional probability of failure.
Production planning: development of a production plan using sales
forecasts; evaluating resource requirements and resource availabil-
ities; the impact of inventory; cost minimisation.
Computer packages will be used where possible, for example in
computer simulation and interactive modelling.

SM728 Major Project
Four hours per week for one semester
A subject of semester 4 of the graduate diploma of applied science
(operations research)
Students, working in groups under the limited supervision of a member
of staff, will undertake a consultancy project for an industrial client.
Each group is expected to present progress reports on its project. At
the conclusion of the semester both oral and written reports will be
given to the client.

SM731 Introductory Methods
Four hours per week for one semester
A subject of the graduate diploma of applied science (social statistics)
This subject provides students with the basic statistical, quantitative
and computer skills to provide them with a sound foundation for the
remaining subjects in the course

SM732 Survey Research Methods
Four hours per week for one semester
A subject of the graduate diploma of applied science (social statistics)
The aim of this subject is to provide an overview of the methodologies
used in survey research. It will include topics chosen from sampling
methods, data collection methods, interviewing techniques, question-
aire design, data processing and social indicators
SM733 Demographic Techniques
Four hours per week for one semester
A subject of the graduate diploma of applied science (social statistics)
This subject aims to develop students' competence in the use of computer systems in order to use statistical, database and graphics packages. Packages included will be chosen from SPSS/PC+, LOTUS 1-2-3, MINITAB, and other relevant packages. A feature of this course will be the accessing of census data using compact disk technology.

SM734 Computer Packages 1
Four hours per week for one semester
A subject of the graduate diploma of applied science (social statistics)
This subject aims to develop students' competence in the use of computer systems in order to use statistical, database and graphics packages. Packages included will be chosen from SPSS/PC+, LOTUS 1-2-3, MINITAB, and other relevant packages. A feature of this course will be the accessing of census data using compact disk technology.

SM735 Survey Sampling
Four hours per week for one semester
A subject of the graduate diploma of applied science (social statistics)
This subject aims to develop students' competence in the use of computer systems in order to use statistical, database and graphics packages. Packages included will be chosen from SPSS/PC+, LOTUS 1-2-3, MINITAB, and other relevant packages. A feature of this course will be the accessing of census data using compact disk technology.

SM736 Computer Packages 2
Four hours per week for one semester
A subject of the graduate diploma of applied science (social statistics)
This subject aims to extend the work done in Computer Packages 1. Particular emphasis will be placed on the SAS system and dBASE. Graphics packages may be discussed.

SM737 Multivariate Analysis
Four hours per week for one semester
A subject of the graduate diploma of applied science (social statistics)
This subject aims to develop students' competence in the use of computer systems in order to use statistical, database and graphics packages. Packages included will be chosen from SPSS/PC+, LOTUS 1-2-3, MINITAB, and other relevant packages. A feature of this course will be the accessing of census data using compact disk technology.

SM738 Applied Project
Four hours per week for one semester
A subject of the graduate diploma of applied science (social statistics)
This subject takes as its aim to develop students' competence in the use of computer systems in order to use statistical, database and graphics packages. Packages included will be chosen from SPSS/PC+, LOTUS 1-2-3, MINITAB, and other relevant packages. A feature of this course will be the accessing of census data using compact disk technology.

SM1200 Mathematical Methods
Four hours per week for two semesters
A subject of the graduate diploma of applied science (social statistics)
This subject aims to develop students' competence in the use of computer systems in order to use statistical, database and graphics packages. Packages included will be chosen from SPSS/PC+, LOTUS 1-2-3, MINITAB, and other relevant packages. A feature of this course will be the accessing of census data using compact disk technology.

Faculty of Applied Science

SM1215 Mathematical Methods
Four hours per week for two semesters
A subject of the graduate diploma of applied science (social statistics)
This subject aims to develop students' competence in the use of computer systems in order to use statistical, database and graphics packages. Packages included will be chosen from SPSS/PC+, LOTUS 1-2-3, MINITAB, and other relevant packages. A feature of this course will be the accessing of census data using compact disk technology.
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 dispersion, measures of association.

Probability
Definitions and concepts of probability: calculation using addition and product rules; conditional probability and independence. Probability distributions: discrete variables, including binomial, Poisson and hypergeometric distributions; continuous variables, including normal distribution; mean and variance. Introduction to hypothesis tests and confidence intervals for means and correlation coefficients using the t distribution.

SM2100 Applied Statistics
Three hours per week for one semester
Assessment by test/examination and assignments
Three hours per week for one year
Assessment by test/examination and assignments

SM1200 Mathematical Methods
Three hours per week for one semester

SM3415 Mathematical Methods
Three hours per week for one year
Prescribed text: SM1200 or SM1215

Semesters 1 only

Linear algebra and vectors
Matrices and matrix algebra. Systems of linear equations: Gaussian elimination; procedures for numerical solution by direct or iterative methods, (Jacobi and Gauss-Seidel), transformation matrices.

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

Physics
Five hours per week for one semester
Assessment by practical work, assignments and examination
SP107  Physics
Nine hours per week for one semester
Assessment by practical work, assignments and examination

A first-year subject of the course in medical biophysics and computer-aided biochemistry taken by students who have not reached Year 12 Physics standard.

Motion and forces: relativistic kinematics and dynamics, rotational kinematics and dynamics, gravitation.

Thermal physics: thermometry, conduction, radiation, gas laws, kinetic theory, thermodynamics.

Optical systems: optical instruments, optics of human vision, polarized light, birefringence, optical communications, fibre optics.

Atomic and nuclear physics, photoelectric effect, photonelectron interactions, De Broglie waves, forces between nucleons, nuclear binding energy, radioactive decay, nuclear reactions.

DC circuits: electrical quantities and circuits, capacitance.


Electricity and Magnetism: charge, Coulomb’s Law, electromagnetic induction — Lenz and Faraday laws, cathode ray tube, potentialometer, basic circuits.

Light and waves: reflection, refraction, interference, electro-magnetic waves.

SP108  Physics
Five hours per week for one semester
Assessment by practical work, assignments and examination

A first-year subject of the degree course in computer-aided chemistry and computer-aided biochemistry taken by students who have not reached Year 12 physics standard.

Forces and Energy: kinematics, linear and circular dynamics, gravitation, kinetic theory, heat, basic thermodynamics.

Modern Physics: atomic structure, radioactivity, quantum theory, special relativity.

Electricity and Magnetism: magnetic and electric fields, Coulomb’s Law, electromagnetic induction — Lenz and Faraday laws, cathode ray tube, potentiometer, basic circuits.

Acoustics: S.H.M., damped and forced vibrations, wave motion, energy in waves, standing waves, sound beams, shock waves, intensity, sound levels, human ear, dBA scale, introduction to noise.

SP135  Monitoring Instrumentation
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.

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, microphone, loud speaker. Examples: measuring muscle strain, blood flow etc.

SP206  Instrumental Science
Two hours per week for one semester
Assessment by practical work and examination

An optional first-year subject of the degree course in computer-aided chemistry and computer-aided biochemistry.

An introduction to the principles of measurement and instrumentation.

Topics studied will include:
- further DC circuits;
- AC circuits;
- further optics — lenses, interference, diffraction etc.

SP211  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.

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, DC, meters, electromagnetic induction, Faraday’s Law, transformers.
- Acoustics: S.H.M., damped and forced vibrations, wave motion, energy in waves, standing waves, sound beams, shock waves, intensity, sound levels, human ear, dBA scale, introduction to noise.

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.

Topics studied will include:
- further DC circuits;
- AC circuits;
- further optics — lenses, interference, diffraction etc.

SP222  Industry Based Learning
A six-month period of work experience occurring as part of the second 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.

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: **SC108** Biology or equivalent  
Assessment by examination and assignments  
A first-year subject for students completing the Psychophysiology major.  
Excitable cells, origin of electrical signals.  
Basic measurement and instrumentation in monitoring physiological responses in psychology: electrodes, amplifiers, transducers, recorders, oscilloscopes, computers, calibration, interpretation.  
Nerve-muscle interactions: measurement/monitoring of EMG, ENG, nerve conduction velocity.  
Cardiorespiratory system: ECG, heart rate, blood pressure, blood flow, monitoring breathing.  
Autonomic Nervous system: GSR, EGG, skin temperature; measurement of stress. The lie detector.  
Biofeedback: theory, techniques, applications.  

SP309  **Physics 3**  
Four hours per week for one semester  
Assessment by examination  
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 - expectation values, operators, eigenvalues, Uncertainty principle, radiation-selection rules, many body quantum mechanics, Pauli exclusion principle, lasers and holography.  

SP310  **Analogue and Optical Techniques**  
Four hours per week for one semester  
Prerequisite: **SP210**  
Assessment by examination, laboratory tests and laboratory reports  
A second-year subject for students majoring in instrumentation.  
Properties and applications of lasers: sources and detection of optical radiation; electro, magneto and acousto-optical effects and their applications; fibre-optic sensors, types and properties of optical fibres, intensity, phase and frequency modulation in optical fibre sensors.  

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.  
Topics studied will include:  
- basic analogue electronics using diodes and operational amplifiers but no other 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.  
Electrode processes: half cell potentials, charge transfer overpotential, diffusion overpotential, impedence, 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, neuromathematics.  
Synaptic transmission: quantum nature of transmitter release, electrophysiological, electron microscopic and biochemical evidence, calcium activation, acetylcholine receptor, excitation and inhibition in the nervous system, postsynaptic inhibition, second messenger activation, trophic and tropic effects, classes of neurotransmitters, pathologies of synaptic transmission.  
Autonomic nervous system: structure and function, sympathetic and parasympathetic divisions, adrenergic and cholinergic synapses, muscle, adrenergic and beta receptors and their interactions:  
Muscle: ultrastructure, excitation-contraction coupling, sliding filament theory, length-tension relationships, Hill equation, metabolic aspects. E.C coupling in 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 system, mass transport, flow in collapsible tubes, blood flow in particular organs, Guyton's model.  

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.  

SP356  **Physics**  
Three hours per week for one semester  
Prerequisite: **SP355**  
Assessment by laboratory reports and examination  
A second-year subject of the degree course in computer-aided chemistry.  
**Quantum physics**  
Black-body radiation, photo-electric effect. De Broglie's hypothesis, Uncertainty principle.  
Schrodinger’s equation — expectation values, operators, eigenvalues and eigen functions. Applications from potential discontinuities, barrier penetration, particle in a box, harmonic oscillator, particle decay.  
Quantum theory of H atom by solution of Schrodinger’s equation.  
Angular momentum: probability density and orbitals.  
**Nuclear physics**  
Basic nuclear properties.  
Structure and models.  
Radioactivity and nuclear reactions.
SP401 Experimental Techniques
Two hours per week for one semester
A second-year subject for students majoring in medical biophysics and instrumentation.
Earthing and shielding: reduction of noise and interference. Electrical safety: Australian Standards for biomedical circuits. Treatment of biophysical data: statistical methods 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.

SP409 Physics 4
Four hours per week for one semester
A second-year subject of the degree course for students majoring in instrumentation.
Electromagnetism: Maxwell's equations, continuity equation, scalar and vector potentials, macroscopic fields, polarization, magnetisation, constitutive relations. Maxwell's equations in 'macroscopic form': dielectrics, conductors, boundary conditions, electromagnetic waves in conducting and non-conducting media, reflection and transmission, cavities and waveguides, sources of radiation.

SP410 Analogue Devices and Applications
Four hours per week for one semester
A second-year subject for students majoring in instrumentation.
Power supplies, stability of feedback circuits. Other semiconductor devices.

SP420 Instrumental Science 4
Three hours per week for four months
A second-year subject of the degree course in computer-aided chemistry.
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 parallel interfacing;
— hardware and software aspects of serial 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.
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 to. Swan-Ganz catheters, ultrasonic and electromagnetic flowmeters, non-invasive techniques: cardiac output by dye and thermal dilution, electrical impedance method, phonoecho-cardiography.
Neurophysiological monitoring on-going brain electrical activity, visual, auditory and somatosensory evoked responses, the EKG, EOG, EMG, intensive care instrumentation: design philosophies, data processing and management: ambulatory monitoring and telemetry. Cardio-pulmonary bypass, requirements and design.

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.
Respiratory system: structure and function, lung volumes and dead space, diffusion, blood flow; ventilation-perfusion ratio: inequality: gas transport, Bohr and Haldane effects, acid-base status, respiratory mechanisms, 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 neonatal monitoring: uterine activity, foetal heart rate, Apgar scoring; neonatal circulation and respiratory changes.
Anaesthesia: agents and their administration; monitoring; physiological effects of anaesthesia, mathematical modelling.

SP430 Interfacing and Nuclear Techniques
Four hours per week for one semester
Prerequisite, SP330
Assessment by examination, laboratory reports and laboratory tests
A second-year subject for students majoring in instrumentation.
Nuclear transducers: radiation safety, radiation detectors, pulse height analysis, spectrometry.

SP431 Psychophysiology of Perception
Eight hours per week for one semester
Prerequisite, SC108, SP232
Assessment by examination and assignments
A second-year subject for students completing the Psychophysiology major.
Introduction to recording techniques in human neurophysiology. The bases of the EEG and evoked potentials. Vision: the eye, peripheral mechanisms, central pathways and processing.
Auditoryvestibular: ear, mechanisms of sound vibration transfer, signal processing, spinal pathways and processing. Somatosensory: sensation, peripheral and central pathways, pain control.

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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.
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 analysis, DFT and FFT, digital filters, linear prediction and bandwidth control.
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.
Solid state physics: tunnel diodes, PN photodiodes, PIN photodiodes, photodetectors, detector problems, and particles, PN diodes to detect gamma radiation, superconductivity, superconducting quantum interference devices.

SP510  Scientific Instrumentation A
Four hours per week for one semester
Assessment by examination assignments and laboratory reports
A fourth-year subject of the degree courses for students majoring in instrumentation.
Lectures on a series of topical aspects of scientific instrumentation.
A series of 3 hour experiments in a) networking computers and instruments, working 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.
Neuroanatomy: 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 S2 somatosensory cortex, dysfunctions, testing — SEP.
Pain, spinal and brainstem pathways, endogenous opiates, gating theory, analgesia — TENS, electrical stimulation, pharmacological interactions.
Psychophysiology: scaling, assessment techniques, absolute and difference thresholds, Weber function, just noticeable difference, Fechner compression, signal detection, ROC curves.
Motor control: peripheral mechanisms, gamma loop, coactivation, stiffness regulation, servo mechanisms, motor cortex, motor potential, control circuits to basal ganglia and cerebellum, spinal pathways, path-open and closed loop operation.

SP525  Applied Biophysics A
Four hours per week for one semester
Prerequisites, SM315, SP425 and either SP424 or SP425
Assessment by examination and laboratory reports
A fourth-year subject for students majoring in medical biophysics and instrumentation.
Physiological control systems: control theory, i.e., flow diagrams, fundamental block representations, open-loop, closed-loop.
Dynamic responses: Bode and Nyquist analysis, transfer function discovery — examples of physiological investigations.
Cardiovascular system, mathematical models of the arterial system.
Respiratory, endocrine and thermal control, modelling of peripheral neuro muscular 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 electrical and magnetic activity.
Introduction to neural network 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 Psychophysiology major.
Analysis of brain function: EEG, brain scans — NMR, PET etc.
Brain laterality; split brain effects, anatomical, pharmacological electrolyrophysiological 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  Applied Psychophysiology
Five hours per week for one semester
Prerequisite, SP431
Assessment by examination and assignments
A third-year subject for students completing the Psychophysiology major.
Advanced recording techniques: computer analysis, EEG, evoked potentials, P300, semantic incongruity, P300, CNV, other cognitive potentials, Bereitschaft potential.
Instruments, recording practice; e.g., validity, sensitivity, test routines, habituation, checklist of specifications.
Clinical aspects: clinical visits, viewing of recording techniques in practice, short and long term monitoring of psychological state.

SP530  Scientific Instrumentation B
Sixty hours in one semester
Prerequisite, SP430
Assessment by examination, assignments and laboratory reports
A fourth-year subject for students majoring in instrumentation.
An introduction to control theory: control system, modelling electrical and mechanical systems, transfer functions, open and closed loop systems, negative and positive feedback, root locus techniques. Compensation techniques, series of 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
Continuous assessment by tests and assignments
An advanced subject of the biomedical instrumentation option of the graduate diploma of applied science and of the masters course in Biomedical Instrumentation.

SP532 Clinical Monitoring Techniques
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 and of the Masters course in Biomedical Instrumentation.
Physical and physiological principles in the use and development of clinical monitoring systems including biological sensors and the processing and storage of data. Main emphasis is placed on cardiovascular and respiratory monitoring, but techniques in other areas of biomedical monitoring will be covered.

SP533 Biophysics of Exercise
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.

SP534 Neurophysiological Techniques
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.

SP535 Project
Four hours per week for one semester
A compulsory subject of the biomedical instrumentation option of the graduate diploma of applied science.
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.
Interrogation methods: beamed radiation (visible, IR, Microwave, X-ray. Ultrasound), internally deposited radiation (gamma rays, SPECT, PET), selective excitation (NMR). Physical qualities of tissue measured by the interrogation.
Image construction methods: real-time ultrasound, interactive and filtered back-projection methods in tomography, algorithms and software implementation.
Image enhancement methods: colour coding, edge detection, noise reduction, digital subtraction, entropy methods. Interpretation of images: image quality and contrast, system MTFs, ROC curves, information theory.

SP538 Technology Transfer
Four hours per week for one semester
Assessment by assignments
A subject in the masters course in biomedical instrumentation.
Aspects of developing innovative biomedical instrumentation systems from prototype to production: market analysis, financial sponsorship, case studies. In seminars, ideas for potential medical devices are discussed in relation to production details and marketing strategies. Students are required to produce a report of the feasibility of a particular device, with production costs and sales projections.

SP539 Research Project
Four hours per week for three semesters
Assessment by dissertation
A subject in the masters course in biomedical instrumentation.
This subject gives the student the opportunity to apply subject matter studies in other course subjects to instrumentation-related problems in a specific field of interest. Where possible the projects are industry-sponsored and have relevance to the student's area of employment. Co-operation between professionals in industry and/or health care and supervising staff at Swinburne help develop the student's competence.
Each project requires a literature survey and theoretical and/or experimental investigation. Results and conclusions presented in a written dissertation and oral presentation.

SP541 Signal Processing
Four hours per week for one semester
Assessment by assignments
A subject of the biomedical instrumentation and scientific instrumentation options of the graduate diploma of applied science.
(1) Linear and non-linear systems, response functions, functions, Volterra and Wiener expansions, system kernels. Each project requires a literature survey and theoretical and/or experimental investigation. Results and conclusions presented in a written dissertation and oral presentation.

SP542 Optical Instrumentation
Four hours per week for one semester
Assessment by assignments and examination
A subject of the biomedical instrumentation and scientific instrumentation options of the graduate diploma of applied science.
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
A subject of the biomedical instrumentation and scientific instrumentation options of the graduate diploma of applied science.
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 and scientific instrumentation options of the graduate diploma of applied science.

**Interfacing peripheral devices**
Programming and interfacing techniques for microprocessor-peripheral support ICs — 110 ports, serial communications, graphics, direct memory access controller.

Techniques for controlling instruments using standard bus modules.

**General purpose instrumentation bus (IEEE 488)**
Structure, function, listeners and controllers, timing, electrical characteristics. Interfacing a controller chip set to an intelligent instrument. Assembler programming, system programming.

Example of a programmable instrumentation system.

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.


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 and scientific instrumentation options of the graduate diploma of applied science.

**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, analog 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 and scientific instrumentation options of the graduate diploma of applied science.

Basic nuclear physics: basic nuclear properties, nomenclature, stable and unstable nuclides, radiation, 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, electrochemistry, electrolysis, redox reactions, thermodynamics.

Optical instrumentation
Waves and particles, refractive index, reflection, lens and mirrors, polarisation, 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 and scientific instrumentation options of the graduate diploma of applied science.

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.

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. A design project will form the second part of this unit.

SP602 **Special Project**
Two hours per week for one semester
Prerequisite: Industry Based Learning SP333 or equivalent
Assessment by reports

A fourth-year subject for students majoring in medical biophysics and instrumentation.

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 w-opeative employers, but can be suggested by students. They are chosen to develop students' technical knowledge, self-evaluative 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.

Selected topics of special interest to students of biophysics and instrumental science. A selection will be made from the following areas:

- Spectroscopy; NMR, Mossbauer.
- 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 end-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 majors in medical biophysics and instrumentation.

- The auditory system and the vestibular apparatus: acoustics of the outer ear, sound transmission within the ear, peripheral organisation of receptors and CNS pathways, peripheral mechanisms and neural organisation of vestibular mechanisms, pathophysiology of auditory/vestibular function, auditory/vestibular 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 ERGs, EEG, visual evoked response, intraocular pressure, recording, examination, pathology, assessment, adaptation, acuity, perimeter, spatial frequency.
- EEG: origin, recording, interpretation, analysis.
- Neurophysiological signal processing: basic concepts and methodology.
- Plasticity in the CNS.
- Neuropharmacology.
- Sleep and consciousness.
- CNS disorders: epilepsy, dementia.

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 majors in medical biophysics and instrumentation.

- Physical therapy: TENS, ultrasound therapy, PEMFs, laser therapy.
- Biomaterials: biocompatibility, implants in orthopaedics and dentistry, arterial prostheses, cell-substrate interactions.
- Environmental biophysics: ergonomics, stress in the workplace, overuse injury, effects of noise, electromagnetic radiation, etc. Effects of heat and cold. Bioeffects of atmospheric pollutants.

SP626  
Applied Neurosciences  
Two hours per week in one semester  
Prerequisite, SP529  
Assessment by assignments, examination and practical work

A fourth-year subject for students majors in biophysics and instrumental science.

Advanced signal processing; EEG, brain magnetic fields.
- Neurometric analysis, P300, CNV, coherence analysis.
- Neuronal modelling.
- Cognitive processes.
- Behavioural aspects of sleep and consciousness.
- Affective status, emotion.
- Disorders of higher cortical functions: depression, anxiety, schizophrenia.

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 majors 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.

- Disorders of affect: theories of depression, monoamines and depression, mechanism of action of antidepressants, anxiety and benzodiazapine — GABA interactions.
- Schizophrenia: caustion, abnormal metabolism — monoamine systems, symptomology, diagnosis, homospecificlalisation, frontal lobe dysfunction, investigative techniques.
- Brain damage: causes, specific deficits, diagnosis.
- Epilepsy: neurophysiological mechanisms, spread of foci, treatment — surgery, drugs, biofeedback, rehabilitation.
- Ageing effects on brain function: normal degeneration, cerebrovascular disease, decreased sensorv stimulation, metabolic indicators.
- Pathological degeneration: Parkinson's disease, neurological disorder Alzheimer type, etc.
**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.

This subject gives students the opportunity to apply techniques and skills introduced in the Psychophysiology and Psychology courses in an investigation into a topic of particular interest. Students may select an appropriate topic of interest at an early stage of the third year of the course, which can be adequately supervised, investigated and reported on within the above time constraints. The selected project work may involve such activities as physiological and/or psychological data collection, literature research, etc. or a combination of these. Projects will usually be individual but may sometimes involve shared aspects. Students will be expected to make a short verbal presentation 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 computing and instrumentation.

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, x-rays, Compton effect, photoelectron interactions, Bohr model, de Broglie matter waves.

Nuclear Physics: binding energy, nuclear forces, radioactivity, alpha, beta, gamma decay, nuclear reactions, radiation detectors.

Vibrations, Waves and Sound.

Optics: optical instruments, interference and diffraction, polarization, optical communication.

Thermal physics: temperature and heat, gas laws and thermodynamics.

**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.

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, x-rays, Compton effect, photoelectron interactions, Bohr model, de Broglie matter waves.

Nuclear Physics: binding energy, nuclear forces, radioactivity, alpha, beta, gamma decay, nuclear reactions, radiation detectors.

Vibrations, Waves and Sound.

Optics: optical instruments, interference and diffraction, polarization, optical communication.

Thermal physics: temperature and heat, gas laws and thermodynamics.

**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.


**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.

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.

**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.

An introduction to the hardware elements of a typical microprocessor system. Interfacing a digital signal. An introduction to programmable support interface devices.


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.

**Environmental hazards**
Accident prevention, Work-related injuries including occupational accidents seeking medical injuries. Relationship of physical defects to employee safety. Stress in the workplace, measurement and alleviation.


**Toxicology**

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**


Chemical safety. Handling, chemical safety, hazard identification, storage and transport of dangerous and toxic chemicals.

**SQ100 Programming in Ada**
Four hours per week for two semesters
A first-year subject of the degree course in computer science, mathematics and computer science and computing and instrumentation.

Programming methodology and ADA: specifications; problem solving; top-down and bottom-up methods; sequence selection and iteration; data types; procedural abstraction; program style.

Advanced Programming: dynamic data structures; packages; abstract; data types; OOP models; exception handling.
A first-year subject of the degree course in computer science. 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.

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.

Theories: theoretical foundations of HCI.

A second-year subject of the degree course in computer science, a third-year elective of the degree course of mathematics and computer science, a fourth-year elective of the degree course in computing and instrumentation.

Three hours per week for one semester

A second-year subject of the degree course in computer science, a third-year elective of the degree course of mathematics and computer science, a fourth-year elective of the degree course in computing and instrumentation.

Three hours per week for one semester

A second-year subject of the degree course in computer science, a third-year elective of the degree course of mathematics and computer science, a fourth-year elective of the degree course in computing and instrumentation.

Three hours per week for one semester

A second-year subject of the degree course in computer science, a third-year elective of the degree course of mathematics and computer science, a fourth-year elective of the degree course in computing and instrumentation.

Three hours per week for one semester

A second-year subject of the degree course in computer science, a third-year elective of the degree course of mathematics and computer science, a fourth-year elective of the degree course in computing and instrumentation.

Three hours per week for one semester

A second-year subject of the degree course in computer science, a third-year elective of the degree course of mathematics and computer science, a fourth-year elective of the degree course in computing and instrumentation.

Three hours per week for one semester

A second-year subject of the degree course in computer science, a third-year elective of the degree course of mathematics and computer science, a fourth-year elective of the degree course in computing and instrumentation.

Three hours per week for one semester

A second-year subject of the degree course in computer science, a third-year elective of the degree course of mathematics and computer science, a fourth-year elective of the degree course in computing and instrumentation.

Three hours per week for one semester

A second-year subject of the degree course in computer science, a third-year elective of the degree course of mathematics and computer science, a fourth-year elective of the degree course in computing and instrumentation.
A second-year elective of the degree courses in computer science, a final-year elective in the degree courses in mathematics and computer science and computing and instrumention.

COBOL; to introduce the COBOL language and its problem solution domain.

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.

Computer Architecture A

This unit introduces the concepts of computer architecture fundamentals, including CPU organisation, instruction execution and microprogramming. More advanced architecture such as SIMD, MIMD, CISC and RISC are also studied.

Concurrent Programming

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.

Functional Programming

A final-year elective of the degree courses in computer science and computing and instrumentation, a third-year elective of the degree course in mathematics and computer science.

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.

Unix Systems Programming

A final-year elective of the degree courses in computer science and computing and instrumentation, a third-year elective of the degree course in mathematics and computer science.

This subject examines the software appropriate to systems programming as distinguished from applications software such as operating system commands, compilers, file management systems, security and user management. Case studies are drawn from a particular operating system such as UNIX where it is possible for students to access the source code and alter parameters of the operating system.

Software Practice 3

Three hours per week in semester seven, followed by six hours per week in semester eight.

A final-year subject of the degree course in computer science. This subject requires that students, working in large teams, undertake a large scale software development project, preferably industry-based. Software development, documentation and system evaluation must be completed. The project will require students to exercise advanced management and technical development skills.

Computer Graphics A

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.

Computer Graphics A: hardware for computer graphics; basic 2-D and 3-D graphics drawing; transformations; Data structures for graphics; windowing and clipping.

Computer Graphics B: basic 3-D graphics rendering; projections; colour; theory; lighting models; ray-tracing; radiosity; data representation; animation.

Artificial Intelligence A

A final-year subject of the degree courses in computer science, a final-year elective of the degree course in mathematics and computer science, a final-year elective of the degree course in computing and instrumentation.

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.

Computer Architecture B

A final-year elective of the degree courses in computing and instrumentation and computer science.

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.

Translator Engineering

A final-year elective of the degree courses in computer science, mathematics and computer science and computing and instrumentation.

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.

Object Oriented Programming

A final-year elective of the degree course in computer science, a final-year elective of the degree courses in mathematics and computer science and computing and instrumentation.

This subject consists of lectures and tutorials studying Software Engineering principles and goals using Object Oriented Techniques. 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.

Computing in the Human Context

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.

Computing in the Human Context: an exploration of social and organisational issues and their relationship with the computing professional.
Computer Science Team Project
Three hours per week for one semester
A final-year subject of the degree courses in mathematics and computer science and computing and instrumentation.
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.

Computer Architecture C
Three hours per week for one semester
A final-year elective of the degree courses in computer science and computing and instrumentation.

Expert Systems
Three hours per week for one semester
Prerequisite: SQ509
A final-year elective of the degree courses in computer science, mathematics and computer science and computing and instrumentation.

Programming in C
Fifty-six hours in one semester
A subject of the graduate diploma of applied science (computer science).
A study of the programming language C and the related software engineering. Topics covered include specification of problems, algorithm approaches and program design methodologies, control of flow, data types and structures, functions, and file I/O.

Systems Programming
Fifty-six hours in one semester
A subject of the graduate diploma of applied science (computer science).
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 operating system shell programming basics, environment inheritance and the difference between the Bourne and Korn shells. UNIX programming tools, e.g. SCCS. The role of the system administrator.

Software Development Project
Fifty-six hours per semester for two semesters
A subject of the graduate diploma of applied science (computer science).
A series of lectures on software project management techniques will be given. The student's major project will be started as early as possible in the course and will be on an approved topic, preferably industrially based. The project will be completed in semester four and presented to the class and the assessment panel.

Software Engineering
Twenty-eight hours in one semester
A subject of the graduate diploma of applied science (computer science).
A study of the problems confronting the software engineer in the development of modern computer software:
— Software evolution models and lifecycles;
— Requirement Analysis;
— Software Design;
— Implementation, testing and installation;
— Documentation standards.

Database
Fifty-six hours in one semester
A subject of the graduate diploma of applied science (computer science).
Solid understanding of the fundamentals of database design theory and implementation techniques.
— Database Architecture
— Data Models
— Conceptual design
— Normalization
— E/R Modelling
— Internal design
— Database integrity, security
— Knowledge based systems

Computer Systems
Twenty-eight hours in one semester
A subject of the graduate diploma of applied science (computer science).

Introduction to Artificial Intelligence
Twenty-eight hours in one semester
A subject of the graduate diploma of applied science (computer science).
The course will consider the central problems in the field of artificial intelligence and the concepts, tools and techniques used to solve them. Topics will be chosen from the following list:
— programming for artificial intelligence — a language such as PROLOG or LISP;
— knowledge representation;
— logical inference;
— solving problems by decomposition, search, etc.;
— natural language processing.

Advanced C Programming
Fifty-six hours in one semester
A subject of the graduate diploma of applied science (computer science).
An in-depth study of C programming techniques, algorithms and advanced data structures. Analyses of arrays, stacks, queues, and binary trees are conducted. Efficiency and complexity issues are examined. Sorting and searching methodologies are compared, also overall decision making with regards to matching problems with solution strategies. Overviews of system analysis and design are conducted.

Data Communications
Twenty-eight hours in one semester
A subject of the graduate diploma of applied science (computer science).
An introduction to the fundamental concepts in computer-to-computer communications. Topics covered include physical aspects of data communications, data link control, terminal based networks, communication protocols, distributed computer systems, local area networks, public data networks, Telecom Australia data communication services, OSI — Open Systems Interconnection.
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.

Objectives
The subject aims to develop 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.

Syllabus
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 Head of the Department of Liberal Studies.

AB310 Behavioural Studies and Communication
Two hours per week for one semester
A second-year subject of the degree course in medical biophysics and instrumentation.

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 groups and society at large, 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
Assessment is continuous

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 medical biophysics and instrumentation.

The emphasis in this course will be an 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 and psychological aspects of communication. Topics in stress management will include: principles of behavioural psychology, 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.


Delegated legislation:
(a) relevance to health surveyors,
(b) advantages and disadvantages,
(c) reforms through Parliament and the courts
The Australian court system, court personnel and tribunals with specialised jurisdictions. The civil and criminal trial process. Judges as a source of law — precedent and legal reasoning. Case studies of particular relevance will be examined: negligence (consumer protection); nuisance (environmental controls); and strict liability (hazardous materials).

BS428 Administration and Management
Two hours per week for one semester
A fourth-year subject of the degree course in environmental health.

Introduction to management techniques with particular references to Government agencies. Study of the environmental health officer's role within structured frameworks of Government agencies.

Consideration of financial and resource management with particular reference to Government agencies.

Data processing, information management, use of statistics and other administrative processes.

Overview of practices and procedures necessary 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.

To consider efficient internal administrative procedures to ensure against liability for negligent advice.


The role of the Ombudsman and Committees of Enquiry.

The Administrative Law Act and review by courts and tribunals of the Administrative Process, the application of the rules of natural justice, notice and fair hearing, the duty to give reasons, impartiality and bias.

Challenging decisions made:
(1) in excess of statutory powers.
(2) unreasonably, or
(3) for improper purpose or bad faith.

The Freedom of Information Act and its interpretation by the courts.

Changing the law, and involvement by environmental health officers in changes to building controls, role and structure of local government, and food laws.

BS510 Business Studies
Five hours per week for one semester
A first-year subject of the degree course in computing and instrumentation.

Accounting
The business environment, financial statements (balance sheet, 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
Three hours per week for one semester
A first-year subject of the degree course in computer science, and mathematics and computer science.

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.

**BS514 Business Studies — Economics**
Three hours per week for one semester
A first-year subject of the degree courses in computer science, and mathematics and computer science.
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, demand analysis, production and cost analysis, profit and pricing, industry economics, Australian trade and protection issues.

**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.
The general objective of the unit is to provide students with an understanding of concepts and methods employed in accounting and trade practices law relevant to the needs of future computer professionals.

**BS617 Computers and the Law**
Two 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.
An introduction to the legal system will be followed by a discussion of selected aspects of intellectual property law, tort, contract and trade practices law relevant to the needs of future computer professionals.

**BS618 Management of Human Resources**
Two hours per week for one semester
Assessment by tests and assignments
An optional fourth-year subject for students majoring in computing.
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.

**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.
Business administration, business communications and industrial relations, Industrial motivation and job satisfaction, Leadership in organisations.
The business environment — the effects of social, legal, economic, political and technological factors, Industrial innovation.
Financial decision making — cost factors, sales forecasts, profitability, potential return on investment and associated risks, capital investment planning, budgeting.
The function of research and development in the chemical and biochemical industries.
Safety and legal liability (towards oneself and others) in the chemical and biochemical industries.

**BS720 Chemistry and the Law**
Two hours per week of lectures/tutorials
A subject in the graduate diploma in industrial chemistry.

**Law and administration**
Principles of law, Industrial Tribunals and the courts. Court decisions concerning industrial injury and compensation, Industrial relations law. Industrial hygiene, occupational health and safety with relation to chemistry, Status of regulations and codes of practice.

**Control of chemical and industrial hazards**

**Toxic chemicals and biochemicals and methods of assessment of toxicity.**

**BS2530 Environmental Health Law**
Four hours per week for one semester
A second-year subject of the degree course in environmental health.
Legislation relevant to the health surveyor in Local Government: the Health Act, enabling legal provisions, e.g. nuisance, sanitary, infectious disease, bi-laws, building, accommodation, incidental controls.
The Food Act — controls on food premises, preparation and sale of food, etc. Warranties, third party procedure, defence of reasonable precautions. Provisions with respect to prosecution. Incidental powers and controls by virtue of the Local Government Act will also be considered.
Legislation relevant to the health surveyor in State Government Authorities.

**BS2540 Legal Procedure and Evidence**
Four hours per week for one semester
A second-year subject of the degree course in environmental health.

**Law of evidence**
Comprehension of the rules of evidence, in civil and criminal trials, the burden of proof, the rules of evidence, admissibility of evidence.

**Procedural law**
The rules of procedure, including the function of the court, the role of the judge, the role of the jury, the role of the advocate, the role of the party, the role of the witness, the role of the expert witness, the role of the court.

**Legal and ethical considerations**
The legal and ethical considerations involved in the practice of law, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal education**
The legal education of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal research**
The legal research of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal practice**
The legal practice of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal writing**
The legal writing of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal advocacy**
The legal advocacy of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal ethics**
The legal ethics of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal history**
The legal history of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal theory**
The legal theory of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal process**
The legal process of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal procedure**
The legal procedure of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal profession**
The legal profession of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal regulation**
The legal regulation of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal society**
The legal society of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal system**
The legal system of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal theory**
The legal theory of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal writing**
The legal writing of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal advocacy**
The legal advocacy of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal ethics**
The legal ethics of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal history**
The legal history of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal theory**
The legal theory of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal process**
The legal process of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal profession**
The legal profession of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal regulation**
The legal regulation of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.

**Legal society**
The legal society of the lawyer, the role of the lawyer, the role of the client, the role of the community, the role of the court.
CE560  Environmental Engineering and Planning
Six hours per week for one semester

IT101  Computer Fundamentals
Fourteen hours per week for five weeks
A first-year subject of the bachelor of information technology course.

Objectives
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.

Syllabus
Data representation: data versus information, number systems, representation of numbers and alphanumeric data, integer arithmetic. Introduction to operating systems: Data management, time sharing, batch and on-line systems. Programming concepts: compilers, translaters, and assemblers. Appropriate and inappropriate computer applications. Programming environment: using micro and mainframe operating systems: file management, utilities, editors, compilers, command procedures, introduction to JCL.

IT102  Introduction to Programming
Seven hours per week for ten weeks
A first-year subject of the bachelor of information technology course.

Objectives
To introduce students to commercial programming and to prove the principles of programming and techniques by the use of the programming language. C. This language contains the ingredients generally considered to be essential to illustrate structured programming constructs and, in addition, it is a language in current commercial use: The course emphasizes data processing, in that the language is used as a vehicle by which to maintain data sets and produce reports from those data sets.

Students write the type of programs common in commercial installations and the level of complexity is that of control break reporting and sequential file update. Students will also study the environment of programming, i.e., program specification, testing and documentation.

Syllabus
IT122 Mathematics
Four hours per week for one semester
An elective subject of the Bachelor of Information Technology course.

Syllabus
Methodology: the development of operations research, the scientific approach to decision making problems, the art of model construction and the science of model solution, data collection, implementation, applications.
Linear programming: the formulation of linear programming problems, graphical solution of two variable problems, the Simplex methods, sensitivity analysis, transportation, trans-shipment, assignment, the use of computer packages such as SASOR.
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 fifteen weeks
A first-year subject of the bachelor of information technology course.

Objectives
To familiarise students with a range of statistical, financial and modelling methods commonly used in the decision support area. The application of techniques to solve business problems and to present the results using software packages such as LOTUS, MINITAB, Harvard Presentation Graphics etc. is emphasised.

Syllabus
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 course analysis and graphical presentations by using packages such as LOTUS is emphasised.

IT202 COBOL Programming
Five hours per week for fifteen weeks
Prerequisite, IT102 Introduction to Programming
A first-year subject of the bachelor of information technology course.

Objectives
To train students to be able to:
• read, understand, modify and debug COBOL programs;
• design, write, test and document attractive well-structured programs in COBOL;
• describe the main features of 1985 ANSI COBOL.

Syllabus
COBOL fundamentals: COBOL structure, syntax, examples, simple vocabulary (PERFORM, MOVE, ACCEPT, DISPLAY, etc.).
Sequential files: Review file concepts, tape, disk, file verbs.
Arithmetic: ADD, SUBTRACT, MULTIPLY, DIVIDE, COMPUTE.
Moves: Numeric, alphanumeric, group, MOVE CORRESPONDING.

Editing: Fixed insertion, floating insertion, replacement.
Data validation: IF, ELSE, nested IFs, sign & class tests, range & limit tests, compound statements, 88 levels.
Control group reporting DOWNHILL; IF group processing, group totals. group indication, group headings, summary reports.
Testing and debugging: Testing strategies, test data. TRACE, EXHIBIT.
Indexed files: Physical description of indexed files, VSAM s ISAM.
random v sequential access.
Environment Data division entries, verbs.
Data base: Definition, access, processing.
Tables: REDEFINES, review table concepts, I-Dimension tables.
PERFORM VARYING, binary search, SEARCH, SEARCH ALL.
Multiple file processing: Merges, merge/replace, master file update, master file maintenance update.
String processing: TRANSFORM, INSPECT, STRING, UNSTRING.
Sorts: Sort, merge, work file, keys fields, SORT verb, input procedure, output procedure.
Sub-programs: Program design & development, modular design, cohesion, coupling.
COBOL85: New features, structure, conversion.

IT203 Business Applications & Systems 2
Five hours per week for fifteen weeks
Prerequisite, IT103 Business Applications and Systems 1
A first-year subject of the bachelor of information technology course.

Objectives
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.

Syllabus
Data base Management concepts: File concepts, reporting tools (DBase III).
Internal controls: Developing effective internal controls and audit trails.
Justification and Selection of Systems.
Production systems: Job Cost, Bill of Materials.
Systems implementation, operation and maintenance.
Types of application systems: Transaction processing, general purpose and vertical market, Decision support and Expert systems — examination of the necessary hardware, software and people resources required.
Data transportability: Micro-mainframe links, PC to PC links, Systems Integration — including General Ledger, Integrated Software.
Case Study presentations.

IT204 Accounting 1
Four hours per week for fifteen weeks
A first-year subject of the bachelor of information technology course.

Objectives
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.

Syllabus
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 course.

Syllabus
Queueing theory, Markov chains and processes, matrix manipulations, analytical geometry, variance reduction methods and simulation.
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 course.

Objectives
To develop an understanding of the fundamental principles of operating systems so as to promote a more efficient use of the resources provided in the computing environment, and to prepare for more in-depth studies in later systems software units.

To emphasise aspects of operating systems that impact directly on the user interface so as to increase the students immediate usefulness in the first industrial placement.

Syllabus
Operating system principles: introduction, operating system services, file systems, process scheduling, memory management, virtual memory, storage system scheduling, deadlocks, job and task management, protection. Systems programming: system utilities, backup and recovery, command procedures and JCL, package installation, security systems, job entry subsystems, resource management.

IT302 Organisation Behaviour
Twenty-one hours per week for three weeks

A first-year summer term subject of the bachelor of information technology course.

Objectives
1. To give students an understanding of current issues, and research in organisational behaviour and the conceptual and methodological considerations which apply to this field of study.
2. To give students a better understanding of themselves, their impact on other people, and the way other people influence their own behaviour.
3. To allow students to experience the satisfaction and difficulties inherent in working groups, to improve their skills as team members and team leaders, and to be able to explain the nature of their experience in groups in terms of current theories and concepts.
4. To give students practical experience in interpreting and explaining complex organisational behavioural situations in terms of current theories and concepts.
5. To prepare students to interpret and understand the behavioural environment of their employing organisation and of their own role within it.

Syllabus
Investigating behaviour in organisations (Research); leadership, power and influence; organisational politics; organisational change; conflict and diversity; motivation; job satisfaction; problem solving; decision making; dynamics within groups; dynamics between groups.

IT303 Data Base Management Systems 1
Twenty-seven hours per week for three weeks
Prerequisites, IT202 COBOL Programming, IT203 Business Applications and Systems 2

A first-year summer term subject of the bachelor of information technology course.

Objectives
To enable students to learn how a DBMS is used in the development of systems.

Syllabus
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 course.

Syllabus
Quality control applications and concepts to manufacture. Logistics. Systems and location problems. Vehicle scheduling and control.

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 subject of the bachelor of information technology course.

Objectives
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 software and the information technology environment of business and industry.

To address issues which can better be learned from within the industrial environment — such as user liaison and systems security.

Syllabus
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 Communications, User Support, and Systems Software.

IT422 Mathematics
Four hours per week for one semester
Prerequisite, IT22 Mathematics
An elective subject of the Bachelor of Information Technology course.

Syllabus
Advanced forecasting, data acquisition through sample survey. Manufacturing and business applications of probability theory; portfolio problems, bidding problems, defective production.

IT501 Systems and Information Analysis 1
Five hours per week for fifteen weeks
Prerequisite, IT303 Data Base Management Systems 1

A second-year subject of the bachelor of information technology course.

Objectives
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 blueprints for subsequent computer implementation.

By the end of the unit students should be able to:
1. Develop a working prototype database in an SQL-type system for a small application.
2. Prepare a logical system model for a small application, to be used as a structured design specification.
3. Analyse corporate information hence contribute to the preparation of a Strategic Data Model for the organisation.
4. Select the information analysis approach appropriate to a particular situation from a range of modelling techniques and tools.

Syllabus
Systems, Data and Models. Data Analysis — user views of data; Data Dictionaries. Detailed Data Modelling — integrating user views; relational data model; implementation in SOL. Structured Systems Analysis — Data Flow Diagrams; structured design; software; transforms. New Systems Model — Modifying the DFD; Logical Access Models; Data Base Action Diagrams; Implementation considerations; Controls. Corporate Information Systems — Corporate Data Modelling; Data Administration; Levels; Planning, control, operational; scope; corporate, divisional, local. Corporate Data Modelling Techniques. Selecting the Modelling approach.
IT502 Systems Software 2

Five hours per week for fifteen weeks

Prerequisite, IT301 Systems Software 1

An optional second-year subject of the bachelor of information technology course.

Objectives
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 interface between systems software and the computer’s architecture. The role of the systems programmer as distinct from the applications programmer is considered.

Syllabus
Assembler programming: Introductory concepts, instruction formats, decimal instructions, data transfer and sequence control, edit instructions, binary data and instructions, address modification and arrays, bit and byte manipulations, input/output macros, subroutines and linkages.

Systems programming: Testing and debugging with assembler languages. style, documentation of systems software, problem determination (dump reading), systems utilities, file systems (VSAM, IMS), system generation, system maintenance, recovery and termination management, security.

Computer organisation: CPU and ALU, principles of operation, division of storage mechanisms, storage boundaries, operation and interfacing of input/output devices.

IT503 Data Base Management Systems 2

Five hours per week for fifteen weeks

Prerequisite, IT303 Data Base Management Systems 1

A second-year subject of the bachelor of information technology course.

Objectives
To build upon the concepts and techniques learned in IT303. Logical design concepts expanded by a formal study of relational theory and normalization enable students to understand development in this field. Implementation and physical design skills are enhanced by an examination of the factors affecting performance.

Syllabus

Data Base sizing

Physical design

Maintenance and creation of data bases.

IT504 Data Communications 1

Five hours per week for fifteen weeks

A second-year subject of the bachelor of information technology course.

Objectives
To ameliorate the student with the basic concepts, terminology and jargon of the area. Standards, as developed by the International Standards Organisation (ISO) and IBM are emphasised to give the student a sound basis for understanding the dramatic developments in this area.

Syllabus

IT505 Knowledge Engineering

Five hours per week for fifteen weeks

An optional second-year subject of the bachelor of information technology course.

Objectives
To enable students to:
- Select appropriate tools to apply to a commercial problem from a range including object oriented languages (e.g., LISP, PROLOG), micro-computer based expert system shells (e.g., VP-Expert, Gun), mainframe based expert system shells (e.g., IBM’s ESE, Cullinet’s Application Expert), or Expert System Languages (e.g., ISRI’s XL); develop control strategies, explanations and user interfaces via LISP, PROLOG and ISRI’s XL; discuss strategies of supervising the development of expert systems.

Syllabus
- The range of tools available to build expert systems. These include conventional programming languages, object oriented languages, microcomputer and mainframe shells, and specialised expert system languages. This section also involves evaluation of special infrastructure such as workstations and graphics facilities.
- Logic programming. This topic uses an expert system written in PROLOG to derive production rules and a knowledge base for entry into an expert system shell. It also covers applicability of deductive database systems, inadequacy of deductive methods, drawing conclusions from uncertain data, absence of user specified control.
- Control strategies. Rule and frame based reasoning, fuzzy logic, user communication, statistic gathering and language representations of these in PROLOG, LISP and XL.

Managing expert systems development. Project planning, analysis incorporating knowledge acquisition strategies. design, implementation, verification and performance evaluation.

Faculty of Applied Science
IT507  Computer Graphics and Imaging 1
Five hours per week for fifteen weeks
Prerequisite. Mathematics IT222

An optional subject of the second-year of the Bachelor of Information Technology course.

Objectives
To introduce the fundamental concepts of computer graphics. The emphasis is on the programming techniques that are involved in producing computer graphics images.

Syllabus

IT509  Software Engineering 1
Five hours per week for fifteen weeks

A second-year subject of the Bachelor of Information Technology course.

Objectives
To develop an understanding of the basic problems which are encountered in the development of computer software and the current tools and techniques which are used by industry to overcome these problems. Students are expected to apply these study to their own software projects and to their knowledge to develop an ability to participate as a successful member of a software project team.

Syllabus
The software life cycle: an introduction to the concepts of requirements definition, software specification, software design, programming practice, testing and debugging, documentation and maintenance and the user interface.

IT601  Systems and Information Analysis 2
Five hours per week for fifteen weeks
Prerequisite. IT501 Systems and Information Analysis 1

An optional third-year subject of the Bachelor of Information Technology course.

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 analysis, risk assessment and control procedures suitable for different systems development approaches;
• describe the methodologies in use in organisations and to determine the correct development approach for different systems;
• understand the need for different approaches to computer systems development to ensure that corporate information needs are met and computing productivity is maximised.

Syllabus

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
Five hours per week for fifteen weeks
Prerequisite. IT301 Systems Software 1

An optional subject of the Bachelor of Information Technology course.

Objectives
The aim of this unit is to make an in-depth study of an operating system such as PICK or Unix which is hardware independent. The architecture of the operating system will be examined to discover what features lead to its portability and what costs portability is achieved. The high level language, appropriate for the particular operating system will be studied so as to examine the relationship between systems software and the operating system’s architecture.

Syllabus
Architecture: history, operating system model, host dependent features, methods of portability, device interfaces. File systems. Command language: the user interface, functionality of the operating system.

Systems programming: an examination of the programming language which directly accesses the operating system functions such as C for UNIX or PICK/BASIC for PICK. Device drivers. Systems administration: system generation, user control, security.

IT603  Data Base Management Systems 3
Five hours per week for fifteen weeks

An optional third-year subject of the Bachelor of Information Technology course.

Syllabus
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

IT606  Artificial Intelligence
Five hours per week for fifteen weeks
Prerequisite. IT505 Knowledge Engineering

An optional third-year subject of the Bachelor of Information Technology course.

Objectives
At the end of this unit the student should be able to:

• discuss knowledge representation using rules and frames, in a variety of circumstances, other appropriate data structures and devise appropriate search strategies;
• discuss a number of reasoning/inferencing systems, their advantages and drawbacks;
• known the state-of-the-art research in vision systems, natural language and self-learning systems.

Syllabus
Knowledge acquisition, based upon the Buchanan model of identification, conceptualisation, formalisation, implementation and testing. Advanced knowledge representation including frames, semantic nets, rules, ruleframe combinations, structured object representation. Explanations, using existing expert systems such as XPLAIN.

Current research areas on Artificial Intelligence with particular reference to '5th Generation'. These include vision, digital image processing, natural language, pattern matching, dialogue phenomena, self-learning, learning from example.
### IT607 Computer Graphics and Imaging 2

**Syllabus**
- Three dimensional graphics primitives, coordinate systems.
- Object representation, solids, surfaces, fractal surfaces.
- Object transformations in three dimensions.
- Projections for 3D viewing.
- Object rendering, hidden line and surface methods, ray tracing.

**Objectives**
- To extend the studies of the course.
- 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 the specialist studies undertaken.
- To address issues which can better be learned from within the industrial environment and to gain an understanding of the relationships between the information environment and the total organisational environment.

**Syllabus**
- Students will work as members of the data processing and information technology environments to which they are assigned. Students will work under the supervision of both an Industrial Manager and a Student Manager.
- Students will be expected to extend on their academic studies and gain further experience in the area of Programming, Systems Design, Liaison and Security. They will be closely involved with the application of at least four of the following in their two periods of Industry Based Learning: Data Base, Communications, User Support, Systems Software, 4GLs, Expert Systems.

**Faculty of Applied Science**

### IT801 Project

**Objectives**
- To integrate studies in analysis, design, programming and project implementation. To allow students to pursue specialist studies in greater depth, to continue the relationship with an industrial sponsor.

**Syllabus**
- The project will be a small group based activity conducted in liaison with industrial sponsors. The actual projects will be decided during the period of the second industrial placement. It is envisaged that the project will be a commercial mainframe application.

### IT802 Seminars and Project Management and Control

**Objectives**
- To provide students with a capstone series building on and rounding out the studies of the course.
- To present the latest developments and trends in the data processing industry.
- To discuss in a more formal environment issues surrounding commercial and industrial information technology environments to ensure that the experiences of the industry based learning period are understood within the broader context of the industry.
- To discuss in more depth matters which may have been only peripherally treated in earlier studies.

**Syllabus**
- Students will attend a series of seminars, ranging from a half day to a several week sequence, covering selected topics such as: Consultancy and training, Leadership, Industrial Relations, User Liaison Strategies, Computers and the Law, Security controls and audit, Technology and Innovation, Technology and Society, Current Issues in Systems Management.

### ME249 Environmental Engineering

**Objectives**
- To integrate studies in analysis, design, programming and project implementation. To allow students to pursue specialist studies in greater depth, to continue the relationship with an industrial sponsor.

**Syllabus**
- Students will work as members of the data processing and information technology environments to which they are assigned. Students will work under the supervision of both an Industrial Manager and a Student Manager.
- Students will be expected to extend on their academic studies and gain further experience in the area of Programming, Systems Design, Liaison and Security. They will be closely involved with the application of at least four of the following in their two periods of Industry Based Learning: Data Base, Communications, User Support, Systems Software, 4GLs, Expert Systems.
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J. Barbour, BSc(ElecEng)(SAmst)
M. Gilding, BA(Hons)(ANU), PhD(Macquarie)
D. Hayward, BA(SIT), GradDipUrbSoc(SIT)
G.C.J. Memison, BA(Mon), DipSocStud(Melb), GradDipEd(Haw)
J. Mulvany, BA(Hons), DipEd, PhD(Mon)
T.P. Rycn, BA(Hons), BEd(Mon)
K. Sands, BA(Hons)(Melb), MA(Mon)
J. Schmidt, BA(Hons)(Melb), MA(Melb)
P. Taneja, BCom(Agra), MA(New Delhi), PhD(Griffith)
K. Vigo, BA(Melb)
D. Welch, BA(Melb)

A.J. Glock, BA(Hons)(Reading)
Y. Matsuda, PhD(Melb), MED(Wash), BA(Iowa), MAPA
R. Reddy, BA(Swim), MA(Melb), MAPsS
J.M. Rice, BSc(Hons), PhD(LaT), MAPsS
M.C. Van Geloven, Drs(Amst), MAPsS
Eligibility

Applicants in the following categories will be considered for admission to the Bachelor of Arts degree course.

Year 12 (Group 1 subjects)

(i) Persons under 21 who have completed studies deemed by the Institute 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, 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

(ii) 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 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

(i) Full-time first year — to Victorian Tertiary Admissions Centre (VTAC)

(ii) Part-time all years — to Swinburne

(iii) 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 Institute of Technology, PO Box 218, Hawthorn 3122, on the Institute's application form. The application form is available from the Pdmissions 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.
Deferment 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 for named full-year and/or 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 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 leader(s) that 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 part of any major sequence. For Arts-related studies (2.1), general exemptions require the recommendation of the appropriate subject leader(s) or 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 recommendation from the appropriate subject leader(s). 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 leader(s) 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 the 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) Bachelors degree of at least three (3) years full-time tertiary study (or equivalent).</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>(b) Diploma of at least three (3) years full-time tertiary study (or equivalent).</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>(c) Associate diploma of 2 years full-time tertiary study (or equivalent).</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>(d) Graduate qualifications of at least one (1) year full-time tertiary study (or equivalent).</td>
<td>2</td>
<td></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 specific 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 leader(s) that the applicant has satisfied equivalent requirements for a pass in the named Swinburne subject(s).
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 the following information:

(i) original transcripts (or notarised 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. Applications which are not covered by the policy are presented to the Arts Faculty Board as ‘non-routine’ applications and are accompanied by a recommendation from 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 preceded by either a full-year or one or two semester subjects at stage one.

Bachelor of Arts course requirements

To qualify for the award of the degree of Bachelor of Arts students are required to:

(a) complete two of the following majors — Historical and Philosophical Studies, Italian, Japanese, Korean, Literature, Media Studies, Political Studies, Psychology, Sociology, Economics (A quota is applied to this subject.) or a double major in Political Studies. A co-major in Psychology/Psychophysiology is available. See details on page 117.

(b) gain passes: in twenty semester subjects (or equivalent full-year subjects) including a minimum of six semester subjects or equivalent in each of stages 1, 2, and 3.

Note: Students in their first year, who do not take any language studies, are strongly encouraged:

— if full-time, to select their eight semester subjects from at least six different subject areas;
— if part-time, to select their four semester subjects from at least three different subject areas.

Students should check the duration and semester subject value of each subject, as set out under subject details in this handbook.

Studies constituting major strands

In Italian, Japanese, Korean, psychology, sociology and economics, majors must include a full year of study at stage one as well as at higher stages. In other Arts subject areas, Asian studies, Australian studies, media studies, historical and philosophical studies, literature, 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. Before students begin a mixed major, they must have the approval of the head or chair of the relevant departments.

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 and 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. Students who feel 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 1991. For a subject which concludes at the end of the second semester — not later than 31 August 1991. (For further details see under the section headed ‘Enrolment regulations.’)
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 1991. For subjects which conclude at the end of second semester the form should be lodged not later than 31 August 1991. 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.

**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 prior to the subject classes commence. These guides 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, under departments, in alphabetical order, by stages in the section which follows. 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. **Asia 102 Introduction to Japan as a Cultural Overview**.

**Subject prerequisites**

Prerequisites 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 corequisites (double major students)

Corequisites for 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.

**Time allocations per week**

Each semester subject runs for fourteen 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.

**Centres**

Faculty of Arts academic staff are associated with the following: Centre for Industrial Democracy Media and Telecommunications Centre Centre for Psychological Services Centre for Urban and Social Research Centre for Housing and Planning Centre for Women’s Studies (See pages 37, 38, 39 and 40 for details.)
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.

APS Prize in Psychology
Awarded by the Australian Psychological Society to the student who has completed with overall distinction a fourth year course in psychology at Swinburne. Value: $100.

The A.F.E. Tylee and the K. Kennewell Memorial 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 at Mooroolbark
Swinburne plans to commence offering university level Arts programs on its Eastern Campus (Edinburgh Road, Mooroolbark) from February 1992, subject to planning approval. General enquiries about the Eastern Campus may be directed to Associate Professor Bruce McDonald on 819 8444 (Hawthorn) or 728 2477 (Eastern Campus). The programs to be offered in the Bachelor of Arts degree will include Media Studies, Psychology and other humanities/social science subjects. Classes will be offered during the day only.

Further details about the Arts programs will be made available through schools, the Swinburne Publicity & Information Unit (819 8444) and the Faculty of Arts (819 8149). Separate applications are required for the Hawthorn campus and the Eastern campus.

Departments in the Faculty of Arts
Within the Faculty of Arts there are three departments, each responsible for different subject areas. They are:

Department of Humanities
Historical and philosophical studies ............ page 106
Italian .................................................. page 107
Japanese .............................................. page 108
Korean .................................................. page 109
Literature ............................................. page 110

Department of Psychology
Psychology .............................................. page 111

Department of Social and Political Studies
Media ..................................................... page 112
Political studies ..................................... page 113
Sociology ............................................. page 114

Each department has a head or chair and enquiries may be directed to their secretaries.

UNLESS STATED OTHERWISE ALL SUBJECTS ARE SEMESTER SUBJECTS.

Interdisciplinary Studies
The Faculty offers a Stage 1 subject which is not attached to any particular department (AT116 Introduction to Language) and interdisciplinary majors in Asian Studies and Australian Studies.
Subjects offered

**Code**

**Stage 1**
- AP112 Australian Identities (compulsory)
- AL202 Contemporary Australian Writing
- AM204 Media and Australian Society
- AH202 Technology and Society
- AS200 Social Change
- AS204 Models of Sociological Analysis

**Stage 3**
- AP312 Work in Australia (compulsory)
- AL302 Australian Literature — 19th Century
- AL303 Australian Literature — 20th Century
- AM300 Cinema Studies
- AH306 Practical Ethics
- AH307 Australian Science and Society
- AP308 Seminar in Political Studies
- AS304 Sociology of Minorities
- AS307 Sociology and Social Policy

**Interdisciplinary Studies**

**Interdisciplinary Stage 1 subject**
- AT116 Introduction to Language

Semester subject
Three hours per week
Prerequisite, nil
Assessment is continuous

In this subject, basic linguistic concepts are introduced which are necessary to the understanding of the mechanics of language. The topics studied include sound systems of human speech, the combination of sounds into words, the rules for combining words into sentences, the study of meaning, the role of discourse, and language usage within a social system. Although most of the examples are taken from the English language, their applicability to Japanese, Korean, Italian, and other languages is also explained. Students undertaking foreign language majors are highly recommended to include this subject in their course. It is also available to students not studying languages.

**Textbook**


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**DEPARTMENT OF HUMANITIES**

**Historical and Philosophical Studies**

The subjects offered by Historical and Philosophical Studies draw on the traditional areas of philosophy, history of ideas, and history and philosophy of science. They are designed for Arts students and are intended to introduce them to some of the important cultural and intellectual developments which have shaped our society. In the historical subjects the main emphases are those of the social historian and the historian of ideas, whereas the philosophical subjects pursue a conceptual approach to historical and contemporary issues. No scientific or mathematical knowledge is presupposed in these courses.

Students may take majors which are basically history and philosophy of science or philosophy, or may choose a major which combines appropriate subjects from each area. Students are advised to examine carefully the prerequisites for stage two and three subjects before planning their courses.

A major in Historical and Philosophical Studies comprises one semester subject at stage one; two semester subjects at stage two, three semester subjects at stage three.

Subjects offered

**Code**

**Stage 1**
- AH100 Introduction to Philosophy
- AH101 History of Ideas
- AH102 Theories of the Universe
- AH103 Critical Thinking

**Stage 2**
- AH200 Moral and Political Philosophy
- AH201 Mind, Language and Thought
- AH202 Technology and Society
- AH203 Nature and Human Nature
- AH204 Philosophy of Culture

**Stage 3**
- AH301 Rationality
- AH304 Philosophy of Science A
- AH305 Philosophy of Science B
- AH306 Practical Ethics
- AH307 Australian Science and Society
- AH308 Social Studies of Science
- AH309 Special Topics in Philosophy

* Not available to students who have previously passed AH302, Social Studies of Science A.

**Subject details**

**Stage one**

**AH100 Introduction to Philosophy**

Semester subject
Three hours per week
Prerequisite, nil
Assessment is continuous and by examination

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 handling 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.
Faculty of Arts

References
Perry, J. and Bratman, M. Introduction to Philosophy. New York: Oxford University Press, 1986
Shaffer, J.A. Reality: Knowledge and Value. New York: Random House, 1971

References
Please consult with lecturer before buying textbooks.

AH101 History of Ideas
Semester subject
Three hours per week
Prerequisite, nil
Assessment is continuous
This subject is an introduction to the history of ideas. By using a particular intellectual focus or theme, it seeks to show how our contemporary understanding of ourselves and our relationship to the world have been shaped by important developments in the past. Themes which serve as a focus for this course may include one or more of the following: Darwin’s theory of evolution; the concept of the self (from Descartes to Freud); God and nature; knowledge and belief.

AH102 Theories of the Universe
Semester subject
Three hours per week
Prerequisite, nil
Assessment is continuous
Ideas about the world and our relationship to the universe. Within the general framework of social history the main emphasis is on the interaction of culture, civilisation, social change, and science. Major topics include: ancient societies, religion and science, concepts of the universe, theories and hypotheses.

AH103 Critical Thinking
Semester subject
Three hours per week
Prerequisite, nil
Assessment by examination and class exercises
The aim of this course is to help students develop critical reasoning skills which they can apply both in the assessment of arguments encountered in academic and everyday contexts and in the construction of their own 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 objections to claims made and to respond to them in a sustained and objective manner. Such skills are basic to the effective completion of academic assignments.
AH203 Nature and Human Nature
Semester subject
Three hours per week
Prerequisite, one of AH100, AH101, AH102, AH103 or approved equivalent
Assessment is continuous

The purpose of this course is to examine the ways in which biological theories of behavior 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 nature/nurture 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; behaviour 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

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. It reveals if practical implications of such research, and to consider what are the most promising lines of research for the future. The subject examines Marxist, hermeneutical, structuralist, post-structuralist and symbolic interactionist approaches to culture, and the conflicts between the proponents of its different schools.

References

AH301 Rationality
Semester subject
Three hours per week
Prerequisites, AH100, and two of AH200, AH201, AH202, AH203 or with at least one of AH200 and AH201
Assessment is continuous

This course explores a variety of questions posed by the problem of rationality.

Textbooks
Please consult with lecturer before buying textbooks.

References
Brown, H. Rationality. N.Y.: Routledge, 1990

AH304 Philosophy of Science A
Semester subject
Three hours per week
Prerequisites, two of AH200, AH201, AH202, AH203 or approved equivalents
Assessment is continuous

An introduction to some of the central topics in current and classical philosophy of science and social science. What is science? What constraints do social factors place on science and social science? How do we develop our laws and theories? Are all events caused? What is the function of paradigms? What is the role of the scientist and social scientist in the development of knowledge? Among the authors whose works will be considered are Hempel, Kuhn, Lakatos, Latour, Popper, Ravetz, Ziman

Preliminary reading
Theobald, D. An Introduction to Philosophy of Science. London: Methuen, 1968

Textbooks
Please consult with lecturer before buying textbooks.

References

AH305 Philosophy of Science B
Semester subject
Three hours per week
Prerequisites, two of AH200, AH201, AH202, AH203 or approved equivalents
Assessment is continuous

The Instrumentalism/Realism debate. Can we have absolute knowledge of the world? Is there such a thing as truth?; is our knowledge always tentative and open to revision? What effects have values, attitudes, emotions and belief systems on the scientific enterprise. e.g. Do medical ethics? Do the sciences and social sciences? Among the authors whose works will be considered are Dewey, Smart, Popper, Kuhn, Ravetz.

Preliminary reading

Textbooks
Please consult with lecturer before buying textbooks.

References
Kannegiesser, H. Knowledge and Science. South Melbourne: Macmillan, 1977

AH306 Practical Ethics
Semester subject
Three hours per week
Prerequisites, two of AH200, AH201, AH202, AH203 or approved equivalents
Assessment is continuous

In this subject an attempt is made 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.
This course is designed to acquaint students with the Italian language, the native tongue of one of Australia’s largest immigrant groups. The broad aim is to enable students to communicate with Italians, on both linguistic and socio-cultural levels. The major study in Italian therefore strongly 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 consists of AA100 at stage one, followed by AA200 at stage two, then AA300 and AA302 at stage three. Normally, AA300 is completed prior to, or concurrently with, AA302.

Students undertaking a major in Italian are also strongly advised to enrol for AA102 Understanding Italy.

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

If a student requests exemption from any part of an Italian 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.

Subject offered

<table>
<thead>
<tr>
<th>Code</th>
<th>Stage</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA100</td>
<td>1</td>
<td>Understanding Italy</td>
</tr>
<tr>
<td>AA102</td>
<td></td>
<td>Italian 1</td>
</tr>
<tr>
<td>AA200</td>
<td>2</td>
<td>Italian 2</td>
</tr>
<tr>
<td>AA300</td>
<td>Stage 3</td>
<td>Italian 3A</td>
</tr>
<tr>
<td>AA302</td>
<td></td>
<td>Italian 3C</td>
</tr>
</tbody>
</table>

Subject details

**Stage one**

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA100</td>
<td>Understanding Italy</td>
</tr>
</tbody>
</table>

Full year subject — equivalent value 3 semester subjects

Six hours per week

Prerequisite, nil

Assessment is partly continuous, partly by examination

This is a practical introduction to the language; a basic grammatical and conversational ability will be achieved. Use is made of language laboratory facilities. The course also includes a general introduction to the study of Italian civilization and the Italian way of life.

Textbooks


References

Appropriate references will be given by the lecturers at the beginning of the year.
AA102  Understanding Italy

Semester subject
Three hours per week, evening only
Prerequisite, nil

The aim of the course is to explore some of those influences which have shaped the development of Italy into a modern industrial nation. The course is designed
(a) To give students an appreciation of the Italian way of life and understanding of the people of Italy today.
(b) To develop in the students an understanding of contemporary Italy by introducing them to recent historical, existing and changing Italian cultural values, social, political and economic issues.

Stage two
AA200  Italian 2

Full year subject — equivalent value 2 semester subjects
Six hours per week
Prerequisite, AA100 or approved equivalent
Assessment: partly continuous, partly by examination

The main objectives of this subject are:
To extend the knowledge of Italian language and literature thus 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


References

Stage three

Note:
In order to complete a major in Italian, students must take both Italian 3A and Italian 3C. The two subjects may be taken concurrently or Italian 3C may be taken after completion of Italian 3A.

AA300  Italian 3A

Full year subject — equivalent value 2 semester subjects
Six hours per week
Prerequisite, AA200 or approved equivalent
Assessment: partly continuous, partly by examination

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 oral skills through conversation and discussion in Italian; to develop in the student an understanding of contemporary themes in Italian history; to enable the student to present a report on the rise of Fascism to the present day Italy, which is complemented by contemporary documents on present day Italy and appropriate films and other media.

Textbooks

AA302  Italian 3C

Full year subject — equivalent value 1 semester subject
Two hours per week
Prerequisite, AA300 (Italian 2 if the subject is being studied concurrently with Italian 3A)
Assessment is continuous

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.

DEPARTMENT OF HUMANITIES cont.

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. This course trains students to communicate effectively in Japanese and it also provides the opportunity to study Japanese culture, society and economy through the language. The emphasis is on contemporary Japanese.

The subjects AJ100 or AJ103, AJ200, AJ300 and AJ301 form a degree major in Japanese. AJ300 can be completed prior to, or concurrently with AJ301.

Students intending to major in Japanese should enrol in the first instance in AJ100 Japanese 1.

Students undertaking a major in Japanese are strongly advised to enrol also for Introduction to Japan — A Cultural Overview and Communication in Japanese, which provide an essential background to Japanese language and culture.

Subjects offered

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<tr>
<th>Code</th>
<th>Stage 1</th>
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<td>Japanese 1</td>
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<td>AJ103</td>
<td>Advanced Japanese 1 (alternative to AJ106)</td>
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<td>AJ200</td>
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<td>Japanese 3B</td>
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<td>AJ300</td>
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<td>Work Experience in Japan (Double degree students only)</td>
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Swinburne Institute of Technology

If a student requests exemption from any part of a Japanese subject no credit will be granted unless the student has previously completed studies at a recognised institution.

Subjects offered

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<th>Code</th>
<th>Stage 1</th>
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<tr>
<td>AJ300</td>
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<td>Work Experience in Japan (Double degree students only)</td>
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</tbody>
</table>
**Subject details**

**Stage one**

**AJIOO Japanese 1**
- Full year subject — equivalent value 3 semester subjects
- Eight hours per week daytime
- Six hours per week evening
- Prerequisite: nil
- Assessment is continuous

This subject is designed to introduce students to the Japanese language and training is provided in language patterns and grammar, writing, conversation, listening and comprehension. Films, slides and a variety of taped materials are used extensively throughout the course.

As a further aid, taped cassettes of each lesson can be purchased. It is highly recommended that students enrolled in this subject also enrol for AJ102 which is offered in second semester.

**Textbooks**

**AJ103 Advanced Japanese 1**
- Full year subject — equivalent value 3 semester subjects
- Eight hours per week daytime
- Prerequisite, VCE or equivalent, competence in written and spoken Japanese
- Assessment is continuous

This subject is designed to allow students with VCE (or equivalent) competence in the language to commence Japanese at a level commensurate with their attainment. The course includes training in language patterns and grammar, writing, conversation, listening and comprehension. Films, slides and a variety of taped materials are used extensively throughout the course.

As a further aid, taped cassettes of each lesson can be purchased. It is highly recommended that students enrolled in this subject also enrol for AJ102 which is offered in second semester.

**Textbooks**

**AJ102 Introduction to Japan — A Cultural Overview**
- Semester subject
- Three hours per week
- Prerequisite: nil
- Assessment is continuous

This subject introduces historical and cultural topics of direct relevance to the development of Japanese language and society. References in English are used.

**Textbook**

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**Stage two**

**AJ200 Japanese 2**
- Full year subject — equivalent value 2 semester subjects
- Eight hours per week daytime
- Six hours per week evening
- Prerequisite, AJIOO or approved equivalent
- Assessment is continuous

This subject extends the range of language patterns, grammar and writing. It also provides further training in oral and aural Japanese. Students are introduced to various topics on Japanese culture and society through reading in Japanese. A variety of audio-visual material is used throughout the course.

It is highly recommended that students enrolled in this subject also enrol for AJ202 which is offered in first semester.

**Textbooks**

**AJ202 Communication in Japanese**
- Semester subject
- Three hours per week
- Prerequisite, AJIOO
- Assessment is continuous

This subject introduces topics relevant to language and effective communication. It aims at acquainting students with the differences between English and Japanese communication patterns. References in English are used.

Students are encouraged to establish contact with Japanese people and to use data collected from interviews with them in the writing of essays and research assignments. The contact scheme is an important component of this course as it provides the student with the opportunity to converse in Japanese and to become familiar with Japanese attitudes and customs.

**Textbook**

**Preliminary reading**

**References**


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Faculty of Arts

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**Sansom, G.B. *Japan: A Short Cultural History*. 2nd edn, N.Y.: Meredith, 1943, Repr. 1962.**
**Stage three**

**AJ300 Japanese 3A**

- Full year subject — equivalent value 2 semester subjects
- Six hours per week
- Prerequisite: AJ200 or approved equivalent
- Assessment is continuous

This subject continues systematically to extend the students’ use of spoken and written Japanese. The reading component includes some literature and a 30% contemporary non-fiction material. The speaking component is concentrated on simplified speech and broadcasts and excerpts from video programs. The conversation component extends the range of situational dialogues and allows individualised conversational practice on a wide variety of topics.

Students whose Japanese 2 results are credit or above may choose to study stage three in Japan, in which case they are still required to complete the Swinburne stage three course work and to sit for the final test at Swinburne. A scholarship scheme and a ‘Work-in-Japan’ scheme have been established to enable students to undertake this alternative.

**Textbooks**


Details about reading materials available from department.

**References**

Please consult with lecturers before buying these books.


**AJ301 Japanese 3B**

- Full year subject — equivalent value 1 semester subject
- Two hours per week
- Prerequisite: AJ200 or approved equivalent
- Assessment is continuous

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 AJ300

**AJ302 Work Experience in Japan**

This elective subject is only available to students undertaking the Double Degree BusinessArts (Japanese) course.

Prerequisites: Minimum 3 years of Double Degree BusinessArts (Japanese) studies including satisfactory completion of Japanese 3A.

Objective: 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 culture, business, and company procedures.

**Essay new words:**

(students who wish to take this subject should see the subject leader.)

**AJ300 Japanese 3A**

**Subjects offered**

**Stage 1**

- AK100 Korean 1
- AK101 Background to Contemporary Korean Society

**Stage 2**

- AK200 Korean 2
- AK201 Contemporary Korean Society
- AK203 Modern Korea

**Stage 3**

- AK300 Korean 3A
- AK301 Korean 3B

**Subject details**

**Stage 1**

- Full year subject — equivalent value 3 semester subjects
- Eight hours per week daytime
- Six hours per week evening
- Prerequisites nil
- Assessment is continuous

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.

**Textbooks**

Buzo, A.F. and Shin, G.H. Learning Korean: New Directions 1 & 2

Buzo, A.F. Learning Korean: Hangeul Book 1

**AK101 Background to Contemporary Korean Society**

- Semester subject
- Three hours per week
- Prerequisites: nil
- Assessment is continuous

This subject will provide an introduction to pre-modern Korea of particular relevance to the understanding of modern Korean society.

The course deals with the structure of politics and society of the Choson Period (1392-1910), with particular attention paid to developments in Neo-Confucian thought during the period. The course will use English language reference material.
AK203 Modern Korea
Semester subject
Three hours per week
Prerequisite: students taking an Asian Studies major, who must have any stage one political studies subject or equivalent
Assessment is continuous

This subject will include topics such as the legacy of the Japanese colonial period (1910-45), a brief history of the Republic of Korea (1947-present) and the Democratic People's Republic of Korea (1948-present), Korean political practices and values, and the formulation and execution of ROK economic 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
Han, Sung-seo. The Failure of Democracy in South Korea. University of California Press, 1974

Stage three

AK300 Korean 3A
Full year subject — equivalent value 2 semester subjects
Six hours per week
Prerequisite: AK200 or approved equivalent
Assessment is continuous

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
Shin, G.H. and Buoz, A.F. Learning Korean: New Directions 5 and 6 (in preparation)

AK301 Korean 3B
Full year subject — equivalent value 1 semester subject
Two hours per week
Prerequisite: AK200 or approved equivalent
Assessment is continuous

This subject consists of a two-hour class which deals with a number of contemporary issues in Korea, in Korean. Materials are drawn from a variety of contemporary sources, and presented in such a way as to permit complementary language exercises

Textbook

AK200 Korean 2
Full year subject — equivalent value 2 semester subjects
Eight hours per week
eight or Six hours per week evening
Prerequisite AK100 or approved equivalent
Assessment is continuous

The objective 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 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. It is highly recommended that students enrolled in this subject also enroll in AK202 and/or AK203.

Textbooks
Shin, G.H. and Buoz, A.F. Learning Korean: New Directions 3 and 4

AK202 Contemporary Korean Society
Semester subject
Three hours per week
Prerequisite: AK200, except in the case of students taking an Asian Studies major, who must have any stage one political studies subject or equivalent
Assessment is continuous

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 has less retained the ancient and highly individualised culture 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 occupation, 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.)
DEPARTMENT OF HUMANITIES cont.

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 the concepts and ideas in literary texts, such as the development of contemporary literary and critical theory, and the ways in which literature, as a form of communication, gives meaning to our experience and the world we live in.

A literature major consists of one or both of Nineteenth and 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

Code
Stage 1
AL100 Twentieth Century Literature
AL101 Nineteenth Century Literature
Stage 2
AL201 Seventeenth and Eighteenth Century Literature
AL202 Contemporary Australian Writing
AL203 Renaissance Literature
AL204 Reading, Writing and Criticism
Stage 3
AL301 Australian Literature — 19th Century
AL302 Australian Literature — 20th Century
AL303 Cross-cultural Perspectives
AL305 Literature of the United States

Subject details

Stage one

AL100 Twentieth Century Literature
Semester subject
Three hours per week
Prerequisite, nil
Assessment is continuous

This subject explores the impact of twentieth century innovation and experimentation in the arts. 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.

References

AL101 Nineteenth Century Literature
Semester subject
Three hours per week
Prerequisite, nil
Assessment is by assignments and examination

This subject surveys Romantic and Realist literature of the nineteenth century, examining the rise in awareness of the increasing divergence from social concerns. The course covers English and French fiction and drama, and English poetry.

Preliminary reading
As for AL100

Stage two

AL201 Seventeenth and Eighteenth Century Literature
Semester subject
Three hours per week
Prerequisite, AL100 or AL101, or approved equivalent
Assessment is by assignments and examination

The relationship between literature and society in seventeenth and early eighteenth century England with particular emphasis on the shorter poems of Milton: Restoration drama: the social values that are exposed by the Augustans; the satirists, especially Swift and Pope, as critics of their society.

Preliminary reading

AL202 Contemporary Australian Writing
Semester subject
Three hours per week
Prerequisites: AL100 or AL101 or approved equivalent, and APH12 for students majoring in Australian Studies
Assessment is continuous

The subject introduces students to the various kinds of writing being practised by contemporary authors. A diversity of forms will be examined — poetry, fiction, drama, non-fiction (autobiography and biography), as well as the contribution made to Australian literature by authors for whom English is not the first language.

Reference

AL203 Renaissance Literature
Semester subject
Three hours per week
Prerequisites: AL100 or AL101 or approved equivalent
Assessment is continuous

The principal aim of the subject is to introduce students to a range of renaissance texts, literary and discursive, from the early sixteenth to the early eighteenth centuries. Discussion will focus on how these texts were produced in a context of change.

Recommended reading
Ong, W.J. Orality and Literacy. London: Methuen, 1982

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

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 broad range of literary models, it actively involves students in a dynamic investigation of what writing is, how it is produced and how it operates.

Recommended reading
Stage three

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

This development of the novel and the short story in Australia during the 19th century, up to the time of Federation. Poetry during the 19th century.

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

From Federation to the present day. Poetry, fiction and short stories. In each module students will undertake a piece of original research which need not necessarily be any one of the authors studied on the course.

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

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.

This subject combines 19th and 20th century literary traditions. The 19th century concentrates on seminal literary movements and authors, with particular emphasis placed on the interplay between literary and contemporary allusions connecting American literature with European and other cultural traditions. 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

DEPARTMENT OF PSYCHOLOGY

Psychology

The undergraduate psychology program provides students with a broad introduction to psychology in stages one and two and for those majoring in psychology, stage three emphasis is on vocational skills and knowledge relevant to applied fields.

The stage one course in psychology introduces students to a range of studies in psychology and statistical design and analysis. Students intending to major in the subject are required to take APYS100 Psychology 100 and APYS101 Psychology 101. Each of these subjects comprises lectures, practical work and statistics.

In stage two, in addition to APYS200 Developmental Psychology and APYS201 Social Psychology, it is required that SM279 Design and Measurement 2A and SM279 Design and Measurement 2B be taken by students wishing to major in psychology.

In stage three, subjects are offered in Personality, Methods and Measures, Cognition and Human Performance and Counselling and Interviewing.

It should be noted that the undergraduate psychology program is sequential in nature; completion of the prescribed subjects at one stage of the program is a prerequisite for study at the next level. Thus a student must complete both stage one psychology subjects before enrolling in any stage two psychology subject, and must complete both stage two psychology subjects before enrolling in any stage three subject. Details of these prerequisite arrangements are shown in entries for all psychology subjects.

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 Science degree.

Students should note that two stage three courses in psychology are worth half a semester subject toward their degree subject total. These courses are APYS311 and APYS314, all other courses in psychology are worth one semester subject.

Many people take up a career related to psychology after completion of a three-year program, but some choose to work as 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 (APS). The minimum academic requirement for associate membership of the APS is completion of an approved four-year program of psychological study. The Swinburne Bachelor of Arts psychology major has APS approval as a sequence of three years' study and, to become eligible for associate membership in the APS, graduates must then complete an approved fourth-year course. (A list of approved courses is published in each volume of the APS journal Australian Psychologist.) The Swinburne Graduate Diploma in Applied Psychology is an accredited fourth-year course.

In addition the Department of Psychology offers a fifth and sixth year coursework program leading to the award of a Master of Arts degree in Counselling Psychology.

The Department also accepts a limited number of suitably qualified applicants for the degree of Master of Arts and PhD in Psychology by research and major thesis.
Subjects offered in the BA program

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<td>AY314</td>
<td>Counselling and Interviewing</td>
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Subject details

Stage one

AY100 Psychology 100
Semester subject
Four hours per week daytime
or
Three and a half hours per week evening
Prerequisite: nil
Assessment is based on essays, practical exercises (including participation as a subject in research) and examinations

AY101 Psychology 101
Semester subject
Four hours per week daytime
or
Three and a half hours per week evening
Prerequisite: AY100
Assessment is based on essays, practical exercises (including participation as a subject in research) and examinations

This course divides various aspects of cognition. Topics covered include learning, memory, information processing, intelligence and problem solving, motivation and emotion. The design and analysis of experimental studies again forms a major part of the teaching program.

Stage two

Note:
SM278 and SM279 must be taken by students wishing to major in psychology.
For details of the subjects SM278, Design and Measurement 2A and SM279, Design and Measurement 2B, students should refer to the section entitled 'Subjects offered by other faculties'.

AY200 Psychology 200
(Developmental psychology)
Semester subject
Four hours per week daytime
or
Three and a half hours per week evening
Prerequisite: AY100 and AY101
Corequisite or prerequisite: SM278
Assessment is based on a report, an essay, and an examination

This subject involves the scientific study of the personal and situational factors affecting individual social behaviour. The aim is to introduce students to the key conceptual and theoretical models in social psychology and to develop scientific and personal skills.

The teaching program involves two lectures per week plus a tutorial and practical session.

Reference

AY201 Psychology 201
(Social psychology)
Semester subject
Four hours per week daytime
or
Three and a half hours per week evening
Prerequisite, AY100, AY101, SM278
Assessment is continuous

This subject involves the scientific study of the personal and situational factors affecting individual social behaviour. The aim is to introduce students to the key conceptual and theoretical models in social psychology and to develop scientific and personal skills.

The teaching program involves two lectures per week plus a tutorial and practical session.

Reference

AY311 Methods and Measures
Semester subject — equivalent value of one half semester subject
Two hours per week
Prerequisites. AY200, AY201, SM278, SM279
Assessment will involve four assignments

This subject is made up of two modules: (i) Analysis and Evaluation of Psychological Research, and (ii) an Introduction to Psychometric Techniques.

In the first module, emphasis will be given to developing an understanding of the techniques, procedures and problem-solving strategies used in psychology research. The aim of this module is to enhance students’ ability to develop critically and evaluate research proposals, programs and reports.

In the second module, students will be involved with the practical problems of psychometrics: test design, construction and validation. The aim of this module is to help students to develop a greater appreciation of the advantages, disadvantages, and limitations of the various psychological tests.

Approximately the first hour of most of the two hour sessions will be devoted to information input and the latter hour to laboratory exercises.

References
Aiken, L.R. Psychological Testing and Assessment. 6th edn, Boston: Allyn and Bacon, 1988
Kline, P. A Handbook of Test Construction. London: Methuen, 1986

Preliminary reading...
Students wishing to familiarise themselves with concepts in psychology should read any recent introductory psychology text available from most regional libraries.

Textbook
Details will be provided in the first lecture in AY100.
AY312 The Psychology of Personality
Semester subject
Three hours per week
Prerequisites, AY200, AY201, SM278, SM279
Assessment is based on an examination and a research project and report.

This course focuses on the behaviour and experience of the individual as a whole person. Attention is given to contributions from other specialized fields of psychology, especially development, social interaction, learning, 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 cover: psychodynamic, dispositional, cognitive/behavioural, and social/constructive. Issues such as methods of personality assessment and research strategies are examined. Selected contemporary issues are examined including: conflict and defense; the self; self-regulation; purpose and meaning; and the effective personality.

Reference

AY313 Cognition and Human Performance
Semester subject
Three hours per week
Prerequisite, AY311
Assessment is based on project work and laboratory exercises.

This course examines the theories, mechanisms and processes involved in cognitive functioning applied to memory, attention and human performance. It will provide a basis for the understanding of skill acquisition, of the effects of motivation and overload, and of arousal levels on performance. After a general introduction to theory, the following topics will be examined: structure and function of memory, attention and perceptual-motor performance; human skills. Selected applications of these topics will be considered in areas such as occupational psychology, sports psychology, decision-making, clinical psychology.

References

AY314 Counselling and Interviewing
Semester subject — equivalent value of one half semester subject
Two hours per week
Prerequisite, AY312
Assessment is based on theory, examination and a practical/interviewing skills project.

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 microcounseling models proposed by Levy. Video-assisted practice interviews form a major in-class activity. Models of counselling, such as that proposed by Egan, are discussed.

The major theoretical perspectives in relation to counselling are introduced: experiential, psychodynamic, cognitive/behavioural, family systems. Issues concerning the role of counsellors in society are considered.

References

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 AY200, AY201, SM278 and SM279, and in third year AY311, AY312, AY313 and AY314.

The major in psychophysiology is taught by the Faculty of Applied Science. Students should consult the Faculty of Applied Science handbook for details of the psychophysiology subjects constituting this major.

DEPARTMENT OF SOCIAL AND POLITICAL STUDIES

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 can choose two semester subjects from AM203, AM204, AM205 and AM206. They may then choose three from AM207, AM302, AM303, AM306 and AL303. 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 AM103, students taking this stream can choose two semester units from AM202, AM204, AM205 and AM206. They may then choose three from AM302, AM303, AM306, AM307 and AM308.

Students wishing to select later year subjects from both streams, rather than specialising in one, must complete both level one prerequisites (AM102 and AM103). The hands-on production subjects are available to students in both streams.

Subjects offered

**Code**
**Stage 1**
- AM102 Media & Meanings: An Introduction
- AM103 Broadcast Media: Issues & Accountability

**Stage 2**
- AM202 The Fifth Estate: New Media
- AM203 Popular Culture
- AM204 Media and Australian Society
- AM205 Special Issues in Media
- AM206 Making News — The Theory & Practice of Journalism

**Stage 3**
- AM302 Media Policy & Social Change
- AM303 Radio Production & Criticism A
- AM303 Radio Production & Criticism B
- AM366 Professional Attachment Program
- AM307 Information Society: Promises & Policies
- AM308 Local Press, Production & Politics

**Subject details**

**Stage one**

**AM102 Media and Meanings: An Introduction**

Three hours per week
Prerequisite, nil
Assessment is continuous

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 television. Our interest in studying these texts is not so much to establish their worth, or otherwise, as to draw attention to the mechanics of our work as readers to the ways in which we produce meaning; 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 narrative theory, with particular attention being given to their visual aspects.

References
Sobchack, V. and Sobchack, V. An Introduction to Film, 2nd edition, Boston: Little Brown & Co. 1987
Fiske, J., Television Culture, New York: Methuen, 1987
AM103 Broadcast Media: Issues and Accountability

Three hours per week
Prerequisites: nil
Assessment is continuous

This subject is an introduction to some of the major historical and contemporary issues about broadcasting as a medium of mass communication, primarily in an Australian context. It examines the political context of broadcasting institutions, public and private, and their relationship with other social institutions, key political, social and ethical issues associated with broadcasting are canvassed, such as the ownership and control of radio and television stations, the regulatory climate, accountability in programming, relationships to audiences, and journalistic practices and ethics. Vexed issues, such as media freedom and reform, public participation in ownership and programming, regulatory changes in broadcasting, and professional journalistic standards are discussed from a range of perspectives.

References
Chadwick, P., Media Mates: Carving up Australia’s Media, South Melbourne: MacMillan, 1989
Inglis, K.S., This is the ABC. The Australian Broadcasting Commission, 1982-1983, Carlton: Melbourne University Press, 1983
Williams, R., Television, Technology and Cultural Form, London: Fontana, 1974

Stage two

AM202 The Fifth Estate: New Media

Semester subject
Three hours per week
Prerequisite: AM103 or AP112 for students majoring in Australian Studies
Assessment is continuous

This subject examines the convergence of broadcasting and telecommunications in the context of political, economic and social change associated with new media. New communications 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. Norms such as technological determinism, media plurality, information access and equity, are related to an altered 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, such as Aboriginal and Pacific communities.

References
Wheelwright, E. and Buckley K., (eds), Communications and the Media in Australia. Sydney: Allen and Unwin, 1987

AM203 Popular Culture

Semester subject
Three hours per week
Prerequisites: AM102 and one stage 2 media subject
Assessment is continuous

This subject will introduce students to the current trends and debates in contemporary culture and cultural analysis. It will investigate the diversity of popular cultures, 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 discuss the implications of these to the major cultural institutions 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.

AM204 Media and Australian Society

Semester subject
Three hours per week
Prerequisites: AM102 or AM103, and AP112 for students majoring in Australian Studies
Assessment is continuous

This subject considers the Australian media within the wider context of a cultural and political enquiry. We examine definitions of popular culture and ways in which Australian media and media institutions construct and foster these. We consider patterns of influence – especially American and English, in the constitution and maintenance of both media cultures and institutional frameworks. And we examine issues pertinent to Australian media culture in the context of contemporary Australian society, a context which includes increasing tendencies towards economic rationalization. We examine patterns of influence – especially American and English, in the constitution and maintenance of both media cultures and institutional frameworks. And we examine issues pertinent to Australian media culture in the context of contemporary Australian society, a context which includes increasing tendencies towards economic rationalization.

References

AM205 Special Issues in the Media

The subject offered in 1991 will be Women and the Media

Semester subject
Three hours per week
Prerequisites: AM102 or AM103 and any stage two media studies subject or equivalent
Assessment is continuous

This subject will investigate the major relationships between women and the media today. The general framework of study will comprise representation, audience reception, consumption practices, and employment. We will be looking to a variety of skills in the exploration of issues pertaining to women. These involve both textual 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 specific needs and practices of women as audiences and media users, and the structures and institutions affecting these, especially given the current legislation and equal opportunity.

References

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

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 (two four hour sessions per week); and (ii) practical lessons in news writing (two four hour sessions per week).

References
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 freedom of the press, the concentration of newspaper ownership, the power of the press, the structure of news organisations, ethics, news values, bias, media accountability, defamation, 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
Tiffen, R. The News Film South-East Asia: the Sociology of Newsmaking, Institute of Southeast Asian Studies, Singapore, 1978
Williamson, D. Feature Writing for Newspapers, New York, Quartet Books, 1982
Quartet Books, 1983
Tiffen, R. The News From South-East Asia: the Sociology of the Press, South Melbourne, Sun Books, 1979
Williamson, D. Feature Writing for Newspapers, New York, Hastings House, 1975

Stage three

AM300 Cinema Studies
Semester subject
Four hours per week
Prerequisite, AM102 and any two stage two media studies subjects or equivalent
Assessment is continuous

The viewing material for this subject is a selection of films arranged generically (e.g. the musical, or the horror film, or the western, or the science-fiction film), thematically (the romantic drama, or the journey film, or the domestic drama), or stylistically (the films noirs, or the problems of realism, or 'to cut or not to cut?'). These films will provide study samples for a pursuit of ideas introduced during the previous two years of the course into a systematic analysis of film.

The emphasis is upon examining and developing various modes of criticism within the context of film theory. Attention is thus focused upon structuralist, semiotic and theoretical studies, and their function in relation to the human discourse which dominates mass traditional critical work. In this framework, particular questions to do with developing a film will be on the agenda for ongoing consideration; for the kind of reading (e.g., the kind of reading which inscribed into the works examined was played into the methods of examination), for various systems of representation, for the usefulness of the work of the 'frame-by-frame hermeneut' to the kind of relationships (e.g., between a film and its viewed as the place of the 'author' in this process in relation to the formal and thematic organisation of the works which I bear this hermeneutic function for the usefulness of this between the film, the industry and the culture in which they exist.

Assessment will be based upon essay presentation and class work.

References
Grant, B.K. (ed) Film Genre Reader University of Texas Press, 1986
Cine-Action, Cinema Papers, The Journal of Popular Film and Television, Screen, Wide Angle

Faculty of Arts

AM302 Radio Production and Criticism A
Semester subject
Four hours per week
Prerequisites, AM102 or AM103 and any two stage two media studies subjects or equivalent
Assessment is continuous

This subject incorporates both radio production and criticism. It has an extensive production content in which all techniques basic to pre-recorded and live radio broadcasting are covered, including recording techniques, interviewing, scripting, narrating, editing and sound mixing.

Intertwoven with this production work is a theoretical investigation where the medium is approached from a number of distinct but inter-related perspectives. An attempt is made to discover those respects in which radio production and broadcasting are relatively autonomous from, along with those features shared with other forms of cultural production. This for example, a study of the difference between speaking and writing, listening and acting suggests the framework for radio or that it is not merely a re-direction of the methods developed historically through the criticism of literature. Similarly, phenomena specific to the perception and cognition of sound is identified, and through extensive listening to sound, music and radio, a working vocabulary of sound analysis is developed.

Critical work will focus on Melbourne radio, commercial, public and government, which will be discussed from historical and contemporary perspectives.

Textbook
Swinburne Radio Production Notes
References
Annenh, R. Radio, New York: Da Capo, 1972
Brecht, B. Radio as a Means of Communication. Screen V20, Nos. 314
Crisell, A. Understanding Radio. London: Methuen, 1986
Hicks, M. Radio on Radio. Swinburne, 1985 (Audio Tapes)
Hood, S. Brecht on Radio, Screen V20, Nos. 314
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

In this subject, radio production skills are developed further and applied to a wide range of radio forms. Students have the option of working as part of a team producing a live weekly program on 3RRR FM or learning techniques of feature documentary, montage and radio drama production.

The role of radio within our culture is considered from two perspectives. Firstly through an examination of the broad structural features of the medium and the consequences of these for the democratic creation and management of mass culture in our society. Secondly through a structural analysis of the creation of meaning within radio, aiming to uncover the ‘preferred reading’ of social reality which is being ‘spoken’ within the construction of mainstream radio broadcasts in Australia. The analysis of form in radio continues with the study of ‘hierarchies of discourse’ operating within radio documentaries, accompanied by a consideration of the relationship between language and culture.

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 2 to a limited number of students. Selection is made on the basis of the applicant’s academic excellence and overall commitment to previous course work. Those students who will be attached, after consultation, to a variety of media organisations. There 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, AM103, AM202 and one other stage two media studies subject or equivalent
Assessment is continuous
This subject is an examination of media and communications in the context of a post-industrial or information society. Key questions about the contemporary technological revolution are addressed, such as who decides about new technologies, and how, whose interests are served, how national policies are fashioned, and whose information needs will be met by these technologies of abundance. Crucial here is a variety of political, social and ethical issues, including vexed questions such as ownership and control of information by privatisation and de-regulation of broadcasting and telecommunications, corporate concentration, community information systems and international information transfer. Considerable emphasis is placed on the methodology of investigation, analysis of reports of government inquiries, and presentation of information. Students are encouraged to present their work in a form that will enable it to be available to the community.

References

AM308 Local Press, Production and Politics
Semester subject
Four hours per week
Prerequisites, AM102 or AM103, AM206 and one other stage two media studies subject or equivalent
Assessment is continuous
This subject examines the local press in Australia. The four-hour unit is divided into two units of study: (i) the tradition of local press in Australia and its reportage of local government politics (two hours per week), and (ii) the production of local newspapers and newsletters (two hours per week). The first area of study will focus on the development of the local press in Australia, the creation of suburban and regional newspaper chains, and the relationship between local press reporters and their sources of news. Key issues include the nature of local government politics, balance, bias and objectivity, the commercial and political influences of local sources, and the organisation of the definitions of local news. Students will also be required to report on local government issues. The second area of study will focus on practical exercises in the production of local newspapers and newsletters. Students will also develop basic desktop publishing skills.
Political Studies

Political studies is concentrated into two principal areas. Australia and Asia. 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 on 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 subjects offered, but two stage one political studies subjects are required as prerequisites for four or more stage two subjects.

Subjects offered

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Subject details

**Stage one**

**API00** Australian Politics

Semester subject
Three hours per week
Prerequisite, nil
Assessment is by class work and essays

This subject is an introduction to Australian politics. To begin with the subject covers the basic framework of government. The following topics are considered: the electoral system, the constitutional basis, federalism and the Westminster system, parliament, cabinet and the public service, the organisation of the main political parties, and the role and future of minor political parties. These topics are taught at a level which presumes no previous knowledge of Australian politics.

**Preliminary reading**


or


**AP101** Foundations of Modern Politics

Semester subject
Three hours per week
Prerequisite, nil
Assessment is by class work and essays

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 between them, and follows the development 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**

*La Feber, Walter, America, Russia and the Cold War.* 5th edn, New York: Knopf, 1985

**References**


**AP104** Australia and South-East Asia

Semester subject
Three hours per week
Prerequisite, nil
Assessment is by papers and tutorial participation

Australia’s involvement with her neighbours in south-east Asia since 1945 is examined against the background of the crisis within and the disputes between, the countries of the region. Topics considered include studies of communist parties, communalism, political violence, authoritarian and military rule; student activism in Indonesia, Malaysia, Vietnam, Kampuchea; and Australia’s relationships with south-east Asia.

Reading guides are distributed.

**AP111** Modern China

(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 papers and tutorial participation

This subject will focus on understanding some aspects 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 listed overleaf.
**Textbooks**

**AP112 Australian Identities**
Semester subject
Three hours per week
Prerequisite, nil
Assessment is by essays and tutorial participation
This is the first in a new sequence of Australian Studies subjects. This subject examines four ways in which people identify themselves as members of society. It is about looking at national identity to see how different ideas of what it means to be Australian have developed during the last one hundred years. It goes on to explore the role of families in moulding gender 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
This subject examines the social and economic changes taking place in 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.

**Textbook**

**Stage Two**

**AP200 Advanced Australian Politics**
Not offered 1992
Three hours per week
Prerequisite, any stage one political studies subject or approved equivalent
A background in Australian Politics and social and political theory is desirable.
Assessment is continuous
In this subject an analysis of power structure in Australia is attempted. 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
In this analysis of politics as an introduction to the theme of power and socialisation, its main objective is to provide students with the basic skills necessary to understand and major forms of power, which they can apply to their immediate environment or to the broader dimensions of society.

**AP202 Europe, Capitalism and The Third World**
Semester subject
Three hours per week
Prerequisite, any stage one political studies subject or approved equivalent but it is advisable to have taken AP113
Assessment is by essays and tutorial participation
This subject relates the shaping of today's Third World to the emergence of capitalism in Western Europe. It examines the forces that have produced the uneven development where some parts of the world are industrialised and rich and other parts still technically primitive and poor.
The broad themes of the subject are the social origins of capitalism and the process of proletarianisation, the Industrial Revolution. European colonisation and the making of a world economy.

**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 tutorial participation and papers
Discussion centres around the problems of Japanese nationalism reflected in the nature of Japan's modernisation, the consequences of her emergence as a world power, her defeat, and re-emergence as an economic power. An examination of the social configuration of Japanese society will shed light on what are claimed to be the characteristic features which distinguish contemporary Japan from other industrialised societies, especially in politics, education, business operations and employer-employee relations.

**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, any stage one political studies subject.
Assessment is by tutorial participation and papers
In 1949 the Chinese Communist Party came to power after the defeat of the Nationalists. This subject investigates the dimensions of new China through an examination of political structures for economic growth, education policies and mass campaigns. By analysing the nature of interpretations and commentaries, a major task will then be the attempt to explore the dimensions of some of these changes from the time of the Cultural Revolution to the present day.

**Textbooks**

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 localising 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**
Dowe, R.E. and Hughes, J.A. Political Sociology. London: John Wiley and Sons, 1972, ch. 1
AP207 Modern Australia
Semester subject
Three hours per week
Prerequisite: any one stage one political studies subject or equivalent
Assessment is by essays and tutorial participation

This subject explores the patterns of change that have shaped contemporary Australia. It starts by looking at the attempts to build a fairer society at the turn of the century, and at the modern social institutions which emerged from that process. It next considers the impact of the Great War, of prosperity in the 1920s and depression in the 1930s on the manner in which wealth and power were shared. It then examines how the experience of those thirty years shaped the grand plans to establish a more just and secure nation after the Second World War. Through a survey of the long post-war boom, it analyses the effects of Australia’s relations with its major allies on domestic and foreign policies. The subject concludes with a study of the ways in which recent governments have tried to adapt national interests to a rapidly changing world.

Preliminary reading

Stage three

AP300 Public Policy in Australia
Not offered 1992
Semester subject
Three hours per week
Prerequisites: AP100 or equivalent, two stage two political studies subjects
Assessment is continuous

In this subject the decision and policymaking structures and processes of the Australian Federal Government are examined. While the focus is on the Federal Government, other institutions and actors in the policy process will also, where necessary, be examined. This could include State Government, business and labour organisations, and other interest and pressure groups. The approach to the study of the decision and policy-making process is through a critical evaluation of the performance and programs of the Hawke 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 and in particular his consensus approach to the formulation of economic policy.

The role of the bureaucracy is discussed and the adequacy of the structural reforms embarked upon by the Labor Government evaluated. Of central concern are the changes to the economic policy process and institutions, the costs and benefits involved, and the adequacy of current arrangements. There are lectures and workshops dealing with selected areas of Labor Government policy. Students are expected to be familiar with the way in which policy is made and are asked to submit a policy case study at the end of the semester.

Reference

AP303 Politics of the USSR
(This subject cannot be taken by students who have passed AP302 Comparative Politics: The Soviet Union)
Semester subject
Three hours per week
Prerequisites: two stage two political studies subjects
Assessment is continuous

The subject introduces students to a comparative analysis of political systems through a study of Soviet government and society. The principal objective is to provide a framework for comparing communist political systems.

The approach is to view socialism as an alternative social and political framework for modernisation and development to that provided by western capitalism. The institutional framework is examined, together with the economic and social transformation of the USSR, and the problems encountered by ‘developed socialism’ in the USSR.

References
Lane, D. State and Politics in the USSR. Oxford: Blackwell, 1986

AP304 Japan in Asia
Semester subject
Three hours per week
Prerequisites: two stage two political studies subjects
Assessment is by seminar participation and papers

A study of Japan’s involvement in south-east and east Asia since 1952. 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.

AP308 Seminar in Political Studies
Semester subject
Three hours per week
Prerequisites: two stage two political studies subjects
Assessment is continuous

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 1991 the subject will be devoted to the study of voting behaviour in Australia, analysing the 1987 and 1990 elections in particular.

AP311 Politics of China B
(This subject cannot be taken by students who have passed AP310 Chinese Politics B)
Semester subject
Three hours per week
Prerequisites: two stage two political studies subjects
Assessment is continuous

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.

Reference

AP312 Problems of Contemporary South-East Asia
Semester subject
Three hours per week
Prerequisites: two stage two political studies subjects
AP104 Australia and South-East Asia is highly recommended
Assessment is based on class participation, a short seminar and a final paper of 3,000 words

This subject provides an understanding of the problems of countries in Australia’s region, and the background from which many of Australia’s recent immigrants have come. It is intended to develop students’ capabilities for undertaking research on the background of temporary issues, and for setting facts out of the conflicting press reports 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
AP313  India — Uneven Development
Semester subject
Three hours per week
Prerequisites, two stage two political studies subjects
Assessment is continuous

The course highlights the uneven character of development in India, relating it to the economic-political structure of Indian society. It explains why a country with an extensive and relatively advanced industrial base also suffers widespread poverty. The course deals with both the empirical and theoretical aspects of development in India. Topics include: ‘green revolution’ and class formation, land reform, agrarian relations, peasant conflict, industrialization, women in the labour force, caste and social status, and population and family planning.

Textbooks
Lakha, S. Capitalism and Class in Colonial India: The Case of Ahmedabad. New Delhi: Macmillan. 1986
- Sterling

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

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 changing circumstances in which Australians have worked 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

DEPARTMENT OF SOCIAL AND POLITICAL STUDIES cont.

Sociology
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.

At stage three, students completing a major must take AS306 Methodology of Social Research plus two others of the six subjects offered.

For those students intending to pursue a career in research and policy analysis the Graduate Diploma in Urban Research and Policy is offered.

Subjects offered

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
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<tbody>
<tr>
<td>AS100</td>
<td>Sociology 1A</td>
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<tr>
<td>AS101</td>
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<tr>
<td>AS204</td>
<td>Models of Sociological Analysis</td>
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<td>AS300</td>
<td>Sociology of Deviance and Social Control</td>
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<td>AS304</td>
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<td>AS305</td>
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<tr>
<td>AS306</td>
<td>Sociology of Minorities</td>
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<tr>
<td>AS307</td>
<td>Methodology of Social Research</td>
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<tr>
<td>AS308</td>
<td>Social Research and Policy</td>
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</tbody>
</table>

Subject details

Stage one

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
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</thead>
<tbody>
<tr>
<td>AS100</td>
<td>Sociology 1A</td>
</tr>
</tbody>
</table>

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

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
during the first semester.
Three hours per week evening
Prerequisite, AS100
Assessment consists of essays, exercises and examination
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, child-rearing, and marital violence and death. Other current issues 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

Stage two
AS200 Social Change
Semester subject
Three hours per week
Prerequisites, AS100 and AS101, and AP112 for students majoring in Australian Studies
Assessment is continuous
Industrial and technological changes have been the defining features of the developed 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.

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

No application of sociological techniques can be productive without an understanding of the theoretical issues which inform sociological explanation. This subject examines the major themes of the most influential social theories, their 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 their ideas are discussed. Feminist theory and the issue of ‘class’ are also covered. Theories are examined for their core assumptions, ideological foundations and approaches to knowledge. The discussions are designed to enable students to link these theoretical debates 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

The study of deviant behaviour and social control raises questions about the nature of social order and the use of knowledge and power by decision-makers and social control agents in ways that reinforce the dominance of 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. In the first part of the course we will examine the contributions of a variety of sociological perspectives which have made to our understanding of deviant behaviour and the social responses it evokes. In our society there are three main forms of control: the criminal justice system, the medical, psychiatric, or therapeutic system and the welfare system and in the second section of the course each of these three ways will be examined. Finally we will identify the ways in which a sociological approach can help inform policy and practice in a number of specific social problem areas such as child abuse, corporate crime, domestic violence and AIDS.

References

Stage three
AS300 Urban Sociology
Semester subject
Four and a half hours per week
during the first semester.
Three hours per week evening
Prerequisites, two stage two sociology subjects including AS204
Assessment consists of tests, class exercises, and an essay

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 the spatial segregation of the state and its relationship with the private. An urban development is also examined.

References

AS302 Sociology of Organisations
Semester subject
Three hours per week
Prerequisites two stage two sociology subjects including AS204
Assessment is continuous

This subject combines elements of the studies commonly referred to as organisations. It includes the study of institutions in which organisations have been identified and analysed and a consideration of the social contexts in which they operate. Organisational structures are controversial because they engender 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: (a) major schools of (b) bureaucracy and industrial sociology; (c) the contemporary pressures on organisational including case studies of democratic and participative organisations.

References
AS303 Current Issues in Sociology
Semester subject
Three hours per week
Prerequisites, two stage two sociology subjects including AS204
Assessment is continuous
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. In 1992 the focus will be 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

AS304 Sociology of Minorities
Semester subject
Three hours per week
Prerequisites, two stage two sociology subjects including AS204
Assessment consists of an exercise, an essay and a test
Minority groups pose some special problems of sociological explanation. In this subject minority situations are studied as particular instances of social inequality and this analysis is linked to general sociological perspectives on social structure. Three types of minority groups are considered. These are racial minorities, ethnic or cultural minorities and sexual minorities. Australian examples of each of these types include Aboriginals, non English speaking immigrants and women. Australian data are examined and comparisons drawn with minority situations elsewhere, such as Britain, USA, New Zealand and South Africa. Issues related to minority dynamics include education and ideology, violence and coercion, policy initiatives for overcoming discrimination and inequality and prospects for mutual accommodation among disparate groups.

References
Jennett, C. and Stewart, R. Three Worlds of Inequality — Race, Class and Gender. Melbourne: Macmillan. 1987

AS306 Methodology of Social Research
Semester subject
Three hours per week
Prerequisites, two stage two sociology subjects including AS204
Assessment is continuous and usually based on one class test and assignments, including a major project
This subject is designed to provide an understanding of the range of methodological issues that link sociological theory with social research practices, and to provide the opportunity for practical experience in research by using different methods and designs.
In this subject, we examine the relationship between theory, research design, explanation and policy. A range of examples from sociological research is used to illustrate the theory-research relationship, and to evaluate the strengths and weaknesses of differing approaches. Consideration is given to methods of data gathering, data analysis and presentation of results, using both quantitative and qualitative strategies. Specific areas covered include social survey research, sampling, secondary data analysis, content analysis and other research strategies.

References
de Vaus, D.A. Surveys in Social Research, Sydney: Allen and Unwin, 1985

AS307 Sociology and Social Policy
Semester subject
Three hours per week
Prerequisites, two stage two sociology subjects including AS204
Assessment is continuous
This subject is designed to allow students to develop their understanding of the relationship between sociological research, theory and social policy.
The subject reviews the major theoretical and ideological approaches to social policy and introduces students to some of the key processes in policy making, e.g. problem identification, policy implementation, evaluation and monitoring.
Particular attention is given to sociology of health and illness and human service delivery.
The subject is structured to allow for the possibility of students undertaking either individual or group projects as part of their required assessment.

References

Subjects offered by other faculties
Listed here are subjects taught by departments in other faculties which may be taken by students enrolled in a Bachelor of Arts course. Any Arts student wishing to take one or more of these subjects must have the approval of both the Faculty of Arts and the teaching department concerned, and enrolment in the subject may depend on the availability of places and/or on certain prerequisites.
Course regulations specify that:
Students taking both majors within the Faculty may take subjects taught outside the Faculty up to a maximum value of four semester subjects or equivalent.
A exception may be made in the case of languages, allowing students undertaking two years of a standard language program to be awarded semester subject values totalling five for two full years of language study.
(For the purposes of this regulation, the subjects SM278 and SM279 Design and Measurement 2A and 2B are regarded as subjects within the Faculty of Arts.)

Faculty of Applied Science
The following Applied Science subjects are available to Arts students:

SC173 Biology
A first year subject offered by the Department of Applied Chemistry for students enrolled in the Bachelor of Arts program.
Basic microbiology: cell structure and function. Elements of microbial world ranging from viruses, rickettsia, chlamydia, bacteria, blue-green algae, protozoa and fungi. Methods of growing, isolating and handling micro-organisms. Microbes and pathogenicity.
SC174 Biology
Thirty hours of lectures
Assessment is 30% theory, 20% prac. work

A second semester subject offered for first year students enrolled in the Bachelor of Arts program.

This subject introduces the cell as the basic biological unit, considers tissues as aggregates of cells with specialised functions and then proceeds to treat the following systems in some detail.

Cardiovascular system: properties of blood; anatomy and physiology of the heart. Mechanical and electrical events of the cardiac cycle; cardiac output. Regulation of heart rate and blood pressure, haemostasis.


Digestive system: the arrangement and functions of the digestive system.


Muscular system: types of muscle and their roles. Mechanism of contraction. Conduction of 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 arcs. 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. Extensive use is made of charts, biological models and some specialized equipment such as spirometers and microcomputers.

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

A stage two, second-semester subject in research design and statistical analysis is planned to complement concurrent and future studies in psychology.

This subject is optional and is offered with the following notes:

1. This subject is designed to complement concurrent and future studies in psychology.

2. This subject is designed to complement concurrent and future studies in psychology.

3. This subject is designed to complement concurrent and future studies in psychology.

Textbook

References

Faculty of Business
The following Business subjects are available to Arts students:

Economics
Economics is offered as a major in the Bachelor of Arts course.

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 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.

Textbook

References
BE103 Economics 1B
Prerequisite: BE102 Economics 1A

This unit introduces students to the way in which economists analyse macroeconomic problems within the framework of the Australian economic and business environment. The course begins with a detailed analysis of the determinants of the level and rate of change of national output, employment, prices and the exchange rate. Attention is then focussed on the role of fiscal, monetary, prices and incomes, balance of payments and exchange rate policies in achieving economic goals.

Textbook

References

BE201 Managerial Economic Analysis
Prerequisites: BE102 and BE103, Economics 1A and 1B

This unit shows how economic analysis can be used to assist business decision-making. Case studies are used to illustrate the concepts involved. The unit deals with these topics: demand analysis (including empirical demand studies and forecasting); cost estimation and forecasting; profit and alternative goals of firms.

References

BE202 Industry and Government
Prerequisites: BE102 and BE103, Economics 1A and 1B

This unit deals with the performance of industry in contemporary economies with special reference to Australia and considers the role of government in these economies. Performance criteria, the nature of the modern corporation (including transnational corporations) and specific approaches to industrial policy and regulation are discussed.

Textbook

Reference

BE203 Industrial Relations
Prerequisite: BE103 Economics 1B

This unit aims to equip students with an understanding of the Australian industrial relations systems. As well as providing a theoretical framework within which the industrial relations systems operate, the unit will address a range of contemporary issues, including: 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 jurisdictional 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

BE301 Public Finance
Prerequisite: BE101 Economics 1

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, consumption and capital gains and wealth tax, subsidies for producers and consumers, and proposals for reform of the Australian tax system;
3. Techniques for evaluating government expenditure 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

BE302 Economic Research
Prerequisite: BE201 Managerial Economic Analysis or BE202 Industry and Government

The intention in this unit is to build students' familiarity with the nature and scope of research 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.

BE303 Monetary Economics
Prerequisite: BE102 Economics 1A and BE103 Economics 1B

Objectives
To provide students with:
— an up-to-date view of Australian financial markets in an international context;
— an appreciation of the nature and workings of the Australian monetary system and changes in this system;

Course outline
— Deregulated financial markets — causes nature and implications
— The Reserve Bank and its policies in a deregulated market
— Monetary theory developments, its applications and an evaluation of current monetary policy

Textbooks

BE303 Monetary Economics Course Booklet

References
Bruce, R., McKinnon, B. and Pollard, J. Handbook of Australian Corporate Finance, 3rd edn, Sydney: Butterworth, 1999
Faculty of Arts

BE304 International Economics
Prerequisite, BE102 Economics 1A and BE103 Economics 1B
This unit provides a study of international finance and trade with special reference to Australia. Topics covered include:
- Australia’s External Position
  - Balance of Payments — concepts, trends and outlook
  - External Debt
Foreign Exchange Markets
- Exchange rate determination
- Fixed versus floating exchange rate mechanisms
- Foreign exchange risk management
The International Financial System
- Events since 1945
- International financial centres
- Current outlook and problems
Foreign Exchange Markets
- Gains from trade
- Trade restrictions
- Australia’s trade pattern
Trade Restrictions
- Argument for protection
- Costs of protection
- Policy instruments
Trade, Growth and Economic Development
- Regional integration
- GATT
- Policies relating to trade and growth
Australia’s Trade and Industry Policies
- Past approaches to industry assistance
- Current issues and problems
- Improving Australia’s international competitiveness

References

BE305 Urban Economics
Prerequisites, BE102 Economics 1A and BE103 Economics 1B
In this unit, students develop an analytical approach to appraising urban problems and policies. While the emphasis is on economic analysis, part of the course is devoted to discussing sociological and town planning perspectives of urban problems. The unit covers the following broad areas: urban location decisions, government and private roles in urban development, housing, transport, and human resources delivery.

References

BE306 Economics of Social Issues
Prerequisites, BE201 Managerial Economic Analysis or BE202 Industry and Government or BE204 Economic Evaluation
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 following areas:
- 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.

Textbook
Because of the contemporary nature of the unit no textbook is set. Comprehensive reference lists will be provided.

Double Degree Bachelor of Business/Bachelor of Arts (Japanese)
The double degree Bachelor of Business/Bachelor of Arts (Japanese) is of four years’ 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.

The four Business specialisations listed below are available for combination with Japanese.

First year (common to all four Business degree streams)
- BC101 Accounting 1A
- BC102 Accounting 1B
- BC103 Accounting 1C
- BC104 Economics 1A
- BE103 Economics 1B
- BM101 Organisations and Management
- BL101 Legal Environment of Business
- BT101 Information Technology 1A
- BT103 Information Technology 1B
- SM147 Quantitative Analysis A
- SM148 Quantitative Analysis B

Students do not have to identify which major stream they intend to study until enrolling for second year subjects.

Accounting
- (10 mandatory, 7 Japanese subjects and 1 further elective)
  - Management Accounting
  - Contract Law
  - Quantitative Management Techniques
  - Corporate Accounting
  - Law of Business Organisations
  - Taxation
  - Financial Management
  - Accounting Theory
  - Auditing

Computing (1987 revision)
- (8 mandatory, 7 Japanese and 3 further electives)
  - Information Analysis
  - Commercial Programming
  - Data Base Management Systems
  - Data Communications
  - Systems Development Strategies
  - Systems Software
  - Industrial Project A and B

Economics — Marketing
- (10 mandatory, 7 Japanese subjects and 1 further elective)
  - Managerial Economic Analysis
  - Industry and Government Economics Techniques for Business
  - Market Behaviour
  - Marketing Strategy
  - Marketing Research
  - Product Management
  - One third year Economics unit
  - Two further units from either Economics and/or Marketing

Marketing
- (10 mandatory and 7 Japanese subjects and 1 further elective)
  - Market Behaviour
  - Marketing Strategy
  - Marketing Data Management
  - Management Accounting
  - Organisation Behaviour
  - Marketing Research
  - Product Management
  - Strategic Marketing Cases
  - Marketing and the Law
  - A third year Marketing unit

Japanese
- (major sequence)
  - Japanese 1
  - Japanese 2
  - Japanese 3A
  - Japanese 3B
  - Introduction to Japan
  - Communication in Japanese
  - Modern Japan

The elective subject(s) may be taken from either the Faculty of Arts or Business.
Double Degree Bachelor of Business/Bachelor of Arts (Italian)

The double degree Bachelor of Business/Bachelor of Arts (Italian) is of four years' duration and is designed to enable students to complete the entry 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 the four Business specializations available for combination with Italian are as detailed under Bachelor of Business/Bachelor of Arts (Japanese).

The subjects offered within the Arts Faculty are as follows:

- Italian 1
- Italian 2
- Italian 3A
- Italian 3C
- Italian Culture 1
- Italian Culture 2
- Common Market Politics
- Italian Business Practice

The elective subject(s) may be taken from either the Faculty of Arts or Business.

Double Degree Bachelor of Business/Bachelor of Arts (Korean)

The four Business specializations available for combination with an arts degree are as detailed under Bachelor of Business/Bachelor of Arts (Japanese).

The subjects offered within the Arts Faculty are as follows:

- Korean 1
- Korean 2
- Korean 3A
- Korean 3B
- Bachelor of Contemporary Korean Society
- Contemporary Korean Society
- Modern Korea

The elective subject(s) may be taken from either the Faculty of Arts or Business.

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 and/or a course (or courses) approved for this purpose by the 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.

2. have equivalent overseas qualifications.

In those cases where an applicant meets the requirements of (a) above, but does not meet the requirement (b), he or she may apply to complete all or part of the undergraduate psychology program at Swinburne Institute 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 design and analysis and an understanding of the ethical, moral, legal and social responsibilities of psychologists engaged in social and applied research and professional practice.

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:

<table>
<thead>
<tr>
<th>Course Units</th>
<th>&quot;Course Units&quot;</th>
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<tbody>
<tr>
<td>AY400 Applied Social Psychology</td>
<td>2</td>
</tr>
<tr>
<td>AY401 Research Design and Analysis</td>
<td>4</td>
</tr>
<tr>
<td>AY411 Counselling in the Human Services</td>
<td>3</td>
</tr>
<tr>
<td>AY413 Research Project and Thesis</td>
<td>3</td>
</tr>
<tr>
<td>AY414 Computer Use in Psychology</td>
<td>2</td>
</tr>
<tr>
<td>AY420 Assessing Persons and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>AY422 Ethics and Professional Issues</td>
<td>3</td>
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<tr>
<td>AY426 Special Applications; (Placement) OR</td>
<td>3</td>
</tr>
<tr>
<td>AY429 Personality and Social Development</td>
<td>2</td>
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</tbody>
</table>

3-unit options

Two of these must be completed

AY400 Applied Social Psychology | 3
AY405 Small Group Processes | 3
AY411 Counselling in the Human Services | 3

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 undertaking a work placement during the second semester.

The course can also be completed in two years of part-time study extending over four semesters. Part-time students usually have weekly class contact hours as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours</th>
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<tbody>
<tr>
<td>1 Semester 1</td>
<td>6</td>
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<tr>
<td>Semester 2</td>
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<tr>
<td>Semester 1</td>
<td>6</td>
</tr>
<tr>
<td>Semester 2</td>
<td>0</td>
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</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.

**Subject details**

**AY400  Applied Social Psychology**

Lectures: 1 hour per week
Seminar: 2 hours per week
Assessment: Seminar presentation and examination

Theory, research and applications: social interdependence and conflict; environmental psychology; health psychology; feminist social psychology.

Research methodology and theory in applied social psychology.

**Reference**


**AY401  Research Design and Analysis**

Lectures: 1 1/2 hours per week
Seminar: 1 1/2 hours per week
Assessment: Class tests 100%

Principles of research design.

Development of a research proposal.

Survey research 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%

Contemporary theory, research and practice in counselling psychology.

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**


**AY413  Research Project and Thesis**

Independent research under supervision
Prerequisites: AY401 and AY414
Assessment: Submission of a minor thesis (6,000-10,000 words), assessed by two examiners

Each student is required to formulate an individually designed 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.
AY422 Ethical and Professional Issues

Lectures: 1 hour per week
Seminar/class exercises: 1 hour per week
Assessment: Required attendance and participation in a minimum of 75% of the class meetings. May include seminar presentation and paper, essay, and/or a class test.

Topics will be selected from the following:
- Philosophy 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, Summative or a report on the assignments and activities.

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 be undertaken for a period of 20-30 hours per week. The work will normally involve 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 co-ordinator, 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

Lectures: 1 hour per week
Seminar/Class exercises: 1 hour per week
Assessment: Theory research essay (1,500-2,000 words) 50% Class paper 50%

This subject is a reading unit in 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, G. Looking forward through the Lifespan. Sydney: Prentice Hall, 1984

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 an 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) increase the confidence and competence of equal opportunity facilitators;
(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
- 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

Subject details

AE400 Principles of Equal Opportunity and the State

This subject explores the development of principles and the basic concepts relating to equal opportunity and discrimination. The role of legislation, the achievement of equal opportunity outcomes and the existing statutory requirements for industry are examined.

Other issues covered include:
- Basic concepts used to understand equal opportunity such as discrimination, target groups, race, gender, ethnicity, disability, harassment, and labour market segmentation.
- The role of government in international and local contexts.
- The legal framework and the operation of laws governing equal opportunity.

AE401 Data Usage and Evaluation

This subject provides participants with training in skills needed to analyse and evaluate staffing profiles for the purposes of equal opportunity administration. In addition to instruction in basic data compilation and representation, 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.
AE402 Equal Opportunity and the Workplace

The skills and knowledge gained in this subject will help participants understand workplace dynamics and to operate as effective equal opportunity practitioners. It will also develop students’ workplace organisation as they affect employees in general and target groups in particular. Topics covered include:

- The structure and nature of organisations, formal and industrial relations, personnel and administrative practices, conditions of employment, the special needs of target groups and the effects of organisational change on various groups within the organisation.

AE403 Equal Opportunity Implementation

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 organisations will be sought). This subject is done at the end of a student’s course and drawn on the concepts and skills learned in subjects studied earlier. Emphasis is placed on developing policies and procedures which will enhance equal opportunity within the particular organisation. Participants will undertake individual implementation projects under the supervision of staff who will be complemented by discussions of the issues involved in implementation programs.

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 a three-year undergraduate program in Japanese 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 number of characters, is essential. Students become familiar with a wide variety of journalistic and written styles found in newspapers. Training in translation and 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:

- general problems and trends as they are analysed by Japanese writers within the framework of the society as a whole; and
- the validity of assertions and generalisations which are made by Japanese, as well as by foreign writers.

Entrance requirements

Application for the Graduate Diploma is made on the Institute’s standard graduate studies application form.

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.

Emphasis is placed on the comprehension and active use of grammar structures. Students are 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 becomplemented 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 one subject per semester.

Subjects on Japanese society and culture, and on business and politics are offered in alternative years. Reading materials are available through the department. In all subjects students are required to complete one research project and two tests per semester.

The subjects offered at present are:

- Japanese Society A
- Japanese Society B
- Japanese Culture A
- Japanese Culture B
- Japanese Business and Industry A
- Japanese Business and Industry B
- Japanese Politics A
- Japanese Politics B

Pre-liminary reading


References


Subject details

AJ401 Japanese Society A

Students extend their reading of topics introduced in Japanese Society A and also develop their conversational skills in this subject.

AJ402 Japanese Culture A

In this subject covering various aspects of modern Japanese culture studied, for example, Koreans in Japan, Japanese repatriates from China, education, corruption, Japanese language, media, arts, sport, Japanese abroad and international understanding.

AJ403 Japanese Culture B

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

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 tertiary industry. Students are required to complete one research project and two tests per semester.

AJ405 Japanese Business and Industry B

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 are also required to complete one research project and two tests per semester.

AJ406 Japanese Politics A

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-Australia relations, textbook controversy, defence, anti-nuclear movements, administration, government interference, politicians travelling abroad, environmental protection and refugee policy.
AJ422 This subject is taken in the first semester of the second year. The language component includes advanced grammar classes to be studied by all students, and "special purpose" reading, writing and conversation modules to be studied by groups of students with similar professional language needs. The non-language component consists of seminars on Japanese economy and business. Assessment is based on tests and assignments for the language component and on seminar paper and an essay for the background studies component.

AJ423 This subject is taken in the second semester of the second year. Students will continue the study of "special modules" in professional groups, and all students will attend advanced grammar classes and background seminars. The language component will be assessed by regular tests and assignments and the background component will be assessed by seminar paper and essay.

Assessment
Students are expected to complete regular tests and assignments for the "core" language components, and an essay/research assignment for each of the supporting components.

References
AJ420 and AJ421:
The following texts are required:
Tapes to accompany these texts are also available. Reading lists for the background component are available from the Japanese Centre.
AJ422 and AJ423:
A detailed list of required texts, tapes and background reading lists may be obtained from the Japanese Centre.

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 Institute’s standard graduate studies application form.
Applicants must hold a degree or diploma from an approved tertiary institution, including major studies in at least one of the following fields:
- Social Sciences
- Urban Planning
- Business Administration
- Public Administration
- Environmental Studies
- Geography
- Geography
- Sociology
- Economics
- Political Science
- History
- Anthropology
- Architecture
- Landscape Architecture
- Landscape Architecture
- Urban Design
- Environmental Design
- Environmental Design

Students with majors in discipline other than those listed may also be considered.
Course structure
The course entails one year of full-time study or two years' part-time study, involving six semester subjects and a research report. Each subject usually involves three hours of class meetings per week for one semester.

The following subjects will be offered in 1992:

- **AS400** Urban Social Theory
- **AS402** Urban Policy
- **AS403** Research Report
- **AS404** Advanced Urban Research
- **AS411** Urban Research
- **AS413** Applied Social Planning
- **AS465** Urban and Regional Economics

Each student is expected to complete a research report relating to either policy/issués or some aspects of urban policy and planning or community development. Where possible, research is developed in co-operation with government departments, consultancy firms, community groups and research institutes.

Subject details

**AS400 Urban Social Theory**
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**
This subject is concerned with an examination of national, state, and local policies that pertain to urban areas. Crucial issues covered include consideration of what constitutes urban problems and policies, the significance of ideology to policy, formulating policy, putting ideas into operation, evaluation and analysis of policy, and the significance of political structure. Particular topics such as housing, land-use, infrastructure will be used to exemplify issues, and experts in various policy areas will be asked to participate in the course.

**AS403 Research Report**
This subject provides students with the opportunity to gain research experience by carrying out a research study under staff supervision and presenting the results of the study in the form of a report. The report is one of the major requirements of the graduate diploma course.

**AS404 Advanced Urban Research**
This subject offers more intensive first-hand training in research methods than that offered in AS411. Students undertake a group research project which involves taking a specific issue through to completion to completion of a final report. The research project 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**
This subject has three broad objectives: first, to introduce students to the range of subject areas and methodologies covered in contemporary urban research; secondly, to familiarise students with information sources for Australian urban research and methods of data acquisition; and thirdly, to develop a limited competence in basic research techniques. This will introduce the student to urban research, use of computers, computer facilities, and an introduction to the software packages for social research.

**AS413 Applied Social Planning**
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**
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.

**NO90 Master of Arts**
The degree of Master (by research and thesis) may be undertaken by suitably qualified individuals in areas of study compatible with the interests and expertise of staff.

**NO91 Master of Arts in Counselling Psychology**
This course is offered as a four year part-time evening program. It is designed for students who have completed a first degree and have completed a four year sequence of studies in psychology. The course is intended to prepare graduates for professional practice as counselling psychologists.

The course has been granted provisional accreditation as a Fifth or Sixth Year course in psychology by the Course Development and Accreditation Committee of the Australian Psychological Society.

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, parent-ing, 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 1992 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. A plication 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 Psychological 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 Psychological 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 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:

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<th>Year</th>
<th>Semester</th>
<th>Course Element</th>
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<td>AY500 Human Services Research and Evaluation</td>
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<td>AY501 Development and Adaptation</td>
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<td>AY500 Professional, Ethical &amp; Legal Issues</td>
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<td>AY602 Supervised Practicum</td>
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<td>AY603 Aspects of Professional Practice</td>
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<td>AY604 Supervised Practicum</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; Psychological Assessment; Counselling Theory and Skills.

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 in Counselling Psychology Practice.

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**AY500 Human Services Research and Evaluation**

**Hours per week:** 3  
**Assessment:** Individual research assignment (100%)  

This course will build upon knowledge and skills acquired during undergraduate study in areas such as research design and statistical analysis. The aim will be to equip you to design, conduct a 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 methodologies.
- 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**


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**AY501 Development and Adaptation**

**Hours per week:** 3  
**Assessment:** Seminar paper 40% Class test 60%

**Aims**

This course is designed to explore contemporary theory pertaining to life-span development, adaptation to stress, and life transitions; and to study 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 life span development theory: analysis of meta-theories.
- Theoretical models derived from the above meta-theory, e.g. Havighurst, Erikson, Piaget, Levinson, Neugarten and others.
- The notion of life transitions and their links to the experience of stress and coping.
- Theoretical models 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 middle, retirement, and senescence.

**References**


Peterson, C. Looking Forward through the Life Span. 2nd edn, New York: Prentice Hall, 1989


**AY502 Psychological Assessment**

**Hours per week:** 3  
**Assessment:** Practical examination involving the use, interpretation, and reporting of selected assessment procedures (100%)

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).

References

AY503 Research Colloquium

Hours per week: 2
This subject is designed to extend students' appreciation of developments in research related to counselling psychology.

Components include:
Brief presentations by students in the program concerning their proposed individual research projects. The presentation is by Departmental staff and in some cases by researchers concerned with 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.

References

AY504 Counselling Theory and Skills

Hours per week: 3
This subject is intended first to consolidate students' counselling-related knowledge and skills acquired during undergraduate study. The second aim is to develop a high level of skill in those help-oriented 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. Developments in counselling education: Carruth's IDT/STHT model; Kagan's IPT; Ivey's microcounselling model; Steine's cognitive behavioural model; the work of Egan. The client-counsellor relationship, goals of helping. Competence in counselling skills through microcounselling and basic 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%

Aims: This course is designed to develop an understanding of the counselling practice related to health, well-being and behaviour with particular reference to the person/organisation interface and organisational settings. Specific topics will include:
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
Retrenchment, 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%)

This subject follows from Counselling Theory and Skills. It aims to introduce students, in a workshop context, to important topics in counselling psychology (practice in preparation for students' supervised practical and subsequent independent practice). Application of counselling techniques to selected client problems: e.g., depression, anxiety, anger, interpersonal skill deficits, decision-making, crisis counselling, substance abuse, post-traumatic stress, rehabilitation, marital and family conflict, child abuse. Cross-cultural issues in counselling. Special issues in client assessment: level of risk of suicidal or violent behaviour, physical illness; DSM-3R. Record keeping and referral. Using psychological tests in counselling, supervision, models of supervision, supervision skills. Consultation.

References
Bellack, L. and Siegel, H. Handbook of Intensive Brief and Emergency Psychotherapy, La Jolla, CA, P.S., 1987
AY507  Counselling Psychology B: Psychology of Marriage and the Family, Educational Counselling

**Hours per week:** 3

**Assessment:** Seminar presentation 50%

**Class Test 50%**

**Aims:** The course is designed to:
(a) examine contemporary theory concerning the role and function of the Australian family and its interaction within the wider society;
(b) introduce students to theory and strategies appropriate to the provision of counselling psychology 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.

**Generational differences:** changes in family structure and expectations.

**Sibling relationships within families.**

**Families in crisis:** separation and divorce.

**Families in crisis:** child abuse and family violence.

**Families in crisis:** bereavement and loss.

**Family reformulation:** blended or step-families, single parent families.

**The changing role of parents:** focus on the particular contributions of mothers and fathers. Two-career families. Return to study.

**Cross-cultural issues.** Families from various ethnic origins, including aboriginal families.

**Measurement of family interaction.**

**The influence of school on psychological development, with emphasis on social cognitive development.**

**The problems of school failure or of poor adjustment to school.**

**Special children at school:** disability and early intervention.

**References**

**AY600  Professional and Ethical Issues**

**Hours per week:** 3

**Assessment:** Research essay 25%  

**Practical examination based on case-studies**

**This course is designed to ensure that students understand the ethical and legal responsibilities of psychologists working in the human services fields. Through study of the ethical standards of the profession, and its impact on therapy, students will develop a strong ethical framework in which to practice the psychology. Students will learn about the process of ethical and professional decision making.**

**Topics covered will be chosen from: the Australian Psychological Society; the American Psychological Association; the National Board of Health as a profession; professional negligence.**

**Confidentiality:** ethical and professional issues in assessment; who is the client?

**Confidentiality:** report writing; record-keeping; freedom of information; supervision; ethical and professional issues; psychologists and the media.

**Values and ethics in psychotherapy.**

**Contemporary ethical issues:** child abuse; legal and professional issues; domestic violence; professional and legal issues. Proportionality and quality assurance.

**Dual-role relationships and conflicts of interest:** 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%.

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.**

**Foundation concepts in group work: structure, content, process, roles.**

**Theories of helping group functioning.**

**Interpersonal relationships:** groups, group leadership, leadership skills-modelling, teaching process-commentary, managing hostility and aggression. Interventions to promote learning, interventions to enhance group processes: selected techniques in group work; warm-ups, introductions, motivators, role-plays, de-briefing, sharing, terminating.

**Planning, managing, assessing and evaluating group-based learning activities.**

**Selected group-work applications:** trauma de-briefing, rehabilitation, support, therapy, social-skills, personal growth.

**References**

**AY602  First Supervised Practicum (Internship A)**

**Prerequisites:** AY502, AY504, AY506

**Semesters 1 and 2**

**Assessment:** Students will be evaluated by the supervisor (~most directly associated with their work together with the coordinator).

**Performance:** will be reviewed mid-way through the internship and an evaluation made at the end.

This first practicum is concerned primarily with helping students to make the transition from the counselling laboratory to the counselling practice setting.

**Induction:** Initially, new students will monitor clients already being seen at the Swinburne Centre for Psychological Services. Where appropriate, new students will observe sessions with clients (video-taped). In addition, students will participate in the administration of the Centre and in dealing with telephone enquiries to the Centre.

**Case Work:** Students will be allocated clients in accordance with their own existing levels of counselling skills and their professional skills and their professional interests. A normal case-load would be 3 clients per week. Students will be expected to see a mixture of child, adolescent and adult clients and to gather experience in working with groups and families, as well as individuals. A supervisor will be appointed for each client or family seen by the student and will meet weekly with the student for supervision. The supervisor will be an Associate of the Centre.

**Case Reporting:** Students will meet once a month in a small group supervision session to discuss their clients. Each student will be required to present a report on a case for discussion by the group. In addition, each student will write a comprehensive case summary after termination with each client.
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 attended and participated effectively in discussion of cases.

The aim of the subject is to consolidate the knowledge and skills gained during a supervised practicum in order to assist the transfer of this knowledge and skill to psychological practice after graduation.

The coordination of the supervised practicum (interview) is provided by and associated with the Swinburne Centre for Psychological Services, which 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 issues likely to be discussed 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. Counselling and Psychotherapy: Theoretical Analyses and Skills Applications. Columbus: Merrill, 1985
Figley, C.R. Trauma and Its Wake. New York: Brunner/Mazel, 1985

AY604  
Second Supervised Practicum — Internship B  
Prerequisite: AY602
Semesters 1 and 2
Assessment: Students will be evaluated by the supervisor directly associated with their placement, or together with the co-ordinator, throughout the internship and an evaluation made at the end.

This second practicum is intended to broaden and consolidate students' previous learning in the program and to provide students with the opportunity to work as a responsible professional within a counselling setting.

Case Work: 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 objectives of the department and his or her existing skills. Students will take on counselling clients and participate as fully as possible in the activities of the internship setting. The Psychology Department has links with numerous practice settings in which experienced psychologists work. These include organisations such as the Vietnam Veterans Counselling Service, the State Bank Staff Counselling Staff Service, University, C.A.E. and TAFE College Counselling Units: Moreland Hall Drug and Alcohol Service; Doncaster Community Counselling Services, and the Marriage Guidance Council of Victoria.

Case Reports: Students will be required to have presented written and/or verbal case reports about their other professionals.

Organisational Project: In conjunction with their supervisors students will participate in an assessment or review of some aspect of service delivery or administration of the internship setting.

AY605  
Supervised Research Project and Report  
This task is designed to (a) enhance students’ awareness of the importance of a scientific research-based for counselling psychology, (b) to consolidate students’ practical understanding of research methodology related to counselling psychology and (c) to contribute to the research program of the Department.

Students will be assigned a supervisor in the first year of their enrolment. At the end of this first year of enrolment each student must submit a written, detailed research proposal.

At the end of the second year of enrolment each student must submit a 4,000 word review of the background literature that is in a form similar to that of a review article appearing in one of the major journals which publishes review articles related to topics in counselling psychology (e.g. Journal of Counselling Psychology, Counsellor Education and Supervision, British Journal of Guidance and Counselling).

At the end of the fourth year of enrolment each student must submit a report on his or her research in the form of a 4,500 word article in a suitable journal which publishes empirical work to the Counselling Psychology. This report must be accompanied by a Technical Supplement containing detailed results, raw data, and copies of measures used.

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Faculty of Business

Dean
M.C. Frazer, BSc(Hons)(Mon), Grad Dip Ed Tert (DDIAE), MAEd (Mon), PhD(Camb), AIMM, MAIP, MACE
Director, MBA Program
R.M. Brown, BCom(Melb), Dip Ed (Melb), MEd (Mon), MPhil (Lough), FGIM, MACE, MIPMA

Academic staff

Department of Accounting
Head
WC. Nash, BCom, Dip Ed(Melb), MBA(CranIT)
Principal Lecturers
N.J. Alpport, BCom, MBA (Melb), BEd (Mon), AASA (Sen)
H.M. Paterson, BCom, Dip Ed (Melb), MEd, PhD (LaT), CPA
W.H. Platt, BCom, Dip Ed (Melb), MAdmin, MEnvSc (Mon), CPA

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J. Richardson, BEd(Mon), Grad Dip EdP(CT), MBA (Melb), ACA

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L. Marcelli, BBus(CT)
C. Marsh, Dip Bus Acc (SIT), ACA
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I. Tempone, BComm, Dip Ed(Melb), CPA
K. Turpie, BComm(Hons)(Lat), CPA

Department of Marketing and Organisation
Behaviour
Associate Professor and Head
C. Christodoulou, BAppSc(Melb), MSc, MAadmin, PhD(Mon)
Principal Lecturer
J. Newton, MA(Leeds), BBus(CT)

L.A. Zimmermann, BCom, MBA(Melb)

Senior Lecturers
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G. Drummond, MA(Melb)
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G. Watts, BCom, MBA, Dip Ed (Melb), Grad Dip App Soc Psych (SIT)

Lecturers
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D. Ching, BSc(Hons), MBus (Mon), Dip App Chem (SIT)
P. Di Virgilio, BBus(CT)
P. Jin, MIndPsych(Hangzhou)
A. Kochane, MA SG PS (Warsaw), PhD(Wroclaw)
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J. Shannon, BA(Old)
J. Stewart, BA, BEd, Med Stud (Mon), TPTC
K. Van Veenendaal, Ass Dip Mktg, BBus Mktg (CT)
J. Westwood, BEco (ANU), MSc Tourism Mktg (Surrey-UK)

Department of Information Systems
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Associate Professor
M.G. Nicholls, BEd, MEd, PhD (Mon), MACE
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G.A. Murphy, BCom(Melb), CPA
W.D. Wilde, BCom(Brm), MSc(Melb), MACS

Senior Lecturers
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G.J. Blyth, BSc(Leeds), Grad Dip Ed(HIE), MACS
G.J. Blyth, BSc(Leeds), Grad Dip Ed(HIE), MACS

Department of Economics
Head
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Principal Lecturer
D.C. Thomas, BA(NSW), MA(Syd), PhD(Mon)
Senior Lecturers
P.G.L. Harkness, BAppSc(UNE), MAadmin(Mon)
S. Holligan, BEc(Hons)(Lat)
D.J. Ovens, BEc(Hons), MAadmin(Mon)
R.N. Smith, BA(Hons), Dip Ed, Dip Com Ed (UNE), MCom(NSW)

Grad Dip BIT (SIT)
P.O. Xavier, BEc(Hons)(WAust), MA(Leic), MEC(Mon)

Lecturers
C. Barry, MEd(Mon)
M. Cohen, BEc, Dip Ed(LINUS)
M. Freebairn, BAppSc, Dip Ed(UNE)
J. Gerstein, BA, BEc(Mon)
M. Messinis, BEc(Lat)
K. Ryan, BEc(Mon), CPA
L. Schulberg, BEc, Dip (Mon)
J. Watkins, MEC, Dip Ed(Mon)

Department of Law
Head
J.B. Wielgosz, BCom(Hons), MA, Dip Ed(Melb)
Principal Lecturers
B.R. Clarke, BEc, LLM(Mon), Grad Dip Mktg (CT), Barrister and Solicitor (Vic) Supreme Court
Courses offered in the Faculty of Business

<table>
<thead>
<tr>
<th>Course title (minimum)</th>
<th>Entrance requirements</th>
<th>Special comments</th>
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</thead>
<tbody>
<tr>
<td>Bachelor of Business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>— Accounting</td>
<td>3 years 6 years</td>
<td>Four subjects</td>
</tr>
<tr>
<td>— Computing</td>
<td>3 years 6 years</td>
<td>(including English)</td>
</tr>
<tr>
<td>— Economics—Marketing</td>
<td>3 years 6 years</td>
<td>at VCE(HSC)</td>
</tr>
<tr>
<td>— Marketing</td>
<td>3 years 6 years</td>
<td>mathematics to at least Year 11</td>
</tr>
<tr>
<td>Bachelor of Bachelor of Arts — a four-year course is available for applicants wishing to complete any one of the four Business degree courses combined with a major study in Japanese, Korean or Italian.</td>
<td></td>
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<tr>
<td>Bachelor of Information Technology — a three-year degree course taught in conjunction with the Faculty of Applied Science.</td>
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<tr>
<td>Master of Business</td>
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<tr>
<td>— Information Technology</td>
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<tr>
<td>— Organisation Behaviour</td>
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<tr>
<td>— Business Administration (MBA)</td>
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<td>— by research</td>
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<tr>
<td>Doctor of Philosophy (PhD)</td>
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</table>

BACHelor of BUSINESS

Entrance requirements

The normal entry to the Bachelor of Business degree program is successful completion of the VCE or equivalent, with an average of D or better in four subjects including English. The subjects must have been taken in one year, and 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.

Bachelor of Business Specialisations

The course leading to the award of Bachelor of Business offers major studies in accounting, computing, marketing or economics/marketing, and elective studies in accounting, economics, computing, human resource management, law, marketing, and quantitative methods. Key features of the major streams are described in the following section.
A050  Accounting stream

This course comprises a major study in accounting, together with the business-related areas of commercial computing, law, marketing, management, economics and statistics. This diversity of disciplines supporting the accounting content results in the degree course providing an excellent base for either a specialist career in accounting or a stepping stone to a management career.

Students are exposed to contemporary business practices and the concepts and technology supporting modern business today. In particular micro-computing facilities will be used in appropriate accounting units.

The analytical skills and the understanding of accounting gained through the accounting degree, stand one in good stead to pursue any one of a number of different career paths in the business world in both the public and private sector. Satisfactory completion of the course satisfies the educational requirement to enable graduates to join the Australian Society of Certified Practising Accountants (as an associate member) and/or the Institute of Chartered Accountants (as a student member). These are the two major professional accounting bodies in Australia, membership of which is recognised world-wide. Many graduates are employed in these professional bodies that are dependent on successful completion of additional prescribed programs (such as the Certified Practising Accountant (CPA) Program of the Society or the Institute's professional year).

A051  Computing stream

In today's world, information technology has pervaded every aspect of business organisations. Growth has been explosive over the last five years, consequently demand for trained personnel has increased dramatically. Swinburne's degree in computing offers a means of entry into this exciting field.

To operate effectively in this modern business environment requires a familiarity with the computing hardware and software that is used to solve business problems. The course satisfies this need through practical work which is an integral part of every computing unit, and involves the use of micro, mini and mainframe computers. Further practical work in the development of computer systems is gained in an industrial project in third year.

Graduates are employed in a variety of careers by a variety of employers. A number of organisations, large companies and banks for example, employ graduates on the normal career path of programmer, systems analyst and manager. In contrast, graduates employed by small firms can expect a broad range of activities, and may find themselves programming, analysing or designing systems as the situation demands.

Suppliers of hardware and software require graduates to provide support to their customers. A computer manufacturer requires support for hardware and associated software supplied to customers, whereas a chartered accounting firm will require graduates to design, implement and support business computing systems. Swinburne graduates have occupied all of these positions, and have risen to highly paid managerial jobs.

Completion of the course satisfies the educational requirements for Level 1 membership of the Australian Computer Society.

A052  Economics-Marketing stream

Understanding economic principles is a fundamental requirement for a career in business. The economics-marketing stream applies modern economic and marketing concepts to analysis and decision-making in both the private and public sectors. The course has been designed for students intending to pursue careers in a wide variety of areas. The economics and marketing strands within the course complement each other and provide graduates with a comprehensive and clear understanding of the business environment.

Economics is a disciplined way of approaching important social and business problems. It is used to investigate issues such as industry and product demand, trade and exchange rates, the money market and interest rates, industry performance and the role of government policy.

Marketing involves the application of marketing principles in order to maximise business performance. These principles are examined in the context of a variety of industry structures, goods and services. Marketing is an expanding area of employment and one which is likely to continue to grow in the future.

The choice available to students of two additional mandatory units chosen from either the marketing or economics electives available, provides an opportunity to further specialise in the discipline of their career choice.

During the course students also undertake complementary studies in disciplines such as accounting, law, computing and organisational behaviour.

Employment prospects are excellent in a wide range of challenging fields including:

- marketing and marketing research including advertising
- economic analysis and research
- economic policy evaluation and financial analysis
- administration in both public and private sectors
- management consulting

Teaching methods adopted in this course emphasise individual and group projects, case studies and the opportunity to work on relevant practical problems.

A053  Marketing stream

The Bachelor of Business (Marketing) is exciting and challenging. It provides a strong conceptual background for would-be entrants to the marketing profession.

Marketing graduates at Swinburne are trained to develop their mental and business skills. They are educated:

- to be creative in capitalising on opportunities
- to use modern technology to reach business decisions
- to be specific in dealing with solutions
- to deal with international markets
- to understand the special aspects of services marketing and high technology marketing

Marketers are expected to find new markets and serve existing markets more effectively. They have control over such key strategic issues as product development, pricing, distribution arrangements, advertising, promotion, public relations and sales.

The Marketing stream allows students to pursue specialist marketing skills. Or, the structure makes it possible for students to combine Marketing with other disciplines including internationally oriented units.

Marketing graduates will go into any one of a wide variety of positions.

These positions can be found in Product Management, Marketing Research, Sales, Brand Management, Services Marketing, Public Relations, Advertising and International Business, etc.

The scope of opportunities covers a wide variety of business activities as well as Government positions.
Graduates are eligible for membership of the Australian Marketing Research Society, the Marketing Association of Australia and New Zealand and the Australian Marketing Institute.

**Bachelor of Business Structure**

The degree course comprises 26 units. Ten units are completed in the first or common year, and the remaining 16 units are comprised of mandatory and elective units in second and third years. Students do not have to choose the major stream they intend to study until the end of first year.

**First Year (Common)**

- BC101 Accounting 1A or BC102 Accounting 1B
- BC103 Accounting 1C
- BE102 Economics 1A
- BE103 Economics 1B
- BH101 Organisations and Management
- BL101 Legal Environment of Business
- BM101 The Marketing Concept
- BT102 Information Technology 1A
- BT103 Information Technology 1B
- SM147 Quantitative Analysis A or SM148 Quantitative Analysis B

**Second and Third Years**

**Accounting**
- (10 mandatory, 6 elective)
  - BC206 Management Accounting 1
  - BC207 Management Accounting 2
  - BL202 Contract Law
  - BC201 Corporate Accounting
  - BC205 Law of Business Organisations
  - BC206 Taxation
  - BC311 Financial Management 1
  - BC300 Accounting Theory
  - BC304 Auditing

**Computing**
- (8 mandatory, 8 elective)
  - BT201 Information Analysis
  - BT202 Commercial Programming
  - BT204 Data Communications
  - BT206 Data Communications
  - BT301 Systems Development Strategies or
  - BT302 Systems Software
  - BT305/6 Industrial Project (2 units)

**Economics/Marketing**

- (10 mandatory, 6 elective)
  - BE201 Managerial Economic Analysis
  - BE202 Industry and Government
  - BE205 Economic Techniques for Business
  - BM205 Market Behaviour
  - BM206 Marketing Strategy
  - BM203 Marketing Research
  - BM306 Product Management
  - One third year Economics unit
  - Two further units from either Economics or Marketing

**Marketing**

- (10 mandatory, 6 elective)
  - BM205 Market Behaviour
  - BM206 Marketing Strategy
  - BC205 Marketing Data Management
  - BC206 Management Accounting 1
  - BH201 Organisational Behaviour 1
  - BM203 Marketing Research
  - BM308 Product Management
  - BL203 Marketing and the Law
  - Two further third year Marketing units

**Electives**

- Elective units may be taken from the full range of Business units. While not mandatory, it is highly recommended that students taking the Accounting stream include BH201 Organisation Behaviour 1 and a further computing unit in their electives.
- Students may also take electives from the Faculty of Arts with the following exceptions:
  - not with an AT prefix
  - not AP109 Society and Economics A
  - not SM171 or SM172 Mathematics

**Faculty of Business**

- not units similar to those which have already been studied elsewhere and have been the basis for exemptions
- No more than two units from first year Arts subjects will be credited towards the Bachelor of Business degree, except AJ100 Japanese 1 which counts as three units.
- Students wishing to study units from a faculty other than Business or Arts must seek approval before enrolling.

**Discipline Limits**

- No more than 12 units from one discipline can be studied for credit towards the Bachelor of Business degree. The discipline of each subject is identified by the first two characters of the subject code:
- BC Accounting
- BE Economics
- BT Computing
- BL Law
- BM Marketing
- BH Human Resource Management
- BWSM Quantitative Methods

**Prerequisites**

- Students must have passed prerequisites listed for each subject. If the prerequisite listing states that students are expected to have passed a nominated subject, it means that students must have at least studied the nominated subjects to obtain an understanding of key concepts.

**Preclusions**

- Students may not count both BE205 Economic Techniques for Business and BQ204 Marketing Data Analysis towards their degree requirements.

**Exemptions**

- A maximum of 12 exemptions for study completed at another tertiary institution will be granted towards the Bachelor of Business degree. Applications should be made at the time of enrolment on an Applications for Exemptions form which must be accompanied by a copy of previous academic records and syllabus details for the subjects on which the exemptions are claimed. Students must lodge the completed form and documentary evidence at the Faculty Office (Level 9).

**BACHELOR OF BUSINESS/BACHELOR OF ARTS DOUBLE DEGREE**

The Bachelor of Business/Bachelor of Arts double degree is of four years duration and is designed to enable students to complete the compulsory requirements for any Business stream together with the full range of available Japanese, Korean or Italian units in order to qualify for the award of two degrees.

**Entrance Requirements**

See section under Bachelor of Business above.

**Degree Structure**

- Students must complete the first year of the Business degree (10 units) and the mandatory units of the chosen specialisation. The following language units are also studied depending upon the language specialisation chosen:
  - Japanese
    - AJ100 Japanese 1
    - A1200 Japanese 2
    - A1300 Japanese 3A
    - A1301 Japanese 3B
    - A1102 Introduction to Japan
    - A1202 Communication in Japanese
    - Modern Japan
    - A1302 Work Experience in Japan (elective)
  - Italian
    - AA100 Italian 1
    - AA200 Italian 2
    - AA300 Italian 3A
    - AA302 Italian 3C
    - Common Market Politics
    - Italian Culture 1
    - Italian Culture 2
    - Italian Business Practice
Korean
AK100 Korean 1
AK101 Background to Contemporary Korean Society
AK200 Korean 2
AK202 Contemporary Korean Society
AK203 Modern Korea
AK301 Korean 3B
AK301 Korean 3B

one further elective unit chosen from either Arts or Business (for Accounting, Economics/Marketing, Marketing), and three further electives for Computing.

BACHELOR OF INFORMATION TECHNOLOGY
Manager: G.A. Murphy, BCom, CPA
This course is offered in conjunction with the Faculty of Applied Science.
The course educates 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 $9,300.

Segment 1
IT101 Computer Fundamentals
IT102 Introduction to Programming
IT103 Business Applications and Systems 1
IT104 Management and Communications
Non-computing Elective

Segment 2
IT201 Decision Analysis
IT202 COBOL Programming
IT203 Business Applications and Systems 2
IT204 Accounting 1
Non-computing Elective

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 4 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
IT509 Software Engineering 1

Specialist units†
At least two of these must be taken from the subjects marked with an asterisk.
IT502 Systems Software 2
IT505 Knowledge Engineering
IT506 Expert Systems†
IT507 Computer Graphics and Imaging 1
IT508 Systems and Information Analysis 2
IT509 Systems Software 3†
IT513 Data Base Management Systems 3†
IT530 Data Communications 2†
IT606 Artificial Intelligence†
IT607 Computer Graphics and Imaging 2†
IT609 Software Engineering 2†

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.

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
Administrative Officers: J. Newman, DipBus(Sec) 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 Institute. 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 are associated with employing business students:
ANZ Bank
Amcor Ltd
Arthur Andersen
Ascco
Attorney General's Department
Australian Taxation Office
Australian National Line
BHP
BP Australia
Bower Ltd
Bunge (Aust)
Cadbury Schweppes
Carnegie & United Breweries
Coles Myer
Coopers & Lybrand
Dataplex
Department of Management & Budget
Department of Ind. Tech. and Res.
Duesburys
Ernst & Young
Gretton Watson
Hewlett Packard
IBM Australia
Kraft Foods
McLean Delmo
Marquand & Co
MNBW
Mobil Oil
National Australia Bank
Nelson
Parkhill
Partnership Pacific
KPMG
Peat
Marwick
Philip Morris
Siemens
Smith Read
State Bank
SEC
Stockdale Weir & Co
Telecom
Terracalis
William Buck

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
Accounting stream
Associate membership — the completion of the degree requirements satisfy the educational requirements for Associate Membership. Advancement to higher levels (CPA, etc.) is dependent upon completion of further study and experience requirements as specified by the ASCPA.

Computing stream
Computing stream students satisfy the educational requirements for Associate membership by taking the mandatory Accounting units (and QMT - which is a prerequisite unit).

As for Associate membership of the Australian Society of Certified Practising Accountants above.

Institute of Chartered Accountants
Accounting stream
To be eligible for entry to the professional year of the Institute of Chartered Accountants, graduates must have completed all the mandatory Accounting stream units.

Computing stream
As for Associate membership of the Australian Society of Certified Practising Accountants above.

Economics-Marketing stream
Mandatory units plus
Corporate Accounting
Management Accounting 1
Management Accounting 2
Contract Law
Law of Business Organisations
Financial Management
Accounting Theory
Auditing
Taxation
Australian Institute of Bankers

The Australian Institute of Bankers accepts the Bachelor of Business degree leading to Senior Associate status. An open to all full-time students undertaking the Bachelor of Business degree.

Standards of progress

All students, both full- and part-time, are expected to maintain a minimum academic standard in order to be allowed to continue their studies.

The following criteria are those usually applied and unless otherwise specified, these refer to students enrolled in all business courses:

1 Full-time students

(a) Common year (normally 10 units of study)
   (i) Students passing the equivalent of 7.8 or 9 units may continue with their remaining common year units and some second year units on a full-time basis.
   (ii) Students passing the equivalent of 5 or 6 units may only enrol in the following calendar year for the common year units not yet passed (even if this means study in the part-time mode), and must not enrol for second year units until all first year units are passed. In order to qualify for return to full-time study students studying in the part-time mode must pass all of their part-time load otherwise the part-time criteria listed (3) will apply.
   (iii) Students passing the equivalent of 4 units or less will be excluded unless they can show cause why they should not be excluded from the faculty (see 4).

   Note: Students with exemptions from common year units will have these criteria applied on a pro-rata basis.

(b) Second and third year (normally 8 units of study per year)
   (i) Students in later years must pass 4 units per year to be allowed to continue on a full-time basis.
   (ii) Progress will be reviewed at the end of each year and students not satisfying the criteria will be required to show cause why they should not be excluded, or sent part-time as appropriate.

2 Part-time students

Students who do not pass 2 units for the year will be required to show cause why they should not be excluded from the faculty (see 4).

3 Completion of common year

Full- and part-time students may not enrol for second or third year units unless they have completed or are concurrently completing all outstanding common year units. When a student is enrolled for both common year units and second year units, the common year units must not be dropped whilst retaining the later year units.

4 Requirement to show cause

Students who, under the set standards may be required to change to part-time or show cause why they should not be excluded from the faculty, may present a case (in writing) to the Student Review Committee setting out the relevant factors which have affected their performance in the previous year and why the Standards of Progress should not be applied in their case. In order to help students, the letter advising non-compliance with Standards of Progress will illustrate some of the guidelines used by the Student Review Committee.

5 Student Review Committee

(a) Composition
   (i) The Chair plus 2 members of the academic staff nominated by Faculty Board.
   (ii) At the request of the student being interviewed, a student representative selected by the Chair from the panel of student members on Faculty Board may be added to the Committee, for consideration of their case only.

(b) Procedure
   (i) Students will be required to submit in writing full details of their performance.
   (ii) In addition, the Assistant Registrar will seek information from relevant academic staff on the work of students who have appealed.
   (iii) A decision will be made on the information provided by the student and relevant academic staff. The Student Review Committee may consider it appropriate to hold an interview with a student who has appealed.
   (iv) No student will be excluded from the faculty or required to study part-time without first having the opportunity to present a case in person to the Student Review Committee.

6 Conditions of enrolment/number of units

(a) Full-time
   Usually full-time students will remain enrolled for 4 units per semester.

(b) Part-time
   Usually part-time students will remain enrolled for 2 units per semester.

Faculty of Business 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.

The Sir Reginald Ansett Memorial Scholarship

Awarded on interview, financial need and academic ability to a Business student commencing full-time studies.

The William Buck Accountant Scholarship

Awarded on interview to a Business student who has completed at least two years of full-time study.

The Aspect Computing Scholarships

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

The CRA Scholarships

Awarded to the three third year students who achieved the highest aggregate results in the five mandatory accounting units in first and second years.
The Swinburne Association of Marketing Scholarship (SAM Scholarship) will be awarded on the basis of need and academic performance to a full-time 2nd or 3rd year Economics/Marketing or Marketing student in the Faculty of Business.

Faculty of Business Prizes
Annual awards are made by the following donors:

The Arthur Andersen and Co. Prize
The student with the best aggregate performance in Financial Management and Accounting Theory.

The Bill Hibble, Arthur Andersen and Co. Prize
The best performance in a Computing programming unit.

The Australian Chamber of Manufactures Prize
The top student in Industrial Relations.

The Australian Chamber of Manufactures Prize
The top student in Industry & Government.

The Australian Computer Society Prize
The best student in final year computing practical work. (Not awarded to a BBus student in 1992.)

The Australian Institute of Management Malcolm Moore Medal
The best overall student completing the Economics1 Marketing degree stream.

The Australian Institute of Management Business Administration Prize
The best candidate completing the Graduate Diploma Business Administration selected for entry without a first degree or diploma.

The Australian Society of Certified Practising Accountants Prizes
The best students in first, second, and third year accounting units.

The Australian Society of Corporate Treasurers’ Prize
The best overall student completing the Graduate Diploma in Corporate Finance.

The Baker and McKenzie Prize
The best student in Computers and the Law.

The BP Australian Prize
The best student in Corporate Accounting.

The John D. Brooke Prize
The best student in Budgeting.

The William Buck and Co. Prize
The best student in the unit Business Computing.

The Butterworths Books Prizes
1. The best student in Marketing and the Law.
2. The best student in International Marketing and the Law.
3. The best student in Advanced Tax.

The Carlton and United Breweries Limited Prize

The Chandler and Macleod Consultants Prize
The best performance in Managing Human Processes.

The Commonwealth Bank Prize
The best student in Monetary Economics.

The Coopers and Lybrand Prize
The best student in Management Accounting 1 and Management Accounting 2.

The DMR Prizes
The best two students in second year Systems Design.

The Deloitte, Haskins and Sells Prize
The best student in EDP Auditing.

The Economic Society of Australia Prize
The best student with a major study in economics.

The EDP Auditors Association Prize
The best student in Auditing and post-first-year DP unit.

The IBM Prize
The best final year Bachelor of Business student with major studies in Marketing.

The ICI Prize
The best student in Auditing 1A/B.

The Institute of Chartered Accountants of Australia Prizes
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 of Accounting’s Professional Year modules.

The Integrity Prize
The top student in Accounting 1A/B.

The KPMG Peat Marwick (incorporating Touche Ross and Co.) Prize
The best student in degree (incorporating Touche Auditing.

The KPMG Peat Marwick (incorporating Touche Ross and Co.) Businessl Japanese Prize
The best second year student in the Businessl Japanese double degree.

The Logica Prize
The best performance in Database Management Systems.

The Mallesons Stephen Jaques Prize
The best student in Law of Business Organisations

The Mobil Oil Aust Ltd Prize
The best overall student completing the Graduate Diploma in Organisation Behaviour.

The National Australia Bank Prize
The top student in Economic Research

The National Mutual Prize
The best student in the subject The Organisation.

The Price Waterhouse Prize
The best student in Financial Accounting.

The Rigby and Fielding Prize
The best student in Legal Environment of Business

The Siemens Ltd Prize
The best student in Contract Law.

Swinburne Graduate Society of Business Administration Prize
Best overall student in the Graduate Diploma in Business Administration.
The Vic Roads Prize
The best student in Management and Leadership in Organisations.

The following prize is presented by Swinburne Institute of Technology:
The TW Higgins Prize
The best graduating student in the degree of Bachelor of Business.

Graduate Diploma courses
A080 Graduate Diploma in Accounting

The Graduate Diploma in Accounting is offered by Swinburne Institute 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 module 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC554</td>
<td>Auditing and EDP</td>
</tr>
<tr>
<td>BC555</td>
<td>Accounting</td>
</tr>
<tr>
<td>BC556</td>
<td>Taxation</td>
</tr>
<tr>
<td>BC557</td>
<td>Personal Financial Planning</td>
</tr>
</tbody>
</table>

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
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 the administration and management fields, but in the course of their employment, feel the need for a broader knowledge of 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 with two years of part-time study, but, in order to continue in the course, students must maintain a satisfactory standard of progress.

Course structure
First year
- BC601 Introduction to Financial Management
- BE501 Economics
- BH501 Administration of Organisational Systems
- BM501 Marketing Management 1
- BQ504/5 Quantitative Methods

Second year
- BC604 Financial Structures and Policy
- BH605 Managing Human Processes
- BM601 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.

As an integral part of the course, all students in second year, attend a residential weekend early September.

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.

A089 Graduate Diploma in Market Forecasting

Course objectives
The Graduate Diploma in Market Forecasting is designed for those people who wish to obtain the skills and techniques necessary in order to:

- be aware of when and where the need for forecasting exists and what it fits in with respect to the planning process;
- evaluate dominant market and environmental factors affecting an organisation;
- prepare short, medium and long-term forecasts where appropriate;
- effectively communicate the results of the forecasting process and oversee their implementation.

Entrance requirements
Applicants must have a degree (or equivalent) in any discipline from a recognised university or college (preferably entrants will have a knowledge of basic economics and statistics). Applicants must have at least two years relevant work experience subsequent to initially graduating.

There are a limited number of places available for candidates without tertiary qualifications, however, these candidates are expected to have substantial relevant work experience.

Course structure
The emphasis throughout the course is on the practical aspects of forecasting. The use of computers is a feature in almost every unit, and throughout the course participants will be introduced to a wide variety of specialist computer packages to facilitate solution of forecasting and related problems.

First year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BE504</td>
<td>The Nature and Characteristics of Markets</td>
</tr>
<tr>
<td></td>
<td>BQ502</td>
<td>Database Sources and Methods</td>
</tr>
<tr>
<td>2</td>
<td>BM502</td>
<td>Selecting and Influencing Markets</td>
</tr>
<tr>
<td></td>
<td>BC506</td>
<td>Market Forecasting 1</td>
</tr>
</tbody>
</table>

Second year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BQ604</td>
<td>Market Forecasting 2</td>
</tr>
<tr>
<td></td>
<td>BM604</td>
<td>Data Collection Methods and Applications</td>
</tr>
<tr>
<td>2</td>
<td>BQ608</td>
<td>Market Forecasting 3</td>
</tr>
<tr>
<td></td>
<td>BC612</td>
<td>Forecasting and the Planning Process</td>
</tr>
</tbody>
</table>

The course is designed for part-time study predominantly in the evening.

Preclusions
Candidates may be precluded from attempting a unit in the 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
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.

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:
  1. common business software packages
  2. computer programming
  3. structured analysis
  4. data base management systems
  5. data communication
  6. expert system tools
- conceptual knowledge about:
  1. evaluating systems development tools
  2. choosing appropriate methods of systems development and appropriate processing facilities
  3. solving problems associated with implementing computer and office automation systems
  4. 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:

- liaising between user areas and the computer department (business analyst)
- analysing and designing information systems
- programming
- evaluating software and hardware
- co-ordinating computer projects
- administering a computer function within an organisation
- marketing support for software and hardware suppliers
- education and training in information technology in schools, the computer industry or the public sector.

Course structure
The course 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 Business Computing
- BT508 Data Base Management Systems
- BT507 Data Communication and Office Automation
- BT508 Systems Development Strategies
- BT509 Knowledge Based Systems
- BT610 Industrial Project A
- 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.

**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, a broad coverage and the integration of related disciplines, there are no elective units offered.

**First year**

- Semester 1: BCS04 Corporate Financial Management 1
  - BES03 Financial Institutions and Markets
  - Semester 2: BCS05 Corporate Financial Management 2
  - BL502 Legal Aspects of Finance

**Second year**

- Semester 1: BCS10 Investment Management
  - BES10 International Finance and Monetary Theory
  - Semester 2: BCS11 Financial Modelling
  - BCS12 Current Developments in Corporate Finance
  - or BCS13 Research Project

**Preclusions**

Candidates may be precluded from attempting a unit in the unlikely event that they have recently passed an equivalent unit previously. 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 paragraphs 4 and 5 of the undergraduate 'Standards of Progress' as a provision applying to Graduate Diploma in Corporate Finance students:

'At least one unit must be passed each semester until all course work is completed, unless a deferment of study is sought and approved.'

**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 diplomats who have sufficient professional experience to benefit from it. Entrance is also available to a restricted number of mature-age non-graduates or diplomats whose position or experience is sufficient indication of their capacity to complete the course.

**A084 Graduate Diploma in Management Systems**

The Graduate Diploma in Management Systems involves two years' 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 computer technology; and use sound reasoning to determine the applicability of these developments;
3. fully appreciate the impact of various proposed solutions;
4. appreciate the benefits of the discipline of computer science and information technology;
5. appreciate the benefits of the discipline of business management and computer science;
6. develop an appreciation of the benefits of the discipline of management science and computer science;
7. develop an appreciation of the benefits of the discipline of management information systems and computer science.

**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
- **BT602** Information Systems Management
- **BT603** Management Systems

**Group 2**
Students must take an approved pair of units from this section:
- **BH404** Management, Organisation and People
- **BM602** Strategic Management
- **or**
- **BC503** 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:
- **BH404** Management Organisation and People
- **BM602** Strategic Management

**Preclusions**
It is not 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 developments 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 program manager 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 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.

**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. 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**
- **BH505** The Social Context of Management
- **BH506** 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** Leadership and Change in Organisations

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, but 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.
The Faculty provides opportunities for studies leading to various research degrees. Applicants must allow 2-3 months for a successful application to be evaluated.

(1) The Faculty provides opportunities for studies leading to the Master of Business by research and major thesis and to Doctor of Philosophy by research and major thesis. Candidates interested in these major research degrees should contact the Dean of the Faculty.

(2) Applicants must allow 2-3 months for a successful application to be evaluated.

(3) Applicants wishing to apply for a postgraduate award must therefore submit their application to the Institute by 31 October in order to have the candidature finalised by the closing date for these awards.
Masters Degrees by course work and minor thesis

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 entrance 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

Years One and Two
Graduate Diploma in Organisational Behaviour

Year Three
BH701 Career and Life Planning
BH702 Power and Politics in Organisations
BH703 Research in Organisation Behaviour
BH704 Current Issues in Organisation Behaviour

Year Four
BH801 Organisation Research Project
and Thesis (under supervision)

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 management, 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
BM602 Strategic Management

First Year and Second Years
Graduate Diploma in Management Systems

Third Year (Masters Course)
 Semester 1
BH701 Business Forecasting
BT702 Knowledge Based Systems

Semester 2
BH702 Computer Aided Management
BH705 Management of Strategic Change

Fourth Year
BT801 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 Systems 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.

Master of Business Administration

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 course 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
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)
BB810 Strategic project planning
(4 units and continues throughout the year)
BT704 Managing People and Organisations
BB801 Economics for Management
BC101 Accounting for Management
BM801 Marketing for Management

Term 2 (15 weeks)
BB810 Strategic project (continues)
BB702 Management of Ideas
BB801 Elective

Term 3 (10 weeks)
BB810 Strategic project (concludes)
BB804 Management and Society
BM801 Business Planning and Policy

N.B. Applicants who have qualified for the Swinburne Graduate Certificate in Business Administration may be credited with up to 3 units towards the full-time MBA.

Conversion to MBA from Graduate Diploma

Full-time

Term 1 (15 weeks)
BB704 Management of Ideas
BB801 International Business
BB810 Strategic project (Value 4 units. To be completed in six months.)

Term 2 (10 weeks)
BB804 Management and Society
BB810 Strategic Project (Concludes)

Part-time

Term 1 (15 weeks)
BB810 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
BB810 Project continues

Term 3 (10 weeks)
BB804 Management and Society
BB810 Project continues

A further period of approximately six months,
BB810 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 $27,500 for the one year MBA (1992). 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 $11,500.

Business subject details

BC101 Accounting 1A
Prerequisite, nil
A basic introduction to accounting concepts, the processing of accounting data and the preparation of financial reports.
The unit is divided into two segments.
The first segment will cover the concepts of preparing a basic accounting equation and the preparation of profit and loss statement and balance sheet, which will serve as a means of providing information for management and decision making, and for the preparation of final reports. The control of cash, bank reconciliations and balance day adjustments are included. The second segment revises the system using a commercial accounting package for micro computers.

Textbooks

References
**Faculty of Business**

**BC102 Accounting 1B**
Prerequisite: a result of 'C' or better in Year 12 Mathematics or equivalent experience

The objective is to train students in accounting methods and techniques for students with some prior knowledge of bookkeeping or accounting. The course content is as for BC101 — see above.

Textbooks and References
As for BC101.

**BC103 Accounting 1C**
Prerequisite: BC101 Accounting 1A or BC102 Accounting 1B

Accounting theory and practice are examined in an historical cost accounting system. This unit includes the following topics: revenue and expenses; accounts receivable; cost of sales and inventory valuation; assets and depreciation; liabilities and leases; accounting for shareholders' equity; performance evaluation; analysis and interpretation of financial statements and cash flow statements.

Textbooks

Student Manual, Swinburne, 1992

References


**BE102 Economics 1A**
Prerequisite: Nil

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 significance of microeconomic concepts for both business and government policy is emphasised throughout the unit.

Textbook

References


**BE103 Economics 1B**
Prerequisite: BE102 Economics 1A

This unit introduces students to the way in which economists analyse macroeconomic problems within the framework of the Australian economic and business environment. The course begins with a detailed analysis of the determinants of the level and rate of change of national output, employment, prices and the exchange rate. Attention is then focussed on the role of fiscal, monetary, taxes and incomes, balance of payments and exchange rate policies in achieving economic goals.

Textbook

References


**BH101 Organisations and Management**
Prerequisites, nil

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 the utilising of change.
- to develop students' abilities to apply organisation theory to organisational 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, tutorials and 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

**BL101 Legal Environment of Business**

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

**BM101 The Marketing Concept**

Prerequisite, nil

This unit explores basic business and marketing concepts from a variety of perspectives. The objective is the understanding of key concepts upon which to build a framework for the integration of a variety of ideas on business-customer exchanges and the role of the marketing function.

Unit objective
The unit provides common year students with a series of lectures, group discussions, tutorial exercises and assignments designed to give them an opportunity to explore basic business and marketing concepts and provide a variety of exercises. Related issues of concern to profit organisations are also explored.

Particular emphasis is given to the role marketing plays in the organisation's process of adaptation to its environment, relationships between organisations and their clients, and in the formulation of management policies that impact on other functions such as accounting, operations, and research.

At the end of the 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 in the Bachelor or Business as well as providing a strong philosophical foundation for the vocational study of marketing, either as an elective sequence 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 listed overhead.
BT102 Information Technology A

An understanding of information technology is as useful for a career in business as for any other career. This unit and its subsequent companion BT103 deal with the way computers, software, communications, etc., are used by businesses today.

The two units, BT102 and BT103, have as their objectives:
1. To give students a broad understanding of information technology in the business environment.
2. To endow students with computer skills which will be of immediate practical value in other units and disciplines, and of later use in students' careers.
3. To provide a firm basis as prerequisites for second and third year computing units.

The BT102 unit will cover:
- computers
- computer applications
- communications
- DOS
- spreadsheets (using Lotus 1-2-3)
- word processing

Textbooks
To be advised.

References
Any current introductory books on computers in business. Swinburne-produced course guides on spreadsheets, word processing, and DOS.

BT103 Information Technology B

Prerequisite: BT102 Information Technology A

The BT103 unit will cover:
- database theory
- database practice using dBASE III+ or dBASE IV
- advanced DOS
- structured programming
- programming practice using dBASE III+ or dBASE IV
- systems analysis and development

Textbooks
To be advised.

References
Any current introductory books on computers in business. Swinburne-produced course guides on dBASE III+ or dBASE IV.

SM147 Quantitative Analysis A

First-year subjects in the Faculty of Business common year. For students without the appropriate Year 12 mathematics or its equivalent, the course, SM147 Quantitative Analysis A, is taken and it consists of three hours per week for two semesters. For students with the appropriate Year 12 mathematics or its equivalent, the course, SM148 Quantitative Analysis B, is taken and it consists of three hours per week for one semester. The content of both courses is the same, but the time allocation is different.

The primary purpose of this subject is to bring all students up to a higher level of numeracy and to develop a method of approach which they will be able to apply in subsequent areas of their courses. In doing this, the unit will provide students with a knowledge of particular techniques in mathematics and statistics so that they may achieve a greater understanding of the quantitative procedures applied in various disciplines of their business course. Application, interpretation and presentation of the results of analysis will form an integral part of the course.

SM148 Quantitative Analysis B

Topics covered will include the following: language and notation; functional relationships; differential calculus including extrema; integrals of maxima and minima; partial differentiation; introductory 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, confidence intervals, index numbers, correlation and regression; time series analysis.

BC201 Corporate Accounting

Prerequisite: BC103 Accounting 1C

Unit objectives
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 contemporary issues in the practice of financial accounting; by reference to actual situations where appropriate;
- to develop students' independent research skills in the assignment of research areas within the course;
- to develop student awareness of the interrelationship between corporate accounting and corporate law.

The unit covers the following areas:
- to share capital and other forms of finance;
- business combinations, including amalgamations, mergers and takeovers;
- group accounting—particular emphasis on this topic. It includes the preparation of consolidated accounts, equity accounting and joint ventures;
- availability of profits for distribution;
- presentation of financial reports including 7th Schedule and Accounting Standards requirements;
- reconstruction and company liquidation.

Textbooks
Leo, K.J. and Hoggett, J.R. Company Accounting in Australia. 2nd edn, Brisbane: Wiley, 1988
References
Cift, R.C. Corporate Accounting. 3rd edn, New York: Prentice-Hall, 1999

BC206 Management Accounting 1

Prerequisite: BC103 Accounting 1C

Management Accounting 1 is a second year semester length unit which is mandatory for students taking the accounting and marketing streams.

The unit is designed to introduce students to the role of accounting in the planning and decision-making functions of the management process. Topics covered include the elements of product costs, cost-volume-profit analysis, cost allocation issues, budgeting, profitability analysis, variable costing and the analysis of costs for both short and long-run decisions.

Throughout the unit students will be encouraged to:
- utilise micro-computer based techniques for solving problems;
- focus on the relevance of accounting information to management information needs.

Textbooks
**BC207 Management Accounting 2**
Prerequisite: BC206 Management Accounting 1
Management Accounting 2 is a second year semester length unit which is mandatory for students taking the accounting stream. This unit replaces BC203 Management Accounting and BC205 Accounting for Marketing 2.

The emphasis in this unit is on the accounting systems which produce the information necessary for decision making and planning, and ultimately for financial reporting. Topics covered include job order costing, costing for overhead costs, standard costing, process costing, joint and by-product costing, performance evaluation and transfer pricing. The effects of new technologies will be integrated into material throughout the course.

Textbooks

**BE201 Managerial Economic Analysis**
Prerequisites: BE102 Economics 1A and BE103 Economics 1B

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, industrial relations systems, industrial disputes, union-employer-government.

Topics to be studied within the unit include:
- 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**

**BE204 Economic Evaluation**
Prerequisites: BE102 Economics 1A and BE103 Economics 1B

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, cost-effectiveness studies, Empirics in the units on the development of interpretive skills, through awareness of the importance of identifying and appreciating the elements of uncertain and imprecise information.

Textbooks
Pappas, J. L. and Hirschey, M., Managerial Economics. 6th edn, Chicago: Dryden Press, 1989

**BE205 Economic Techniques for Business**
Prerequisites: BE102 Economics 1A and BE103 Economics 1B and SM147 or SM148 Quantitative Analysis for Business (or an approved equivalent)

**Objectives**
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 analysis and interpretational information rather than underlying mathematical theory.

**Course outline**
Statistical computing
Data analysis
Statistical Analysis
Econometric Modelling
- simple linear regression
- multiple regression

**Textbook**

**BE206 Applied Macroeconomics**
Prerequisites: BE102 Economics 1A and BE103 Economics 1B

This is a second year unit which builds on the material covered in Economics 1B. The focus of the unit is macroeconomic policy in an applied sense.

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.

Specific topics include the measurement of macroeconomic performance, limitations of major aggregate indicators, sources of fluctuations in economic activity, major macroeconomic problems, economic forecasting, macro economic management within an open economy.

**References**
Parkin, M. Macroeconomics. Addison-Wesley Publishing Company 1993

References cont. overleaf.
BH201 Organisational Behaviour 1
Prerequisite: BHIOI Organisations and Management or BS132 Administrative Studies 1
A second-year elective in the degree course in business
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 great 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.

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;
   - organisation bureaucracy, size and growth;
   - organisation 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

Textbook
To be advised.

BH202 Organisation Design
Prerequisite: BS132 Administrative Studies 1 or BHIOI Organisations and Management
It would be suitable for students to have also studied
BH201 Organisational Behaviour 1
A second-year elective in the degree course in business
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 great variety of institutions that are engaged in very different activities on all kinds of scales within contrasting economic, social, political and cultural settings.

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   - organisation 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

Textbook
To be advised.

BL201 Contract Law
Prerequisite: BHIOI Legal Environment of Business
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 business. Particular attention is also given to the legal repercussions of concluding an agreement (including the impact of statute) and breaching obligations undertaken.
BL204 Computers and the Law
Prerequisite, BLIO1 Legal Environment of Business

Course objectives
The aim of the course is to enable students to explore:
1. The application of existing law to computer development, manufac-
ture, acquisition and use.
2. The law in relation to computer abuse.

Course outline
To meet objective (1) above, students will examine the application to
corporate technology of existing law and practice, pertaining to:
(a) patents and copyright; (b) negligent manufacture; (c) negotiating and concluding
contracts for the acquisition, lease or rental of computer
resources; (d) performance deficiencies involving breach of contract, breach of warranty or
misrepresentations; (e) output errors or performance Use
defamation or third party economic loss.
To meet objective (2) above, students will examine:
(a) 'computer crime', with a view to assessing the adequacy of the
present law to meet the challenge inherent in the successful pros-
ection of computer criminals; and
(b) the issue of 'invasion of privacy', with a view to determining the
appropriate legal response to the dangers of personal data storage.

Reference

Recommended reading

BL205 Retailing and the Law
Prerequisite, BLIO1 Legal Environment of Business
This unit aims to provide a practical knowledge and awareness of the
laws which impinge on the law of retailing. It is focussed upon
those areas affecting the retailing of goods and services.

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
No specific textbook is prescribed. The following statutes will be required:
Goods Act 1958 (Vic)
Consumer Affairs Act 1972 (Vic)
Fair Trading Act 1985 (Vic)
Trade Practices Act 1974 (Cth.)

References
Retailing and the Law. Papers presented by the Continuing Legal Education Dept. of the College of Law, May 1986, Sydney: Centre for
Legal Information and Publication, 1986

BM203 Marketing Research
Prerequisites, BM 205 Marketing Behaviour and BQ204 Marketing Data Management or BE205 Eco
Techniques for Business. Unless students study BM206
Marketing Strategy and BM203 Marketing Research concurrently. BM206 is a prerequisite for BM203.

Objectives
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 for marketing decisions. It is aimed at the student who uses research as an
aid to better decision making, via experience, of how marketing research is carried
out.

Framework
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 through qualitative and quantitative methods, question-
naire design, sampling. Data analysis: introduction to using computer packages.
Writing and presenting a report. Ethical issues in marketing research.

Method of instruction
Lecture and tutorial sessions will be interrelated and will be split
approximately 50:50. The experience of guest lecturers will be
drawn upon to illustrate practical applications of course material.
Additionally, logarithms, project submissions and class presentations
will form part of the learning process.

Textbooks
To be advised.

BM204 Marketing Appreciation
Prerequisite, BM101 The Marketing Concept
This subject has been designed for students in the accounting and
marketing stream who wish to take only one unit of marketing as an
elective in the common year. This unit is not available to
students in the commerce stream. If after completing this unit a student changes to the economics-marketing stream it will not be counted in
satisfaction of the degree requirement.

Objectives
- to give students a broad understanding of the marketing environ-
ment and an overview of the total business function, in particular
with respect to planning and decision-making;
- to enable students to apply knowledge of marketing tech-
niques, economics and quantitative methods to business
situations. To achieve this, emphasis is placed on
case study analysis and management games.
- Marketing is an aspect of the business strategy and the
consumer. The unit provides a broad overview of the
marketing planning and introduces students to the techniques of
formulating a marketing plan.

Framework
The marketing concept - an understanding of the interaction between
the firm and its environment. The market and an analysis of demand
- consumer behaviour, consumption and expenditure patterns,
the buying process: market segmentation. The marketing mix - product,
pricing, distribution, promotion decisions.

Methods of instruction
In a course of this nature active participation is essential. The theoreti-
cal aspects of marketing are supplemented by practical problems
through the use of case studies and fieldwork exercises.

Reference
BM205 Market Behaviour
Prerequisite, BM101: The Marketing Concept
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.

Unit objectives
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 consumer choice
- understanding the three main influences on consumer choice:
  • the individual consumer
  • environmental influence
  • market strategy

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.

Textbook

BM206 Marketing Strategy
Prerequisite, BM205: 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.

Unit objective
The objective of this unit is to examine further marketing concepts at a more complex level, focusing on the marketing planning process as a key tool in an organisation's interaction with the environment.

Specific objectives
- to allow students to consolidate and develop upon the concepts developed in BM101 and BM205;
- 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 form a major part of the course. The emphasis on business report writing is continued, with more complex reports required. The major assignment requires the development of a business report detailing the marketing plan for an organisation using extensive analytical techniques.

Framework

Textbook

Other supporting material will be prescribed when appropriate. It is expected that extensive use will be made of library resources.

BQ201 Quantitative Management Techniques
Prerequisites, SM147148: Quantitative Analysis or equivalent
The unit provides:
- an awareness of the range of quantitative techniques and their application to a variety of accounting, economic and business problems;
- an understanding of the interrelationships between quantitative techniques and the traditional accounting function in an organisation;
- a basis for a more extensive study of the application of quantitative analysis in subsequent units.

Emphasis is on the practical solution of specific business problems and in particular on the recognition, formulation and interpretation stages of solution. Areas of study will normally include:
- the general problem of resource allocation with emphasis on linear programming including an introduction to post-optimal analysis; use of quantitative analysis to plan and control inventory levels; forecasting, with particular emphasis on short-term product demand; general approaches to planning and decision-making; the use of regression analysis in business and economic forecasting.

Case studies and assignments are an integral part of the course and are evaluated as part of the overall assessment in the unit. They include the use of computer packages.

Textbooks

References
To be advised during lectures.

BQ202 Business Forecasting
Prerequisites, SM147148: Quantitative Analysis A/B
This unit commences by providing participants 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, i.e., the sole use of time to obtain a forecast. These techniques are introduced via case studies based on a variety of product markets, and include non-adaptive averaging methods through to the more complex ARIMA and spectral decomposition techniques. Course participants will, after successfully completing this unit, be competent users of the main forecasting techniques dealt with. Considerable use of micro and mainframe computers will be involved in this unit.

Textbook

References
A detailed list of texts, journal articles and other reference material will be made available during the course.

Firth, M. forecasting Methods in Business and Management. London: Edward Arnold, 1977
BQ203 Computer Programming and Packages
Prerequisite, BT101 Information Technology

The purpose of this unit is to give students an opportunity to develop knowledge and skills in programming with microcomputers using both communication and technical skills already covered in other degree units. The unit has both a programming and a packages component.

Programming
This part is seeing a microcomputer database packages such as dBase III. Students work in groups to analyse, design and create a database solution for a small real-world requirement.

Coverage includes:
- data gathering;
- analysis techniques;
- data analysis;
- modular design;
- programming techniques;
- screen design and handling;
- report design;
- menu driven systems.

Packages
A number of microcomputer packages are made available for investigation. Students are invited to design their own packages. The range of software in the past includes graphics, spreadsheets, word processing, desktop publishing and various accessory packages.

References

BQ204 Marketing Data Management
Prerequisites, SM147 Quantitative Analysis A or SM148 Quantitative Analysis B and BM101 The Marketing Company

This unit has been designed to equip students with the techniques and skills to access and analyse information relevant to the market research activities of both private and public enterprises.

This unit will:
- introduce students to a number of data archives, public access databases and videotext type information systems;
- develop the necessary skills to access and use software on a mainframe computer or in the packages component;
- extend students’ knowledge of statistical methods necessary for analysis of secondary data.

Textbooks
CDATA B5, Tutorial Guide

References
SPSSX User’s Guide. 3rd edn. SPSS Inc., 1988
Australian National University Social Science Data Archives. SSDA Data Catalogue, Canberra: ANU, 1986
SAS Institute Inc., 1986

BT200 Business Computing
Prerequisite, BT101 Information Technology

This unit is specifically designed for accounting, marketing and economics-marketing students who want further knowledge of computer applications but who will not be taking other units from the computing area.

BT201 Information Analysis
Prerequisites, BT101 Information Technology A and BT103 Information Technology B

Models are important tools used by analysts in trying to understand information systems. This unit examines some of the models commonly used including:
- Datalow 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

BT202 Commercial Programming
Prerequisite, BT101 Information Technology A and BT103 Information Technology B

Unit objectives
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 and write, test, and document attractive, well-structured programs in COBOL.
Topics covered include the following:

- program structure;
- data structure;
- algorithm design;
- arrays and tables;
- sequential files;
- indexed files;
- testing.

Textbook

References

BT203 Data Base Management Systems
Pre-requisites, BT201 Information Analysis and BT202 Commercial Programming

Unit objectives
By the end of this unit the student will be able to:
1. Implement a logical data base design in a selection of DBMSs.
2. Design and program transactions against the data base.
3. Include appropriate secure, integrity and recovery functions in the above.

Topics covered:
- the implementation and operation of DBMSs;
- comparison of DBMSs;
- the above.

Textbook

References
Date, C.J. An Introduction to Database Systems. 5th edn, Reading, Massachusetts: Addison-Wesley, 1990
Kroenke, D. Database Processing. 3rd edn, Sydney: SRA, 1988

BT204 Data Communications
Prerequisites, BT201 Information Analysis and BT202 Commercial Programming

Unit objectives
By the end 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 principles of rule-based systems and induction systems;
- demonstrate an understanding of the evolutionary process of knowledge acquisition needed to put expertise into a machine;
- demonstrate an understanding of the goals and structure of the ISO reference model for computer network protocols;
- demonstrate an understanding of how data communications services and communications protocols are provided by the common carriers;
- demonstrate an understanding of how data communications benefits an organisation and how this function is managed.

Textbook

Major References

Supplementary References
Black, U.D. Data Communications Networks and Distributed Processing. Virginia, Reston, 1983

BT205 Knowledge Based Systems
Pre-requisite: BT201 Information Analysis and experience in at least one programming language.

A knowledge of LOTUS 1-2-3 and dBASE would also be useful.

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 elective in the degree course in Computing.

Topics covered:
- what expert systems are, how they are developed and who is using them;
- expert systems differ from conventional software programs,
- in 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;
- reference:
  - VP-Expert (on PC) and ESE (on IBM mainframe);
- at strengths and weaknesses of existing knowledge bases;
- a role 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

References
Gero, J. et al. (University of NSW), Expert Systems and their Applications. (audio-visual), Sydney: Univ. of N.S.W., 1986
Mansat, M. Expert Systems for a Rainy Day. AI-Expert (ISSN 74470 19537), February 1989, pp. 13-15

BC300 Accounting Theory
Although there are no formal prerequisites for accounting theory, it is preferable that the unit be studied in the final year of the course.

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 described in the unit to study some specific issues in financial accounting including if it aid to accounting, various inflation accounting systems, intangibles, accounting standards development and foreign operations.

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Although the subject is concerned with theory, considerable use is made of practical applications as part of the course. These are designed to illustrate the alternative techniques available while the theoretical framework is to evaluate and choose between alternatives.

Textbook

References
Hendriksen, E.S., Accounting Theory 4th edn, Homewood, Ill: Richard D. Irwin, 1982

BC304 Auditing
Prerequisite, students enrolled in this unit are expected to have passed BC201 Corporate Accounting.

The broad objective of this subject is to familiarise students with the underlying concepts, objectives and reporting function of the auditor. The unit deals with both theoretical and practical aspects of auditing. The aim is to integrate the concepts of auditing with practical approaches taken by the auditor to ensure students gain a complete picture of the audit process.

Theoretical topics studied include auditing methodology and a formulation of auditing standards; audit independence; audit evidence; the rights, duties and legal liability of auditors; the audit report and the consequences of audit; fraud and舞ness; internal control. The various approaches to the sufficiency of audit evidence; computer audits; internal management audits and materiality.

References

BC305 Budgeting
Students enrolled for this unit will be expected to have passed BC202 Cost Accounting and BC203 Management Accounting. This is a final year unit designed to develop and integrate the planning, control and decision-making techniques and skills introduced in cost accounting, management accounting and financial management.

Budgeting is an important aspect of modern accounting. The traditional procedures used in budgeting are being revised and alternative approaches are being evaluated. The impact of modern manufacturing technology and challenging economic and competitive conditions are considered. Budgetary planning and control in manufacturing, non-manufacturing and non-profit organisations is covered, with reference to the application of techniques to particular case studies.

Textbooks

References
Dearden, J., Management Accounting, Prentice-Hall, 1988

BC306 Taxation
Prerequisite, students enrolled in this unit are expected to have passed BC201 Corporate Accounting.

The overall course objective is to familiarise students with the tax law, as amended, with particular reference to the Assessment Act. Specifically the course will:
- develop research skills in students in relation to current and landmark tax cases;
- introduce students to the complexities of taxation in relation to various tax heads;
- 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 tax cases;
- introduce students to the complexities of taxation in relation to various tax heads;
- with the aid of income tax rulings and the aforementioned tax cases, develop students an understanding of the basic concepts of income, capital, and the rules governing deductions;
- provide for students intending a career in public accounting a basic grounding in taxation law.

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- provide for students intending a career in public accounting a basic grounding in taxation law.

Textbooks
References
Australian Income Tax Law, 2nd edn, Brisbane: John Wiley and Sons, 1988

BC308 Advanced Taxation
Prerequisite, students enrolled in this unit will be expected to have passed BC206 Taxation.

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, trusts, superannuation funds and primary producers. In addition the unit will address in detail, the capital gains tax and fringe benefits tax. Students will be expected to develop a research-oriented, problem-solving approach to the unit which includes the following specific topics:
- issues of assessable income and allowable deductions;
- incorporated entities;
- part IVA and tax avoidance;
- trusts, beneficiaries and children’s income;
- superannuation funds;
- primary producers;
- current developments in taxation;
- capital gains tax;
- fringe benefits tax;
- administrative provisions;
- tax planning.

References
CCCH Australia. Australian Tax Cases. CCH Aust. Ltd.
Income Tax Assessment Act, 1936, as amended, together with those acts which are complementary to the Assessment Act.
BC311 Financial Management 1

Prerequisites: Students enrolled in this unit will be expected to have passed BC206 Quantitative Management Techniques and BC206 Accounting Theory.

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.

The course is structured from the point of view of orienting the student to the fundamentals of managing the financial aspects of a business and covers the following specific topics:
- concepts of valuation;
- evaluation and selection of investment projects;
- cost of capital;
- working capital management;
- sources of finance and financial intermediaries;
- dividend policy;
- financing methods and impact on capital structure;
- financial statement analysis;
- current developments in finance.

Textbook

References

BC312 Financial Management 2

No prerequisites but strongly recommended that students should have completed or be concurrently enrolled in BC311 Financial Management 1.

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 own finances to accomplish their investment goals. It is necessary to evaluate alternatives available or to 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 fundamental principles of modern portfolio theory;
- to consider the process of portfolio selection and ongoing investment strategies;
- to review the characteristics of financial futures and options and how they may be used to modify the risk-return profile of investment portfolios.

References

BC313 Financial Accounting

Prerequisites: BC201 Corporate Accounting and BC200 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.

The objectives 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.

Course content
The conceptual framework: accounting information and share prices; aspects of group accounting; accounting for government enterprises; cost - benefit analysis; income tax; accounting policies; ethics; 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.

BC314 EDP Auditing

Prerequisite: students enrolled in this unit will be expected to have passed BC304 Auditing.

This unit assumes familiarity with the subject matter of BC304 Auditing. It should be most useful for those students planning to enter the profession.

The objectives of this unit is to provide students with a better understanding of the principles of the audit of computerised Accounting Information Systems and the application of statistical and analytic 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 oriented software packages.

References
Current journals

BE301 Public Finance

Prerequisites: BE102 Economics 1A and BE103 Economics 1B

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 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
BE302 Economic Research
Prerequisites, BE201 Managerial/Economic Analysis or BE202 Industry and Government
The intention in this unit is to broaden students' familiarity with the nature of research undertaken in economics, to develop students' abilities 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.

BE304 International Economics
Prerequisites, BE102 Economics 1A and BE103 Economics 1B
This unit provides a study of international finance and trade with special reference to Australia. Topics covered include:
- Australia's External Position
- Balance of Payments - concepts, trends and outlook
- External Debt
- Foreign Exchange Markets
- Exchange rate determination
- Fixed versus flexible exchange rate mechanisms
- Foreign exchange risk management
- The International Financial System
- Events since 1945
- International financial centres
- Current outlook and problems
- The Basis of International Trade
- Gains from trade
- Explanations of trade patterns
- Australia's trade pattern
- Trade Restrictions
- Arguments for protection
- Costs of protection
- Policy instruments
- Trade, Growth and Economic Development
- Regional Integration
- GATT
- Policies relating to trade and growth
- Australia's Trade and Industry Policies
- Past approaches to industry assistance
- Current issues and problems
- Improving Australia's international competitiveness.

References

BE305 Urban Economics
Prerequisites, BE102 Economics 1A and BE103 Economics 1B
In this unit, students develop an analytical approach to appraising urban problems and policies. While the emphasis is on economic analysis, part of the course is devoted to discussing sociological and town planning perspectives of urban problems. The unit covers the following broad topics: location decisions, government and private miles in urban development, housing, transport, and human resource delivery.

References

BE306 Economics of Social Issues
Prerequisites, BE201 Managerial/Economic Analysis or BE202 Industry and Government or BE204 Economic Evaluation
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 healthcare, education, transport, energy and environmental protection.
The unit endeavours to teach students the theory and principles needed to enable them to analyse social issues from an economic perspective.

Textbook
Because of the contemporary nature of this unit no textbook is set. Comprehensive reference lists will be provided.

BE307 International Finance
Prerequisites, BE102 Economics 1A and BE103 Economics 1B
This unit is designed to provide students with the theoretical and practical 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
- Global Financial Markets
- International Banking

References

BE308 International Trade
Prerequisites, BE102 Economics 1A and BE103 Economics 1B
The objectives of this unit are:
- to provide and understanding of the nature and significance of international trade to the Australian economy
- to increase awareness of current international trade issues of importance to the Australian business community and government;
- to equip students to appreciate and evaluate the ways in which government and business can improve Australia's international competitiveness.
Topics covered include:
- International Trade and the Australian Economy
- Balance of Payments
- Composition and direction of trade
- Australia's place in world trade.

International Trade and Trade Restrictions
- \text{basis of trade and gains from trade;}
- \text{explanations of trade patterns;}
- \text{trade restrictions;}
- \text{nature, reasons and effects;}
- \text{regional trading blocs;}
- \text{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
BE309 Financial Institutions and Monetary Policy
Prerequisites: BE102 Economics 1A and BE103 Economics 1B

Objectives
To provide students with:
- an up-to-date view of Australian financial markets in an international context;
- an appreciation of the nature and workings of the Australian monetary system and changes in this system.

Course outline
- Deregulated financial markets — causes, nature and implications;
- the Reserve Bank and its policies in a deregulated market;
- staffing the organisation, its applications and an evaluation of current monetary policy.

Textbooks
Moore, D. Financial Institutions and Markets. 2nd edn, Wambarra: South-Western Publications. 1990

References
Bruce, R., McKern, B. and Pollard, J. Handbook of Australian Corporate Finance. 3rd edn, Sydney: Butterworths, 1989

BH301 Organisation Behaviour 2
OB2 is an elective subject 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 and experiential exercises, students will be encouraged to take initiative 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

BH302 Human Resource Management
Prerequisite, BH101 Organisations and Management
The human resources of an organisation are one of its major assets and the focus of this unit is on the understanding and management of those resources through the application of appropriate techniques, functions and management approaches. The unit aims to enable students to understand the nature and importance of human resources as an organisational asset and to provide a knowledge of the theories, techniques and approaches to dealing with people-related problems and issues.

The unit covers:
- the nature and importance of human resources;
- staffing the organisation;
- basic interviewing and counselling skills;
- analysing, evaluating and compensating work;
- analysing and improving the work environment;
- training and developing people;
- establishing and maintaining effective employee relations;
- managing change.

This subject may include some class work in the Management Behaviour Laboratory, where activities may be observed and/or recorded. The Code of Ethics requires students to sign a consent document at the beginning of the semester. Any further queries about this matter should be directed to the subject convenor.

References

BH303 Asian Business
Prerequisite, all first year units completed

Overall objective
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 Institute of Technology and travelling to a selected Asian country for a period of approximately 3 weeks during the semester. Students will attend tours of a local city and visit representative of major local industries and of workplaces. At the end of the visit, students will complete a report on their visit which will be assessed.

Students should note that it is possible to undertake only one of these units as part of their degree.

Unit objective
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.

1992 Study Tours
In 1992, two units will be offered. Asian Business (Thailand) will involve a three week trip to Thailand in February 1992 and Asian Business (Korea) will involve three weeks in Korea in July 1992

Teaching method
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.

Textbook
Because of the nature of the unit no textbook is set

References
Comprehensive reference lists will be provided.

BL301 Advanced Company Law
Prerequisite, students enrolled in this unit are expected to have passed BL202 Law of Business Organisations

The unit is designed to acquaint students with various contemporary issues in company law, especially relevant to a future public practice in accounting. The course examines current topics in such areas as the constitutional and jurisdictional framework of company law, company direction and management, company conflicts, company misleading practices, company finance and company takeover activity. In recent years the course has focused substantially on company takeovers.

Textbook
CCH Australia Ltd. Australian Corporation & Securities Legislation. (Latest edn), Sydney: CCH Australia Ltd.

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.

BL302 International Marketing and the Law
Prerequisite, students enrolled in this unit are expected to have passed BL201 Contract Law or BL203 Marketing and the Law

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: trade credits, payment and protection policies;
- methods of transportation and distribution of goods and the legal principles relating thereto;
- international conventions for the protection of intellectual property;
- international franchising;
- international intellectual property.
**Textbook**

Stanke, J.G. Introduction to International Law, 10th edn, Sydney: Butterworths. 1989

**References**


**BL303 Employment Law**

Prerequisite. BL101 Legal Environment of Business

The general objectives are to examine the law upon the relationship of employer and employee. The following matters are covered in this unit:

1. **Contract of employment** — formation of the contract of employment including an employee from an independent contractor, the terms of the contract of employment, common law and statute.
2. **The arbitration system** — the structure of the Australian Arbitration System in operation, the constitutional context, the system in operation in settling disputes and making awards.
3. **The role of law in health and safety** — the role of law in health and safety, the Victorian Worker's Compensation System, the prevention of industrial accidents.

**References**


**BL304 Finance and Credit Law**

Prerequisite. The students enrolled in this unit will be expected to have passed BL201 Contract Law

The objective of the unit is to extend and develop the principles of contract law by studying the following areas: The financing of contractual obligations, the alternative methods of securing financial obligations and the insolvency of property acquired pursuant to contract. 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.

**BM302 Business Cases**

Prerequisite. BM206 Marketing Strategy

This unit is concerned with how business and non-business organisations make and carry out decisions. Business Cases is a challenging course as students are given an opportunity to apply their knowledge of marketing, as well as the various other units which make up the Bachelor of Business, to practical situations.

**Objectives**

To enable students to interrelate the disciplines taught at the various stages of their studies, and to give students an overview of how an organisation functions; to give students an opportunity to develop and practice their analytical and communication skills.

**Framework**

The course deals with the planning and implementation of strategy. Major topics include: the setting of objectives; analysis of the present position; strategy formulation, strategy implementation.

**Means of achieving objectives**

Emphasis is placed on the appreciation of strategy concepts, hence the analysis of case studies and the use of management games are important aspects of the course. Students may also be given the opportunity to investigate a real-life business problem.

**References**

To be advised.

**BM303 Marketing of Services**

Prerequisite, BM206 Marketing Strategy

The services industry is the largest growing sector nationally as well as globally. This unit explores the major differences between the marketing of services as distinct from product marketing, and aims at providing students with special skills required to develop marketing strategies in service businesses.

**Framework**

Distinctive aspects of service marketing. Consumer behaviour in the service industry. Special implementation problems in the service industries. Investigating the service industry of your choice (e.g. financial services, hospital, travel services, etc.)

**Method of instruction**

Refer to BM205 Market Behaviour and BM206 Marketing Strategy.

**Reference**


**BM304 Advanced Marketing Research**

Prerequisites. BM206 Marketing Strategy; BM203 Marketing Research; and BO204 Marketing Data Management or BE205 Economic Techniques for Business

**Objectives**

This unit is designed to provide marketing and economics-marketing students with a basic preparation for a career in market research, either as a specialist buyer or a provider.

**Framework**


**Method of instruction**

In addition to standard lectures, extensive use will be made of guest lecturers drawn from the market research industry. Group assignments, presentations and log book submission will also be important aspects of learning. The qualitative research will use the facilities of the Swinburne Management Laboratory.

**Textbook**

Details will be provided at the first session.

**BM305 Retail Marketing**

Prerequisites. BM206 Marketing Strategy and BM203 Marketing Research

Retail Marketing is an elective unit in the marketing stream of the Bachelor of Business.

**Unit objectives**

The unit aims to provide an overview of retailing from a management perspective by providing a range of specialist skills which are of particular relevance to retailing in Australia in the 90s.

**Topics**

- the retail environment in Australia;
- major changes occurring in retailing overseas;
- planning the retail marketing mix;
- the role of research in retailing;
— location decisions;
— the role of the retail buyer;
— retail buyer behaviour;
— merchandising strategies;
— franchising.

Textbooks
To be advised.

References
To be advised.

**BM306 Advertising and Media Planning**

**Prerequisites:** BM206 Marketing Strategy and BM203 Marketing Research

This unit is an elective subject for the degree course in Business.

**Unit objectives**

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.

This unit is about the underlying process of advertising; it is about how advertising works (a good source: Advertising Strategies and Effective executions of ad ages). There are many areas that are not ignored economic, technical or purely creative. These areas are not ignored.

**Topics**

— 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**


**BM309 Product Management**

**Prerequisites:** BM203 Marketing Research and BM206 Marketing Strategy

The course ‘Product Management’ is a third year unit in the Bachelor of Business undergraduate degree course.

**Unit objective**

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 Marketing 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 context, the course will examine some of the special features of the product management role in business today.

**Specific objectives**

— to understand the importance of successful working relationships within the organisation, particularly with sales, production, supply and research and development, in the product development process.

**Textbook**


**BM312 International Marketing**

**Prerequisite:** BM206 Marketing Strategy

The purpose of the unit is to ensure that students are aware of the basics of international marketing operations — exporting, importing, licensing, foreign exchange, and marketing functions, and of the special features of world economic, social and political environment in which companies function. Even domestic companies with no international operations are affected by many developments in the international environment and should understand them. Innovation and technology are inherent aspects of this unit, and the integration of knowledge and skills from the other business units is seen to be useful for understanding International Marketing.

Specific objectives include:

(a) to provide a framework for national marketing and to an understanding of the special nature of cross-border marketing;

(b) to raise awareness of the opportunities in international trade (particularly export) and to examine some of the obstacles;

(c) to examine some of the most unusual aspects of the economic environment of the international operator;

(d) to enable students to understand the special nature of international marketing and the social and cultural differences in the international environment that influences its operations.

**References**

Caleora, P.R. International Marketing. International edn, Homewood, Ill: Irwin, 1990


**BT301 Systems Development Strategies**

**Prerequisites:** BT203 Data Base Management Systems and BT204 Data Communication Systems

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.

**Objectives**

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.

**Topics covered**

— 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

BT302 Systems Software
Prerequisite: BT202. Systems Software.
This unit concentrates on a series of IBM’s RTOS and UNIX operating systems. Both UNIX and RTOS are discussed from the perspective of the hardware on which they are run and can be used to illustrate principles and types of operating systems.

Textbook

References

BT304 Programming and Hardware
Prerequisite: BT302. Systems Software.
This unit introduces the student to IBM’s S/370 computer architecture and assembly language. The aim is to graduate students familiar with the machine instruction set.

Topics will include:
— S/370 Hardware Architecture
— SPARC Channel System. Control and DASD Units
— Assembly Language
— Data types and formats
— Machine instructions
— Machine instructions
— Macro Instructions
— Writing Programs in Assembler H
— Debugging Techniques
— File organization and access methods
— VPAM, VSAM and VSAM

This is a practical unit and substantial programming exercises will be given.

Textbook
S/370 Reference Summary IBM GX20-0157-2

References
A list of appropriate IBM manuals will be given.

BT305 Industrial Project A
Prerequisite: BT201. Information Analysis. Analysis plus one additional 2nd year computing unit.
This unit will provide students with the opportunity to work in a formal project environment on the analysis and design of an automated information system.

Objectives
By the completion of the unit students should be able to:
— define the scope and objectives of an information system to be designed and implemented;
— identify the project steps to be carried out and the tasks required for each step;
— use a CASE tool to store, maintain and analyse the system documentation;
— prepare a detailed design specification for the logical data base, transactions, screens and reports of the information system;
— specify a system acceptance, data conversion and implementation plan;
— apply the above mentioned skills to the analysis, design and specification of an automated information system chosen by the unit teaching panel as a semester case study for the unit. The chosen information system is to be developed and implemented as part of the following Industrial Project B unit.

Reference

BT306 Industrial Project B
Prerequisite: BT205. Industrial Project A. BT207. Data Base Management Systems and BT204. Data Communications.
This unit provides students with the opportunity to work in a formal project environment on the development and implementation of an information system.

Objectives
To implement the system for which planning, analysis and design was completed during BT305 (Industrial Project A).
To employ the practical skills learned in other units, such as:
— Software engineering techniques;
— Project control;
— Standards development;
— Programming;
— Testing;
— Migration to new hardware and software.
By so doing, to deepen and broaden the understanding of practical computing, and to reinforce the theory learned in other units.

Reference

BT307 Advanced Programming
Prerequisite: BT202. Commercial Programming.

Unit objectives
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++.

Syllabus
Introduction to C simple data types structured programming methodology algorithms — sorting, searching and file processing recursion; iteration; structures data structures: arrays, stacks, queues, lists and trees the C++ programming language object-oriented software design

Assessment
2 Programming Assignments 20%
2 Fortnightly Tests 30%
Final Exam (closed book 2hrs) 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.

Teaching method
Lectures 2hrs/week for 13 weeks
Lab Sessions 2hrs/week for 12 weeks
Graduate Certificate units

**BC401 Accounting for Management**

This is a one semester unit for students in the Graduate Certificate of Business Administration.

The objectives of the unit are:

- To develop a manager's ability to understand and apply financial information in making business decisions and assessing the performance of a business.
- The 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.
- 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.
- 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**

Gaffikin, M., Walgenbach, P., Dittrich, N. and Hanson, E. Principles of Accounting. 2nd Australian edn, Harcourt, Brace Jovinovich, 1990

**References**


**BH401 Managing People**

A unit in the Graduate Certificate of Business Administration. The aim of the unit is to:

- employ behavioural science theory to analyse situations involving the management of people at work;
- make distinctions between the processes of people interactions and the content with which they are working;
- develop skills of observation, processing and generalising from personal experience, and apply knowledge gained to practical work problems of managing;
- increase the students' awareness of self and their impact on others.

**Textbook**


**BH402 Managing Organisations**

A subject in the Graduate Certificate of Business Administration.

**Objectives**

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.

**Syllabus**

Organisations are explored from the perspectives of:

(i) structure
(ii) politics
(iii) culture, and
(iv) human resources.

**Reference**

Bolman, L. and Deal, T. Modern Approaches to Understanding and Managing Organisations. San Francisco: Jossey Bass, 1984

**BM401 Marketing Management**

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.

**Course framework**

Consumer behaviour analysis, market segmentation, product/service policy — life cycle and adoption process; planning; differentiation; packaging and branding; pricing policy — cost, demand, resource considerations; competition; communications mix — personal selling; distribution policy — channel selection; physical distribution; introduction to marketing strategy.

**Textbook**


**References**


**BT401 Business Software for PCs**

The aim of this unit is to:

- enable students to appreciate, and gain practical experience of a range of PC-based analysis methods as a means of providing information for management decision making;
- introduce 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.

**Course framework**

Consumer behaviour analysis, market segmentation, product/service policy — life cycle and adoption process; planning; differentiation; packaging and branding; pricing policy — cost, demand, resource considerations; competition; communications mix — personal selling; distribution policy — channel selection; physical distribution; introduction to marketing strategy.

**Textbook**


**References**


**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.

**Objectives**

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;
BT403 Business Computing

Unit Objectives
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. Units systems will range from microcomputers 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 on 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, in particular personal computers, distributed workstations and networked PCs
- understand basic communication terminology and describe some currently used communication services and products
- describe alternative 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

Unit Objectives
To give students an understanding of the principles and practice of computer 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 of testing and of debugging;
- design a simple structured algorithm to solve 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;
- algorithms design;
- data validation;
- arrays and tables;
- sequential files;
- reporting;
- indexed files;
- strings;
- testing.

Textbook

References

BT405 Information Systems Strategies

Unit Objectives
The aim of this unit is to provide students with a thorough understanding of the varying information needs of an organisation and the various methods which are appropriate to meet those needs.

Particular emphasis will be placed on need to understand the data liable to an organisation and how it can be used to provide relevant information reliably and efficiently.

Topics Covered:
- Types of decisions, types of information
- Retrieving Data, processing and presenting it using SQL
- Networks — Centralised, decentralised/distributed processing
- Strategic and Tactical issues of networks and E.I.D.
- 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

Unit Objectives
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
BT407 Technology and Change

Unit Objectives
The aim of this unit is to enable the student to understand the significant impact that Information Systems may have on an organisation's planning and decision making. Students will be able to know the processes by which these changes may be managed.

Topics
- Approaches to information systems planning
- Understanding corporate culture
- Impact of IT on management
- Managing change
- Evolving systems development approaches
- Planning strategies
- Project selection including project estimation and cost benefit analysis
- Project management
- Team building
- Training
- Change-over
- Ergonomic issues — hardware, software, people
- Managing the use of IT

References

Graduate Diploma units

BC503 Introduction to Financial Management
Prerequisite, nil

A first-year unit in the graduate diploma course in business administration. The objectives of the unit are firstly to develop the student's ability to understand, interpret and use corporate financial statements as an information source and secondly to develop the student's understanding of the accounting information which exists within an organisation for the purpose of supplying relevant and timely information for management decision making.

No prior knowledge of accounting is assumed.

Applicants who have previously studied accounting at a tertiary level or are working as accountants are precluded from taking this unit.

Topics include:
- management planning and decision making
- accounting models and the reporting system
- basic report analysis and interpretation
- asset valuation and reporting
- cost behaviour and classification
- information and decision making — short and long run
- performance reporting and evaluation

References
McDonald, R.C., Cooper, R.G. and Astill, B.J. Accounting for the Non-Finance Executive. 2nd edn, New Zealand: Longman Paul, 1983

BC504 Corporate Financial Management 1

Objectives
- 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.

Course outline
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

Prerequisite, students enrolled in this unit are expected to have passed BC504 Corporate Finance 1

Objectives
This unit is designed to develop an appreciation of the way in which firms plan and manage their financial strategies.

Course outline
Strategic planning — commitment of resources to profitable activities.
Fund flow analysis; cash flow analysis — testing for cash inadequacy, cash insolvency.
Financing sources and liabilities.
Control of fixed assets.
Prediction of financial distress and capital 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.
BC554 Auditing and EDP

Prerequisites, BC304 Auditing and BT102 Information Technology 1A and BT103 Information Technology 1B, or suitable equivalents.

The increasing dependence of all types of organisations 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 system 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, timesharing, 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

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. The major emphasis in the course is an in-depth coverage 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). The course covers areas relevant to the Professional Year assignments and final examination in the Taxation Module set by The Institute of Chartered Accountants. The unit has a weighting of 2 units.

References

Australian Federal Tax Reporter, North Ryde, N.S.W., CCH Australia Ltd

BE501 Economics

No prior knowledge of economics is assumed. Applicants who have majored in economics at a tertiary level 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, covering in particular market structure, conduct and performance issues.

In the second half of the course consideration is given to the factors that determine the general level of economic activity and those economic concepts and methods of analysis that bear directly on the management of a firm.

The topics to be covered are drawn from: markets, resource allocation, efficiency and demand, production and costs, pricing and profit; industry economics including public policy aspects; aggregate demand and supply analysis; money and economic activity; employment and unemployment; inflation, monetary, fiscal, balance of payments and prices/incomes policies.

References


A detailed reading guide will be issued at the start of the semester.

BE503 Financial Institutions and Markets

Objectives

To provide students with:

(i) an understanding of the structure, functioning and development of Australian financial institutions and markets, and
(ii) an appreciation of some of the key issues in industry policy, export markets and labour markets, particularly as they affect manufacturing industry;
(iii) the ability to critically appraise Government policies in the above areas.

Course outline

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 Reserve Bank of Australia's role and policies.

Market issues
- industry policy debate — level playing field versus interventionist approach
- microeconomic reform issues
- factors affecting Australia's export market performance and policy implications
- key labour market issues.

References


Faculty of Business
**BH504 Nature and Characteristics of Markets**

This is a onesemester unit for students in the graduate diploma course in market forecasting.

**Objectives**

The unit will provide an introduction to aspects of microeconomics which will promote an understanding of the nature and characteristics of markets. Students will become familiar with the analytical methods which enable them to evaluate critically the policies of firms and the implications of government and regulation/ deregulation of markets.

**Topics include:**

1. the nature of markets dealing with aspects such as:
   - problems of definition
   - markets and resource allocation
   - alternative market structures
   - structure of the Australian economy
2. demand analysis
   - demand functions and curves
   - empirical demand studies
3. supply analysis
   - short-run and long-run production decisions
   - short-run and long-run cost analysis
   - profit and goals of firms
4. market regulation
   - alternative approaches
   - regulation in Australia

**References**


**BL501 Secretarial Practice and Procedure**

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 report 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.

**References**

Chappenden, W. J. Josse’s Law and Procedure at Meetings in Australia, 7th edn, Law Book Co., 1981, or


Yorston, Fortescue and Brown, Australian Secretarial Practice. 7th edn, Sydney: Law Book Co., 1983
BL502 Legal Aspects of Finance
Prerequisites, no prerequisite studies in law are required. Students who have not studied law previously are expected to become familiar with basic legal institutions and reasoning processes and with 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.

Objective,
This unit is intended to promote an in-depth awareness of those areas of law which have an impact upon the corporate finance function. Where appropriate, attention is given to the need for law reform.

Course outline
A study will be made of commercial and revenue law applicable to:
- selected aspects of equity, e.g. fiduciary, preference shares, corporate repurchase of shares, corporate financing of acquisitions and acquisitions and
- selected aspects of debt including convertible notes, negotiable instruments, debentures, receivers, charges, negative pledges, EFT and euro-currency loans;
- leasing, factoring and project finance;
- selected financial institutions, e.g. short-term money market, futures exchange, second boards of stock exchanges.

References
Detailed references to journal articles will be given in classes.

BM501 Marketing Management 1
Prerequisite, nil
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 fundamental of marketing, marketing planning, consumer behaviour and approaches to looking for market opportunities.

Methods of instruction
Emphasis is shared between theoretical and practical problems. Throughout the course students are expected to participate actively through the use of case studies and the presentation of individual and group assignments.

Course framework
Consumer behaviour — the buying process; market segmentation. Product policy — life cycle and adoption; 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.

Textbooks
Details will be provided at the first session.
Reference

BM502 Selecting and Influencing Markets
This unit introduces students to the nature and mathematics of Markets and BM502 Database Sources and Methods

Teaching method
One three-hour class per week for one semester.
Fieldwork exercises, case studies, class discussion and exercises will emphasise the practical nature of the course and enable concepts to be applied to "real world" situations.

Extensive use will be made of library and other community-based resources such as the Australian Bureau of Statistics. Students will be required to make class presentations, prepare short reports and present data in an informative fashion.

Objectives
This unit is oriented towards the behavioural and psychological aspects of individuals in the market place, and lays the foundation for forecasting activities at this level of aggregation.

- to introduce students to marketing decisions and the specification of relevant data required;
- to enable students to understand the components of a marketing plan;
- to allow the distinction to be made between the demand for a class, type, form and brand by introducing the concepts market size and the physical and behavioural aspects of markets, including target markets and market segmentation;
- to provide students with an ability to look for market opportunities;
- to introduce students to pricing, product, purchasing, promotion and distribution decisions;
- to introduce students to international marketing.

Course content
Both business and non-business organisations must look for and satisfactorily serve one or more markets to achieve their goals and objectives. This subject deals with marketing planning and market analysis (the structure and dynamics for specific markets). Marketing planning is introduced because an understanding of the marketing decision process will assist a manager in the specification of the relevant data required to make decisions. Market analysis is introduced as most markets can be divided into marketing segments each varying in size and requiring a different marketing plan and set of resources.

Textbooks
To be advised.

References
A large number of references including books, monographs and journal articles will be utilised during the course. These will be detailed to participants at the appropriate time.

BQ502 Database Sources and Methods
This unit will:
(1) introduce students to a number of videotext-type information systems, public access database systems and data archives;
(2) develop the skills necessary to access the information technologies in (1) above to enhance research skills;
(3) provide the training necessary for students to develop their own databases on both micro and mainframe computer systems.

Topics
- videotext: electronically published information for mass public audiences; the technology, the cost, the benefits; access to VIATEL and other generally available systems;
- public sector: access to the collection of Bibliographic and numeric data including ABDINFORM, ABIAINFORM;
- access issues: the selection of information, the price, copyright, security, confidentiality, reliability and quality. Australian Bureau of Statistics computer based information system and electronic services including ALSSSTATS, TELESTATS and DIRECT;
- techniques for analysing and processing secondary data sources using SAS and SPSSX. Particular attention will be given to the access and analysis of census data and other significant sample survey data collections such as the Household Expenditure Survey.

Textbooks

References
BQ504 and BQ505 Quantitative Methods

This unit is designed to give students an understanding of the role of quantitative analysis in the decision-making process. The skills acquired are used in other units of the course as well as giving an appreciation of statistical techniques via practical applications. User-friendly computer packages are employed throughout the course wherever possible, reflecting their importance and usefulness.

The topics included are: linear programming, forecasting, inventory management, basic statistics, decision theory.

Textbook

BQ506 Market Forecasting 1

Prerequisite: BQ504 The Nature and Characteristics of Markets and BQ502 Data Base Sources and Methods

This unit commences by providing participants with an overview of forecasting techniques and approaches. Following on from this, the criteria for the selection of an appropriate forecasting technique are examined and detailed consideration is given to the interpretation of results using methods such as trend analysis, moving averages, regression analysis and exponential smoothing. Emphasis will be placed on the use of mathematical packages to generate outputs of forecasts and to determine the best fit of technique to data. The unit will conclude with practical work involving the student in the application of one or more forecasting methods to real data.

Textbook

References
Firth, M. Forecasting Methods in Business and Management. London: Edward Arnold, 1977

BT502 Current Issues in Systems Design

Prerequisite: BT501 Systems Analysis and Design

Course objectives
In this unit, some of the most recent developments and trends in computer applications and technologies are examined to:
- state the major components of a system and the interaction between the components;
- state the problems associated with traditional computer systems and modern computing environments;
- state the reasons for the development of new systems design techniques;
- provide an awareness of the anticipated directions in which the computer industry is moving.

Course structure
Topics covered include:
- systems analysis and design for the fourth and fifth generation systems;
- prototyping strategies;
- systems documentation techniques of structured analysis;
- systems management and evaluation in relation to their own environment;
- computer communication and computer networks.

References
In addition to numerous periodicals and journals, the following texts will be used as a guide:

BT503 Software Engineering Strategies

A one-semester subject in the graduate diploma course in management systems.

The subject is intended to develop a formal awareness of the processes of analysing and designing systems while at the same time emphasising the necessary communications skills for success.

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;
- developing an understanding of system 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
- Date, C.J. An Introduction to Database Systems. 5th edn, Vol. 1, 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.

Objectives
At the end of this unit students will be expected to be able to:
- use general terms which constitute information technology 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, illustrate these functions using practical examples and apply this knowledge in analysing a practical situation.

BT506 Information Analysis

Prerequisite: BT504 Introduction to Information Technology

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 (SQL) is given as a means of representing data from a relational database.

References
- C.J. Date, An Introduction to Database Systems. 5th edn, Vol. 1, Massachusetts: Addison-Wesley, 1990
**Textbook**
To be advised.

**References**

**BT507 Computer Programming**

**Unit objectives**
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;
- 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**

**BT508 Business Computing**

**Unit objectives**
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 will conclude with a discussion of the social implications of introducing new information technology.

By the end of the 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 work with data and the implications of centralised, distributed and networked systems;
- understand basic computer terminology and describe current uses of computers;
- describe alternative methods of systems development and means of information analysis and requirements;
- describe some currently used personal computer software.

**Textbook**
To be advised.

**Reference**

**Faculty of Business**

**BC604 Financial Structures and Policy**

**Prerequisite:** A pass or exclusion from BC603 Introduction to Financial Management

This general objective is to develop an understanding of financial theory and the implications for corporate finance.

The unit covers the following topics:
- sources of finance;
- capital structure and leverage;
- working capital management;
- concepts of valuation;
- cost of capital;
- competition strategy;
- business combinations.

**Textbook**

**References**

**BC605 Investment Management**

This unit is designed to provide students with a basic understanding of investment management and the management of corporate investment portfolios.

**Objectives**
- understand the principles of investment management;
- to introduce the use of finance 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**

**BC606 Current Developments in Corporate Finance**

This unit is designed to provide students with a current understanding of the issues in the area of corporate finance. The unit will present issues by experienced professionals working in the area.

The unit is conducted on a seminar basis with ample opportunity given for interaction with the visiting speakers.

Because of the nature of the unit, the unit should cover a wide range of topics.

**References**
A selection of articles as detailed each session by the session leader.
**BC607 Research Project**

**Objectives**
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.

**Course program**
This unit is conducted over two semesters. While the work is carried out by students it is done to 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.

Written proposals for projects are submitted by 31 March. These must include sufficient details for 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 submit drafts of all work undertaken prior to the presentation of the final written report which must be presented for assessment 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:

**Course outline**
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
- Externai 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
  - Description of events since 1945
  - International financial centres and markets
  - Current outlook and problems
- The International Financial System
  - Description of events since 1945
  - International financial centres and markets
  - Current outlook and problems

**Textbook**
Kane, G.R. Principles of International Finance. Croom Helm, 1988

**References**
- Prentice - Hall, 1984

**BC612 Forecasting and the Planning Process**

**Forecasting** and the Planning Process provides a capstone to the graduate diploma course in market forecasting.

The unit deals with the issues of Strategic Management and, in particular, with the steps an organisation can take to work towards its future direction. It is incorporated as a main part of the unit on the development of Management Information Systems as well as functional implementation plans.

**Framework**
- strategic management;
- corporate objectives;
- resource analysis;
- scenarios, a way of influencing future environments;
- strategy formulation;
- management information systems;
- action plans;
- application development tools;
- security and control.

**Textbook**

**Reference**

**BE603 International Finance and Monetary Theory**

**Prerequisites**
BE503 Financial Institutions and Markets should be completed or undertaken concurrently

**Objectives**
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 international management.

**Course outline**
The following list should be taken as a guide only:
- International Financial Environment
  - Current position
  - Major indicators
  - Outlook
- Australia’s External Position
  - Balance of Payments
  - Terms of Trade
- Externai 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
  - Description of events since 1945
  - International financial centres and markets
  - Current outlook and problems
- The International Financial System
  - Description of events since 1945
  - International financial centres and markets
  - Current outlook and problems

**Textbook**
Kane, G.R. Principles of International Finance. Croom Helm, 1988

**References**
- Prentice - Hall, 1984

**BH604 Management, Organisation and People**

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 sub-system, 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.

**References**

**BH605 Managing Human Processes**

**Prerequisite**
BH501 Administration of Organisational Systems

A unit in the graduate diploma course in business administration.

**Structure**
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.
Textbook
To be advised.

References
McFadden, F. and Hoffer, J. Database Management. 2nd edn. Menlo Park: Benjamin Cummings, 1988

BT507 Computer Programming

Unit objectives
To give students an understanding of the principles and practice of computer 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;
- write, test, and document attractive, well-structured programs in COBOL.

Topics covered include the following:
- programming structure;
- data structure;
- algorithm design;
- data validation;
- arrays and tables;
- sequential files;
- reporting;
- indexed files;
- strings;
- testing.

Textbook

References

BT508 Business Computing

Unit objectives
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 and distributed systems and PC clients;
- use basic communications terminology and describe some currently used communication services and products;
- describe alternative methods of systems development and means of obtaining information for analysis of requirements;
- understand the social implications of computerisation.

Textbook
To be advised.

Reference

BC604 Financial Structures and Policy

Prerequisite, a pass or predication from BC503
Introduction to Financial Management
The general objective is to develop an understanding of financial theory and how it is used to assess the firm's financial decisions, including capital structure and leverage, working capital management, and the use of financial statements.
In particular, the topic coverage includes:
- financial statement analysis
- sources of finance
- capital structure and leverage
- business combinations

Textbook

References

BC605 Investment Management

Prerequisites, no formal prerequisites are specified; candidates usually would have completed the first year of the course.
Objectives
- 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 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.R. Investments. Homewood, Ill.: Irwin, 1984

BC606 Current Developments in Corporate Finance

The unit represents a coverage of contemporary issues in the area of corporate finance. Issues are presented by experienced professionals working in the area and is currently a pragmatic unit.
The unit is conducted on a seminar basis with ample opportunity given for interaction with the visiting speakers.

Because of the nature of the unit issues covered vary from year to year but the following list indicates topics recently covered:
- repurchase on share of stock;
- 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.
— 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 aware-
ness of human organisational problems and of the impact their per-
sonal behaviour has on others.
Class sessions may draw upon lectures, discussions, group experien-
tial 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.
The subject introduces students to current theory and practice assoc-
iated with organisation culture as a prelude to managing conflict and
change. It examines the fundamental elements and dynamics of orga-
nisation 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. P will be
given extensive use and the will be used as a basis for class
discussion and accompanying experimental activities.

BH607 Leadership and Change in Organisations
A second year subject in the graduate diploma in organisation
behaviour.
This subject has two specific points of focus:
1. Change
2. Leadership
It is assumed that leaders need to know about the influences which
create change and the processes necessary to produce a transfor-
mation rather than a rearrangement. Models of change, processes,
and change agent skills will be explored. This section will then flow into leadership and exploration will be made of:
— issues in leadership
— challenging the processes
— inspiring the vision
— enabling others
— creating an energy flow

Textbooks
As a guide:
Francisco: Jossey Bass, 1988

BM601 Marketing Management 1
Prerequisites, BM601 Marketing Management 1, BS504/BS505 Quantitative Methods, and BE501 Economics

A second year subject in the Graduate Diploma in Business Administration.
This unit builds upon the knowledge that students have gained from
Marketing Management 1, especially in respect to the marketing con-
cept, 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;
— the practical and theoretical issues of international marketing;
— involving the student in practical issues through the use of case
studies, assignments and group presentations.

Method of instruction
Particular emphasis is placed upon the use of case studies to com-
plement the lecture material. Students are expected to participate
actively throughout the semester, and are required to present both indi-
vidual as well as group assignments.

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 applica-
tions covered.

BM602 Strategic Management
Prerequisite, nil

A fourth semester subject in the graduate diploma in management systems.

Objective
The course provides students with an understanding of the manage-
ment problems involved in developing strategic policies for organisa-
tions 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 and
how these are translated into strategic plans.

Emphasis is shared between theoretical considerations, the practical
problems of case studies and de
toped readings to help
students learn how to employ strategy in selecting appropriate admin-
istrative policies and in securing their effective implementations.
Students are expected to participate actively during the semester and
are required to present individual and group presentations.

Textbooks
Detail will be provided at the first session.

References
Holler, C.W. and Schendel, D. Strategy Formulation: Analytical Con-
Steiner, A. Strategic Planning. New York: The Free Press, 1979
Steiner, G.A., Miner, J.B. and Gray, E.R. Management Policy and

BM603 Business Policy
Prerequisite: 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.

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 organising for effective business planning and
   for the implementation of the business planning process.

Content
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 bearing
   on the content of business plans and the process of 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.
BM604 Data Collection Methods and Applications

Objective
This unit seeks to explore the options available in the collection and application of data and survey material. The unit also aims to provide a working knowledge of practical research methods.

Research design (including cost/benefit analysis) and the various qualitative and quantitative data collection methods are studied, together with survey sampling techniques. Important also is an overview of sources of survey errors. In addition to data collection methods, techniques for the analysis of survey data using SPSSX and appropriate statistical tools are provided. Course participants will be expected to make both oral and written presentations of survey results.

References
Details will be provided at the first session.

BG601 Financial Modelling

The aim of this unit is to enable students to appreciate, and gain practice in the application of, a range of computer based analysis methods as components of a decision support system.

Throughout the unit, extensive use will be made of computer packages and particular emphasis will be given to decision making in computing that relate to finance and financial management.

Topic coverage includes:
- Decision support systems, expert systems, micro-computers and current software developments, financial modelling using languages (e.g. FORESIGHT) and spreadsheets (e.g. LOTUS 1-2-3), graphics, use of expert system shells, public data bases, approaches 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.

BG604 Market Forecasting 2

Prerequisite: BG506 Market Forecasting 1
Market forecasting 2 concentrates on the area of causal forecasting and commences 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 various levels of detail. Additionally, some of the more common problems associated with these approaches are discussed and cure suggested. The difficulties of producing forecasts per se are also dealt with.

Course participants are also introduced to structural and input-output models from a user's point of view. Again, considerable use will be made of data bases and computer packages.

Textbook

References
Other reference books plus selected journal articles will be suggested at appropriate stages in the course.

BG605 Market Forecasting 3

There are two main areas considered in this section of the course: the use of Markovian and Demographic methods of forecasting.

Markovian models are a particular concern in the context of some such as branching processes and modelling socio-economic processes and obtaining forecasts.

Demographic analysis techniques will be utilized to describe and forecast events such as births, deaths, migration, entry or exit from school or the labour force, together with important socio-economic and sociological processes.

References

BT601 Systems Project Management

Unit objectives
After completing this unit, students should be able to:
- understand the main reasons for success or failure of data processing projects;
- co-ordinate 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.

Unit structure
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 prerequisites are specified; however, students should have knowledge of systems development processes equivalent to that gained from completing BT503 Software Engineering Strategies.
BT602 Information Systems Management

Course objectives
At the completion of this unit, the student should be able to:
- specify the operation and organisation 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;
- negotiate the acquisition of new hardware and software;
- system, control, support and develop information systems staff;
- implement tools and methods for the more efficient operation of the information systems function.

No formal prerequisites are specified. However, it is assumed that candidates have a prior knowledge of administrative theory and practice and of computer systems.

Course structure
The final selection of topics is made from the following, depending on the students' interests: the I-S function — objectives, organisation, performance, operations management; capacity planning; user interface, end-user computing, office automation; negotiating; human resources management; productivity tools.

References

BT603 Management Systems

Course objectives
This unit covers the logical and physical design of information systems and their application for decision-making in organisations. A 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 system;
- 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.

Course structure
Management information systems; the development of management information systems, decision support systems and knowledge-based systems; technical considerations; social considerations.

Students will be required to evaluate management systems and the supporting infra-structure 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

Unit objectives
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.

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 the coverage of Relational Data Bases.

Textbook

References
Dale, C.J. An Introduction to Database Systems. 5th edn, Reading, Massachusetts: Addison-Wesley, 1990
Kroenke, E. Database Processing. 3rd edn, Chicago: SRA, 1988

BT607 Data Communications and Office Automation

Prerequisite, BT507 Computer Programming

Unit objectives
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 communications benefits an organisation and how this function is managed.

Textbook

Major Reference

Supplementary References
Black, U.D. Data Communications Networks and Distributed Processing. Reston, Virginia, 1983
Halsall, F. Data Communications, Computer Networks and OSI. 2nd edn, Wokingham: Addison-Wesley, 1988
Stapler, D.A. Business Data Communications. 2nd edn, Redwood: Benjamin Cummings Publishing Co., 1989

BT608 Systems Development Strategies

Prerequisites, BT606 Data Base Analysis 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.

Objectives
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 in any development project; suitable for different systems development approaches;
- describe the methodologies in use in organisations and determine the correct development approach for different projects;
- understand the need for different approaches to computer systems development to ensure that corporate information needs are met and computing productivity is maximized.
BT609 Knowledge Based Systems

Prerequisite: BT506 Information Analysis and experience in at least one programming language.

A knowledge of LOTUS 1-2-3 and dBASE would also be useful.

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++.

**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;
- inheritance;
- VP-Expert (on PC) and ESE (on IBM mainframe);
- comparative strengths and weaknesses of existing knowledge bases and the tools for evaluating artificial expertise;
- introduction to neural networks.

**Textbooks**

**References**
Gem, J. et al. (University of NSW) Expert Systems and Their Applications. Audio-visual, Kensington, NSW: Continuing Education Support Unit, 1986
Harris and Davis, A/Enter the Marketplace. Middlesex: Bantam Books, 1986
Manasi, M. Expert Systems for a Rainy Day. AI-Expert (ISSN 74470 19557), February 1990, pp. 13-15

**BT611 Systems Software**

Prerequisite: completion of second year data processing units.

This unit concentrates on a comparison of the operating systems MVS/IX and UNIX after giving students a general introduction to 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/IXA and UNIX operating systems.

**Textbook**

**References**
To be advised.

**BT612 Advanced Programming**

Prerequisite: BT307 Computer Programming

**Unit objectives**
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++.

**Syllabus**
- 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

**Assessment**
- 2 Programming Assignments: 20%
- 2 Fortnightly Tests: 30%
- Final Exam (closed book 2hr): 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.

**Teaching method**
- Lectures: 2hrs/week for 13 weeks
- Lab Sessions: 2hrs/week for 12 weeks

**References**
Schreiderman, B. Designing the User Interface — Strategies for Effective Human-Computer Interaction. Reading, Mass.: Addison-Wesley, 1989
Schreiderman, B. Designing the User Interface — Strategies for Effective Human-Computer Interaction. Reading, Mass.: Addison-Wesley, 1987
Masters units

**BB701 Management 2: (Resources)**

**Course:** MBA

**Prerequisites:** Normally all units taught in the first term of the course. This unit is compulsory (conversion students excepted).

**Aims**

The basic objective of this unit is to provide a broad understanding of, and some basic practical skills for, the effective planning, acquisition and control of human, financial material and information resources in an organisation. The technological implications of this unit will be complemented by study of the place of innovation and internationalism. Issues addressed will be seen to draw from, and contribute to, other units in the course.

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.

**Content**

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. Human — the nature and role of the personnel function in attracting, retaining and motivating competent employees. Financial — acquiring an appropriate financial mix including short term/long term funds, debtequity, local and foreign currency etc. Factors of funds raising, sources of advice etc. What is up in financial markets now.

(iii) Controlling Resource Use: Key Concepts in control of human, financial and material resources.

- Use of financial and non financial indicators.
- Accounting and management reporting systems.

**Texts or References**


**BC701 Accounting for Management**

**Course:** MBA

**Prerequisites:** None. This unit is compulsory.

**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:

- developing a framework of key concepts necessary for the interpretation and use of accounting information;
- developing the student's ability to identify and use relevant information for particular management functions and tasks;
- developing the student's understanding of how accounting information requirements vary with the nature of the user.

This unit will be designed and taught so as to incorporate the encouragement and management of innovation, new product development, process innovation, and R&D.

**Content**

The outline of this unit 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.

**Specific objectives include:**

(a) To establish a framework that encourages managers to seek out, encourage and utilise opportunities for innovation to generate competitive advantage.

(b) To examine some of the methods for generating high value-added products (goods or services) through the application of ideas/inventive skills/creativity.

(c) To develop skills and knowledge necessary for managers and their enterprises to respond positively and creatively to changes in their operating environment.

**Textbooks**


**Reference**

BH702 Power and Politics in Organisations

Explores the connections between organising, control and influence, by introducing various conceptions of personal, organisational and cultural ideologies related to power, authority and politics. Participants investigate the links between their practice, beliefs and organisational experience.

References


BH703 Research in Organisation Behaviour

By attempting to answer the questions “what is y?” and “what is the purpose of research”, participants explore the assumptions underpinning various types of research. The development of appropriate research skills through “hands-on” experience forms the balance of the subject.

References


BH704 Current Issues in Organisation Behaviour

A movable feast designed to reflect the current and emerging interests of participants, staff, visiting faculty and pertinent organisations. Topics such as topical quality control, cultural change, inter-organisational relations, strategic planning and gender issues might provide a guide to this course.

References

To be assigned as appropriate to the shifting forms of the subject.

BH705 Management of Strategic Change

Prerequisites

Completion of the Graduate Diploma in Management Systems or equivalent.
BH604 Management. Organisations and People or equivalent.
BM602 Strategic Management or equivalent.

Objectives

To develop ways of understanding factors to implement change (especially strategic) effectively within an organisation.
To raise awareness of the need to manage change and conflict, the complexities and ambiguities associated, and the consequences of various processes of managing them.
To examine the role of the systems manager as a change agent and when it is appropriate to use external consultants/facilitators.
Particular emphasis will be given to the management of specific organisational changes such as the introduction of office automation or the impact of financial deregulation and to their human, technological and structural consequences.

Syllabus

Topics will include:
- Coping with a changing environment: Resources and Environments: Planning, Concepts of Managing Change, An Overview
- Organisational Development: Managers & Change Agents
- The Role of Consultants: The Information Collection Phase: The Diagnostic Phase: From Symptom to Underlying Cause
- Implementation of Change: Strategies, Planning, Strategic and Operational, Team Building and Development
- Development of Systems Project Teams: Inter-group Techniques for addressing inter-departmental conflicts
- The relationship with Users: Stabilisation of Change

Textbooks

Smith, K.K. Groups in Conflict: Prisons in Disguise, Iowa: Kendall/Hunt. 1982
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 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.

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.

Content
The unit is designed so that the many facets of the behaviour of people in organisations can be explored from structural and management perspectives. It will require a study 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 environments 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

BM701 Marketing for Management

Course: MBA
Prerequisites: Normally Management 1; Economics for Management; Accounting for Management; Computing for Management. This unit is compulsory (conversion students excepted).

Aims
The principal objectives of this unit are to provide a strategic orientation to a study of marketing and to ensure that candidates in a firm foundation in marketing

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 licensed of corporate growth and the firm’s overall product mix included in the logic marketing planning process.
(c) To develop marketing plans to exploit opportunities and deal with the threats before they arise.
(d) To examine the development of international marketing strategies; to evaluate the pros and cons of 'customisation versus globalisation'.
(e) To develop export marketing plans and emphasise the differences between a domestic and an export marketing plan.

Content
Topics to be covered include:
(i) The marketing vision: the external environment.
(ii) The marketing planning process.
(iii) Market information systems and market research.
(iv) International marketing strategies: global thinking in product, price, distribution and promotional strategies.
(v) Marketing quality and design.
(vi) Marketing pull and technology push.

Textbooks

References
(A) Domestic Marketing:

(B) International Marketing:
Cateora, P.R. International Marketing. 7th edn, Illinois: Irwin, 1990

BQ701 Business Forecasting

Prerequisites
Completion of the Graduate Diploma in Management Systems or equivalent.

Objectives
(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 approach for the problem and be aware of the caveats associated with that choice;
(iii) Be able to carry out a full scale Technological forecasting exercise 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 reordering it in an appropriate manner.

References
BQ702 Computer Aided Management

**Prerequisites**
Completion of the Graduate Diploma in Management Systems or equivalent.

**Objectives**
(i) Develop skills and knowledge in identifying and modelling real-world problems in different areas of management.
(ii) Introduce relevant computer techniques relevant to management information systems.
(iii) Enable students to apply these techniques to realistic problems with focus on business operations, planning and control.

**Syllabus**
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.

Case Study
- Applying techniques to realistic problems.
- Review solutions and impacts.

**References**

BT702 Knowledge Based Systems

**Prerequisites**
BT502 Current Issues in Systems Design or equivalent.

**Objectives**
(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 such as in reasoning, reasoning under uncertainty and the manner 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., SISP, PROLOG), microcomputer based expert system shells (e.g., VP, Expert, Guru), mainframe based expert system shells (e.g., IBM’s ESE, Cullinet’s Application Expert), or expert system languages (e.g., ISRI’s XLI).
(v) Discuss strategies of supervising the development of expert systems.

**Syllabus**
(a) The relationship between AI and expert systems. The relevance of expert systems to business.
(b) Expert systems: knowledge acquisition;
(i) 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

**Course: MBA**
**Duration:** 20 hours

**Prerequisites:** None

**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 for management decision making;
- Enable students to confidently use a number of key software packages which can be utilized in other areas of the course.

**Content**
- Software and Hardware Components of Decision Support Systems
- Decision support system concepts
- Recent software developments
- Hardware facilities available
- Specific application software available for decision support analysis
- Recent developments in decision support software
- Mainframe vs PC based decision analysis

**Decision Support Software**

- Spreadsheets
  - An appreciation of the nature and role of modelling in the decision making process, e.g. financial, forecasting, simulation.
  - Choosing the right type of decision analysis tool for a specific application.
  - Using Lotus 1-2-3 for decision analysis.
  - Students will be expected to acquire the necessary skills needed to build their own models.

- Graphics
  - The presentation of information in a graphic format, including output from modelling packages.
  - Using presentation graphics software for effective communication.

- Data Bases
  - Using corporate data as source material for micro-based decision support tools.
  - Database packages as a decision support facility.
  - Students will be expected to acquire the necessary skills needed to build and query their own databases.

**Textbook**
This unit is primarily concerned with the use of application 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

**Course: MBA**

**Prerequisites:** A five day program to equip students with PC skills, and knowledge of packages for use throughout the course (conversion students excepted).

**Aims.**
The basic objective of this unit is to provide a broad understanding of the way in which computer and database techniques 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.
88802 Management 4: (Technology and Management)

Aims

The aim of this unit is to prepare managers for operating in a business environment in which the application of technology is an increasingly important part of the process of doing business.

Specific objectives include:

(a) To examine the increasing importance 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 influence of changing technologies on the work environment and to develop ways of minimising adverse influences.

(d) To manage Organisational Change.

Content

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 technology within the differing stages of technology:

(i) Forecasting sources of technology.

(ii) Strategic planning of technology within the business.

(c) Stages of growth in the introduction and application of 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 business-related technologies: information technology, microelectronics, materials technology, robotics, manufacturing technology.

(f) Relevance of R&D to business success.

Textbooks


Content
The unit will draw on the experience of participants to examine the values implicitly in management practice and organisational structure and to investigate the implications for action of those values. It will seek to locate these values in the broader social and political context of management, and to explore the nature and extent of the responsibility this creates. Accordingly, the following themes will be addressed:

(i) Introduction: Identifying values implicitly in different management styles, goals, etc., and examining their underlying assumptions and theoretical frameworks.
(ii) The context and structure of organisations: social, political, environmental, power and control.
(iii) The rationale for social legislation: conceptual, historical and practical 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:
Roszak, T. The Cult for Information. New York: Pantheon, 1986

BM801 Business Planning

Course: MBA
Prerequisite: Normally all units in Terms 1, 2 and 3 of the course. This unit is compulsory (conversion students excepted).

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 organising for effective business planning and for the implementation of the business planning process.

Content
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 bearing on the content of business plans and the process of 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

Requirements
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 dependable information systems;
- The effectiveness of knowledge based systems in a commercial environment;
- Attitudes of office personnel towards advanced office technology;
- Expert systems for design problem solving;
- Decision support systems in a 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.
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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
Degree of Bachelor of Technology

School of Civil Engineering and Building
Degree of Doctor of Philosophy
Degree of Master of Engineering, by research
Degree of Master of Technology (Construction), by coursework
\*Degree of Bachelor of Engineering (Civil)

School of Engineering (Civil)Graduate Diploma in
Management
Degree of Bachelor of Technology
Degree of Bachelor of Technology/Graduate Diploma in Management
Degree of Bachelor of Technology (Building Surveying)
Graduate Diploma in Civil Engineering Construction

\*Diploma of Building Surveying

School of Electrical Engineering
Degree of Doctor of Philosophy
Degree of Master of Engineering, by research
Degree of Master of Engineering (Information Technology), by coursework

\*Degree of Bachelor of Engineering (Electrical Power and Control, Communication and Electronic, or Computer Systems)

Degree of Bachelor of Engineering (Electrical Power and Control, Communication and Electronic, or Computer Systems)Graduate Diploma in Management

\*Degree of Bachelor of Technology/Graduate Diploma in Management
Graduate Diploma in Energy Systems Engineering

School of Innovation & Enterprise
Degree of PhD
Master of Enterprise Innovation
Graduate Diploma in Entrepreneurship & Innovation
Graduate Diploma in Management

School of Mechanical and Manufacturing Engineering
Degree of Doctor of Philosophy
Degree of Master of Engineering, by research
Degree of Master of Engineering (Computer Integrated Manufacturing), by coursework

Master of Technology (Computer Integrated Manufacture)

\*Degree of Bachelor of Engineering (Manufacturing)
\*Degree of Bachelor of Engineering (Mechanical)
\*Degree of Bachelor of Technology
Graduate Diploma in Air Conditioning
Graduate Diploma in CAD/CAM
Graduate Diploma in Computer Integrated Manufacture
Graduate Diploma in Chemical Engineering
Graduate Diploma in Maintenance Engineering
Graduate Diploma in Manufacturing Technology
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.

Centre for Computer Integrated Manufacture
Director
Associate Professor W. Thompson, MEng, BScEng(Hons)(UK), GradDipEd(Haw), MIEAust, MIMfgE, MIEAust, CEng, MIEAust

Education Manager
B. Costello, BEng(Prod)(Vic), GradDipEd(Haw), CManEng, MSME

Teaching Company Associate
S. Chandler, BEngManuf

Commercial Manager
G. Cameron, BEng(Manuf), GradDip(Management Systems), MIEAust, APICS

Research Manager
D. Tonich, BEElectrical(Hons), MIEAust, CPE

Research Associates
A. Luscombe, BMechEng
S. Pathy, BMechEng
S. Wilson, BEng(Mech)(Hons)
E. Woxvold, BSc
C. Yong, BEng
J. Zhang, BEngMech
T. Cleary, BEngMech(Hons)
D. Rogers, BEngMech(Hons)
K. Jolic, BEngElect(Hons)

Administration Officer
H. Evans, BBus(Mgt)
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 offers 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 science in the first-year of their degree program.

Women in Engineering organise activities 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 program

Undergraduate courses offered as cooperative education programs are the engineering and technology degree courses in civil, electrical power and control, communication and electronic, 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. Six months (one semester) of approved industry based learning is required for the award of a building surveying diploma 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 Manager, 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 academic institutions who 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 and Continuing Education in the Faculty of Engineering

Manager, Cooperative Placement Service

To be advised.

Administrative Officer

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 employers of Swinburne engineering students

The following are, or have been recently associated with courses in civil, electrical, manufacturing, and mechanical engineering:

- Alcoa of Australia Ltd
- AMP
- APM Ltd
- Arlec Soanar
- ASEA Pty Ltd
- Australian Iron & Steel Pty Ltd
- Australian Portland Cement Ltd
- BHP (Coated Products Division)
- BHP (Slab & Plate Product Division)
- Burns Bridge Australia Pty Ltd
- Caterpillar of Australia
- CIG Ltd
- CITRA Constructions Ltd
- City of Box Hill
- Brighton
- Croydon
- Doncaster & Templestowe
- Essendon
- Footscray
- Hawthorn
- Keilor
- Launceston, Tasmania
- Melbourne
- Mordialloc
- Nunawading
- Oakleigh
- Prahran
- South Melbourne
- St. Kilda
- Waverley

Comalco Research
- Containers Packaging
- Control Data Pty Ltd
- Cooldrive Industries
- Costain Australia Ltd
- CPE Australia
- CSIRO
- CSR Gyprock
- Dandenong Valley Authority
- Datacraft Pty Ltd
- Department of Housing, Tasmania
- Dorf Industries Pty Ltd
- Dow Chemical Australia Ltd
- Dunlop Australia Ltd
- Eaton Pty Ltd
- Enersonics Pty Ltd
- Fastron Pty Ltd
- J. Gadsden Pty Ltd
- Gannon Chrisfield & Associates
- Garlic & Stewart
- Gas & Fuel Corporation of Victoria
- Government Aircraft Factory
- Hadco Engineering Pty Ltd
- Hella Australia Pty Ltd
- Henry & Walker Pty Ltd, Darwin
- Hoechst Australia Ltd
- Holden's Engine & Components Company
- Holeproof Ltd
- IBM
- ICI Australia Ltd
- Irwin Johnston & Partners Engineers Pty Ltd
- John Connell & Associates
- John Holland (Constructions) Pty Ltd
- John Scroggie Pty Ltd

Kenworth Trucks
- Kodak Pty Ltd
- L & L Printed Art
- L.M. Ericason Pty Ltd
- Lange Dames & Campbell Pty Ltd
- Lectrum Pty Ltd
- Lewis Construction Pty Ltd
- Lincoln Scott Pty Ltd
- LSE Electronics
- Magnecon Controls
- Melbourne and Metropolitan Board of Works
- Mercedes Benz (Aust) Pty Ltd
- Metropolitan Transit Authority
- Millar & Merrigan Pty Ltd
- Minenco Pty Ltd
- Mitford Soil Engineering Pty Ltd
- Mobil Oil Aust Ltd
- D. Moore & Associates Pty Ltd
- Motorola Communications
- NEC Australia Pty Ltd
- New Zealand Electricity
- Newtronics Pty Ltd
- Nissan Motor Manufacturing Co (Aust) Ltd
- Northern Territory Electricity Commission
- O’Connor & Beveridge Pty Ltd
- Ogden Industries Pty Ltd
- Parish Engineering Co Ltd
- Philip Morris Ltd
- Pioneer Concrete Services Ltd
- Plastex Corporation Pty Ltd
- Port of Melbourne Authority
- Preslite Australia Pty Ltd
- Professional Australian Systems
- Radiant Steel
- Raymond Hydraulics
- Repco Ltd and its subsidiaries:
  - Repco Engine Parts Pty Ltd
- Patrick Campaigns
- Patons Brake Replacements Pty Ltd
- Road Construction Authority
- Robert Bosch (Aust) Pty Ltd
- Roche Bros Pty Ltd
- Rockwell Electronics (Australia) Pty Ltd
- Roland D.G. Corporation
- Ronstan Marine Equipment Pty Ltd
- Rural Water Commission of Victoria
- Rymer Lighting Pty Ltd
- S.R. & R.S. Wales
- Selectronic Components
- Shell Refining (Australia) Pty Ltd
- Shire of Eltham
- Healesville
- Knox
- Lillydale
- Sidi Australia
- Sontron Instruments
- South Eastern Medical Complex Co
- Spurway Cooke Industries Pty Ltd
- State Electricity Commission of Victoria
- State Rivers and Water Supply Commission
- Stephen Dunn & Associates
- K.H. Strimit
- Supply Logistics Ltd
- Tain Electronics
- Telecom Australia (Victoria Division)
- TEMCO Pty Ltd
- Textron
- Tyre Electrical
- V.D.O. Instruments (Aust) Pty Ltd
- VicRail
- Victoria Solar Energy Council
- Westinghouse Brake & Signal Co (Aust) Pty Ltd
- Williams A.J.
- Williams G., Warragul
- Wilson Transformers
- Wood, Bromley, Carruthers & Mitchell Pty Ltd
Zenford-Ziegler Pty Ltd
Organisations who have joined the Coop activities in 1990
A.G.E. Chains
ACL Engines
Aerospace Technologies
Amecon Shipyards
Donald Atkin & Associates
Frankipile Australia Pty. Ltd.
Greer Wire Industries
Hawker de Havilland
Saab Scania
Scope Machinery
Speth Engineering
T.E.A.C.
Transit Engineering
Vaughan & Associates
Warren & Rowe

Overseas placement
The faculty co-operates with the following universities in
organising overseas placements:
— Cleveland State University
— Drexel University, Philadelphia, Pennsylvania
— University of Surrey, Guildford, England
— Northeastern University, Boston, Massachusetts, USA
— University of Cincinnati, USA
— Lawrence Institute of Technology, USA

Cooperative graduates offer employers a competitive edge
Swinburne Institute's cooperative education 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 tech-
nology, acquired in the course of their studies.
Employers alert to the 'bottom line' advantages will also be
interested in these further benefits:
— by employing a cooperative student for higher 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 organ-
isation at Swinburne.
Cooperative graduates bring with them:
— a realistic attitude to work;
— access to professional specialised faculty staff;
— access to Swinburne's high technology facilities including
computer links to international information banks.
For further information, contact the Manager, 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 electronics, computer systems, manufacturing, mechanical
engineering or technology, should bear in mind the need to
undertake studies in mathematics and the physical sciences
which will allow them to proceed to a Year 12 course of study
as prescribed in the entrance requirements.
A feature of Swinburne's engineering degree courses is the
common first-year program which enables a student commen-
cing 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. Consider-
able emphasis is placed on the development of fundamental
scientific principles and an introduction to engineering tech-
nology and techniques.
Another feature of all degree courses is their four-and-a-half
(nine-semester) year cooperative education format. The pro-
gram consists of seven semesters of academic tuition in the
Institute plus two semesters of industry based learning. The
course structure for engineering degree courses is shown in
the sections pertaining to the various schools of the Engin-
ering Faculty.

Second and later years engineering degree
Students who have completed, or partly completed, an engin-
eering course at another tertiary institution may apply for entry
to an engineering degree course at Swinburne. 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 admis-
sion with advanced standing is stated in the section entitled
'Admission with advanced standing'.

Diploma of Building Surveying
Secondary students planning to enter the Diploma of 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

'Regular' entry

**VCE**
To be eligible for consideration for regular entry, you must have satisfactorily completed your VCE or equivalent in the following subjects (an average of Grade E or better is required):
- English (units 1, 2, 3 and 4)
- Mathematics (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 Mathematics 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)
- Physics (units 3 and 4 is highly recommended)

Approved Study Structures are not normally taken into account.

**Victorian Certificate of Education (Tertiary Orientation Program)**
VCE(TOP) courses are considered on the basis of an equivalent course of study to the Year 12 subjects listed above.

Persons who complete satisfactorily, the **Science** or **Engineering** VCE(TOP) course at Swinburne College of TAFE by passing all of the following subjects are given guaranteed entry:
- English
- Physics
- Chemistry
- Mathematics (Science) and Concepts of Mathematics.

**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 E 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 Regular 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 Regular Entry Scheme.

**Certificate of Technology**

(a) For full-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.

(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 procedure', 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. Application for admission to part-time study in engineering courses must be made directly to Swinburne and not to VTAC. Application forms are available from the Information Office, telephone 819 8444. The closing date is usually the middle of January in the year of application.

**Alternative entry**
Applications should be made directly 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 1992 may apply for deferment until 1993. Applications for deferment should be made in writing and directed to the Assistant Registrar (Engineering).

Deferment 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 deferment.

Applicants who are granted a deferment will be notified in writing by the Assistant Registrar (Engineering).

If a person who has been granted a deferment undertakes a course in another faculty or another college or university, the offer of a renewed place will lapse.

**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 January in the year of application.

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 January in the year of application.

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 advanced 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 Institute.
(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) Consideration 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.

1.3 For all graduate diploma courses offered by the Faculty of Engineering, a student must complete at least sixty per cent of the prescribed total course time for that particular course at Swinburne.

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 at the Institute.
(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 seventeen weeks which includes, subject to approved variations:
(a) thirteen weeks of teaching;
(b) an assignment week in each semester; and
(c) formal tests/examinations in the sixteenth and seventeenth 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 111/3h 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.

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 undergraduate 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 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 The various grades have been grouped for ease of understanding.

Passing grades are as follows:

3.4.1 First group
- HD: High Distinction
- D: Distinction
- C: Credit
- P: Pass
- P*: Pass (Marginal)

3.4.2 Second group
- FP: Faculty Pass granted in that subject
- SP: Passed at Supplementary Assessment

Grades of fail are as follows:

3.4.3 First group
- N*: Fail (but serious attempt)
- N: Fail (Outright)

3.4.4 Second group
- SN: Fail at Supplementary Assessment

3.4.5 Third group
- NWD: Fail due to late withdrawal
- NA: Fail no attempt
- DNS: Fail did not sit

3.5 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.

3.6 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).

3.7 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 no 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.

Students considered in this category will normally have a positive aggregate rating as calculated by the Faculty Passing Formula as follows:

\[ A = \sum n_i z_i - 5 \sum n_i \]

where \(A\) is aggregate rating,
\(n_i\) is the number of hours/week in the ith subject,
\(z_i\) is the rating in the ith 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>3</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:

3.7.1 The grade stands as an "N*".

3.7.2 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.

3.7.3 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 is also 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.

4. First Year Summer School Scheme

This revised scheme has operated since 1 October, 1990 and will apply only to full-time common first year engineering or technology degree students. At the discretion of Courses Committee, the Summer School Scheme may be applied in addition to the Faculty Passing Scheme.

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 (and/or supplementary assessment, if applicable), 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 (not valid for Summer School subjects)

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 (not valid for Summer School result)
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
DNS Fail did not sit

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. "SS" is a final grade.

Students will be required to enrol in the appropriate Summer School subject code(s) (each of which is the normal subject code with an "S" suffix).

Students will be awarded results for Summer School from the first group passing and failing results.

If, at the end of the Summer School system the student has a failing grade, the student will be required to repeat that subject.

If a student enrols in but does not complete the Summer School granted for that subject, the result for the Summer School subject will be awarded from the third group of failing grades.

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:

(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 at the Institute and as specified in the engineering section of the Handbook for that year.

(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.
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 till the end of second semester. If so, provisional results 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 whole course, weighted to the later years. 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 Engineering Degree course. The award is a medal and a premium of $100.

Esso Prize

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

F.W. Green Memorial Prize

This is awarded to the best all-round student in the final year of an engineering course. The award is a medal and a premium of $100.

James Smith Memorial Prize

A prize of approximately $50 is 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 degree, undertaking major studies in chemical engineering, who submits the best Project Thesis.

Oscar Weigel exhibitions in engineering

This is awarded by the Institution of Engineers, Australia, to 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.

Further enquiries should be directed to the Manager, Cooperative and Continuing Education on 819 8168.

Professional recognition of courses

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 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

Y050 Bachelor of Technology

The 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.

Progress to second year

To be eligible for admission to the second year of the 3.5 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 BTech. It will require the equivalent of at least 1 to 1.5 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 Associates. Under current rules, only after conversion to a Bachelor of Engineering degree would 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.

It is expected that graduates will be eligible for membership of the Institution of Engineering Associates. Under current rules, only after conversion to a Bachelor of Engineering degree would graduates be eligible for membership of the Institution of Engineers, Australia.
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 on a time to time in selected subjects. 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 research and consulting. Enquiries should be directed to the Associate Dean or School Administrative Officer.

Courses offered

- **C050** Bachelor of Engineering (Civil)
- **C054** Degree of Bachelor of Technology (Building Surveying)
- **C044** Diploma of Building Surveying
- **C062** Graduate Diploma in Civil Engineering
- **C092** Degree of Master of Technology (Construction)
- **Y096** Degree of Master of Engineering
- **Y001** 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 but not all subjects are available as evening subjects. Availability of evening classes naturally depends on enrolment figures.

**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 firsthand 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**

**Year 1 (1990 SYLLABUS)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</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>
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<tr>
<td>EE188</td>
<td>Engineering Science — Electronics and Computing</td>
<td>5</td>
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<tr>
<td>MM120</td>
<td>Engineering Science — Energy and Processes</td>
<td>7</td>
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<tr>
<td>EF199</td>
<td>Engineering Graphics and Communications</td>
<td>4</td>
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</tr>
<tr>
<td>SM199</td>
<td>Engineering Mathematics</td>
<td>3</td>
<td></td>
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<td>22</td>
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**Year 2**

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<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
<th>Sem 1</th>
<th>Sem 2</th>
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<tbody>
<tr>
<td>CE211</td>
<td>Structural Mechanics</td>
<td>3</td>
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<tr>
<td>CE231</td>
<td>Hydraulics</td>
<td>3</td>
<td></td>
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<tr>
<td>CE241</td>
<td>Surveying</td>
<td>4</td>
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<tr>
<td>CE255</td>
<td>Structural Design</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>CE261</td>
<td>Road Engineering</td>
<td>3</td>
<td></td>
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<tr>
<td>CE281</td>
<td>Geomechanics</td>
<td>3</td>
<td></td>
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<tr>
<td>CE295</td>
<td>Engineering Management</td>
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<tr>
<td>SM293</td>
<td>Engineering Mathematics</td>
<td>3</td>
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**Year 3**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
<th>Sem 1</th>
<th>Sem 2</th>
<th>Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE397</td>
<td>Industry Based Learning</td>
<td>24</td>
<td></td>
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</tr>
<tr>
<td>CE301</td>
<td>Engineering Computing</td>
<td>2</td>
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<tr>
<td>CE311</td>
<td>Structural Mechanics</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>CE324</td>
<td>Urban Planning</td>
<td>2</td>
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<tr>
<td>CE331</td>
<td>Water Engineering</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE351</td>
<td>Structural Design</td>
<td>4</td>
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</tr>
<tr>
<td>CE396</td>
<td>Engineering Management</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>SM393</td>
<td>Engineering Mathematics</td>
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</table>

**Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
<th>Sem 1</th>
<th>Sem 2</th>
<th>Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE343</td>
<td>Surveying</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE355</td>
<td>Structural Engineering</td>
<td></td>
<td></td>
<td></td>
<td>22</td>
</tr>
</tbody>
</table>
C044 Diploma of Building Surveying

The course is intended to prepare students for the profession of building surveying. It meets the educational requirements for membership of the Australian Institute of Building Surveyors and the educational requirements of the Victorian Building Qualifications Board, which licenses Municipal Building Surveyors in the State of Victoria.

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.

Although the course is co-ordinated through the School of Civil Engineering and Building, it is interdisciplinary in nature, with a teaching input from a number of departments.

C054 Bachelor of Technology in Building Surveying

A Bachelor of Technology in Building Surveying is being accredited. It is proposed that this course will be introduced in 1992 and replace the Diploma of Building Surveying. Students currently enrolled will have the opportunity to complete the diploma course, or transfer to the bachelor of technology course, where approved.

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.

Career prospects are very good, since there is a continuing demand for building surveyors in the municipal field, with more restricted opportunities in the private sector.

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 Diploma of Building Surveying is structured on a cooperative (sandwich) basis, and consists of six academic semesters at Swinburne and one semester in industry. The total length of the full-time course is three-and-a-half years. First and second years are spent full-time at Swinburne. In third year, students spend the second semester 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, which consists of only one semester, 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 are advised to consult with staff to plan a part-time program of day classes from the required subjects of the course.

Availability of evening classes depends on enrolment figures, and currently very few evening classes are available.

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 satisfactorily, 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.
### Prerequisites

Students should have a professional qualification in engineering or architecture and a minimum of two years' experience following graduation to gain admission.

### Course structure (1985 syllabus)

<table>
<thead>
<tr>
<th>First year</th>
<th>Hours per week</th>
<th>Sem 1</th>
<th>Sem 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS196 Introductory Law</td>
<td>3</td>
<td></td>
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<tr>
<td>CE172 Building Structures 1</td>
<td>3</td>
<td>4</td>
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<tr>
<td>CE170 Structural Control</td>
<td>2</td>
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<tr>
<td>CE169 Building Materials 2</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>ME169 Building Science</td>
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<td></td>
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<tr>
<td>MP166 Building Materials 2</td>
<td>3</td>
<td></td>
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</tr>
<tr>
<td>SP166 Building Science</td>
<td>3</td>
<td></td>
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<tr>
<td>CO82 Graduate Diploma in Civil Engineering Construction</td>
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<table>
<thead>
<tr>
<th>Second year</th>
<th>Hours per week</th>
<th>Sem 3</th>
<th>Sem 4</th>
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</thead>
<tbody>
<tr>
<td>CE293 Structural Design 2</td>
<td>3</td>
<td></td>
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<tr>
<td>CE294 Scaffolding B</td>
<td>4</td>
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</tr>
<tr>
<td>CE290 Statutory Control 2</td>
<td>4</td>
<td></td>
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<tr>
<td>CE296 Behavioural Studies</td>
<td>4</td>
<td></td>
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<tr>
<td>MP166 Building Services 2</td>
<td>2</td>
<td>2</td>
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</tr>
<tr>
<td>MP266 Building Materials 2</td>
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<tr>
<td>CO92 Master of Technology (Construction)</td>
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<thead>
<tr>
<th>Third year</th>
<th>Hours per week</th>
<th>Sem 5</th>
<th>Sem 6</th>
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<tbody>
<tr>
<td>CE313 Fire Technology</td>
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<tr>
<td>CE314 Building Structures 2</td>
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<td>CE315 Building Structures 2</td>
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<td>CE316 Communications 2</td>
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<td>CO92 Master of Technology (Construction)</td>
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<table>
<thead>
<tr>
<th>Fourth year</th>
<th>Hours per week</th>
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<tbody>
<tr>
<td>BS400 Professional Projects</td>
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<tr>
<td>CE402 Design 3</td>
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<tr>
<td>CE403 Building Structures 4</td>
<td>3</td>
<td></td>
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<tr>
<td>CE405 Fire Engineering</td>
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<td></td>
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<tr>
<td>CE406 Geomechanics 2</td>
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<tr>
<td>CE407 Building Law and Contracts</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

### School of Electrical Engineering

Electrical engineering is concerned with any form of plant, system or device operated by electrical or electronic means, and includes specialities, 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, staff research and consulting. Separate laboratories are devoted to electric circuits, electronics, advanced electronics, 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

**E092** Degree of Master of Engineering (Information Technology) by coursework

**Y097** Degree of Master of Engineering by research

**Y001** Degree of 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)**

Year enrolment codes

**Y057** Common first year

**E050** Later years (unstreamed)

**E054** Computer Systems Engineering Stream

**E056** Communication and Electronic Stream

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 Engineering Stream and the Communication and Electronic Stream. These are carried on into the fifth year of study.

Course structure (1990 Syllabus)

<table>
<thead>
<tr>
<th>First year</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 1</td>
</tr>
<tr>
<td>CE115</td>
<td>3</td>
</tr>
<tr>
<td>EE188</td>
<td>5</td>
</tr>
<tr>
<td>MM120</td>
<td>7</td>
</tr>
<tr>
<td>EF199</td>
<td>4</td>
</tr>
<tr>
<td>SM199</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second year E050</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 1</td>
</tr>
<tr>
<td>EE254 Electrical Design</td>
<td>2</td>
</tr>
<tr>
<td>EE258 Electrical Machines</td>
<td>3</td>
</tr>
<tr>
<td>EE263 Computer Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EE282 Communication Principles</td>
<td>2</td>
</tr>
<tr>
<td>EE283 Electrical Circuits</td>
<td>3</td>
</tr>
<tr>
<td>EE287 Electronics</td>
<td>3</td>
</tr>
<tr>
<td>SM294 Engineering Mathematics</td>
<td>4</td>
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<tr>
<td>SP294 Engineering Physics</td>
<td>2</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Third year E050</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 1</td>
</tr>
<tr>
<td>EE300 Industry Based Learning</td>
<td>4</td>
</tr>
<tr>
<td>EE363 Computer Systems Engin.</td>
<td>3</td>
</tr>
<tr>
<td>EE383 Electromagnetic Fields</td>
<td>2</td>
</tr>
<tr>
<td>EE384 Electrical Power &amp; Machines</td>
<td>3</td>
</tr>
<tr>
<td>EE386 Electronics</td>
<td>3</td>
</tr>
<tr>
<td>EE388 Communications</td>
<td>3</td>
</tr>
<tr>
<td>EE389 Linear Systems &amp; Control</td>
<td>4</td>
</tr>
<tr>
<td>SM394 Engineering Mathematics</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fourth year Electrical Power and Control Stream E055</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>E040 Industry Based Learning</td>
<td>24 weeks</td>
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</table>

<table>
<thead>
<tr>
<th>Year enrolment codes</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 1</td>
</tr>
<tr>
<td>EE456 Electrical Design</td>
<td>3</td>
</tr>
<tr>
<td>EE475 Electrical Power and Machines</td>
<td>3</td>
</tr>
<tr>
<td>EE476 Electronics</td>
<td>3</td>
</tr>
<tr>
<td>EE402 Management Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>EE465 Engineering Systems Software</td>
<td>3</td>
</tr>
<tr>
<td>EE489 Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>SM494 Engineering Mathematics</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year enrolment codes</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 1</td>
</tr>
<tr>
<td>EE400 Industry Based Learning</td>
<td>24 weeks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year enrolment codes</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 1</td>
</tr>
<tr>
<td>EE403 Engineering Project Management</td>
<td>24 weeks</td>
</tr>
</tbody>
</table>
### 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 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 (1988 syllabus)

#### First year

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>E641</td>
<td>Fundamentals of Computing</td>
</tr>
<tr>
<td>E642</td>
<td>Data Structure</td>
</tr>
</tbody>
</table>

#### Second year

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>E643</td>
<td>Computer Systems Software</td>
</tr>
<tr>
<td>E644</td>
<td>Computer Systems Design</td>
</tr>
</tbody>
</table>

**or**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>E741</td>
<td>Computer Systems and Software Engineering</td>
</tr>
<tr>
<td>E742</td>
<td>Computer Communications and Control</td>
</tr>
</tbody>
</table>

#### Third year

- Real time processing and control
- Voice and image processing

#### Fourth year

- Project and thesis

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.
School of Innovation & Enterprise

The School of Innovation and 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. It does not rely on ‘service subject’ teachers and is not in any way ‘in thrall’ to Engineering as a ‘mother’ discipline: the relationship with the Faculty of Engineering has its roots in administrative history — not intellectual predisposition.

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 has strong affiliations with America’s leading school of entrepreneurial education, Babson College, Boston, Mass., USA, and has hosted two “Fellows Programs” (sponsored by BHP) at which Babson Professors taught practising entrepreneurs/ managers how to impart their knowledge by becoming good teachers.

There are currently a number of students undertaking PhD’s 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 educated in management of 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 who 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 economic studies.

The course work and the case studies at graduate level relate to 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.

**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 bachelor’s 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.

**Duration of course**

The course is undertaken by one year of full-time study or three 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>Code</th>
<th>Course Name</th>
<th>Hrs per wk</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF61</td>
<td>Management Fundamentals (1 sem)</td>
<td>4</td>
</tr>
<tr>
<td>EF64</td>
<td>Management Practice (1 sem)</td>
<td>4</td>
</tr>
<tr>
<td>EF62</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>Code</th>
<th>Course Name</th>
<th>Hrs</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:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF625</td>
<td>Computing — Business Applications and Systems</td>
</tr>
<tr>
<td>EF626</td>
<td>Computing — Engineering Applications and Systems</td>
</tr>
<tr>
<td>EF627</td>
<td>Engineering Management</td>
</tr>
<tr>
<td>EF628</td>
<td>Sales Management</td>
</tr>
<tr>
<td>EF630</td>
<td>Manufacturing Management</td>
</tr>
<tr>
<td>EF631</td>
<td>Physical Distribution Management</td>
</tr>
<tr>
<td>EF632</td>
<td>Corporate Communications</td>
</tr>
<tr>
<td>EF633</td>
<td>Energy Management</td>
</tr>
</tbody>
</table>

**Copies of the Statute for the degree of Master and PhD and application forms are available from the Registrar’s Office.**
In selecting students for the course, the course convener takes participation and hence attendance at an interview into consideration the balance of skills required for team participation. A limited number of applicants not meeting the requirements will be considered.

Admission requirements

All applicants should comply with one of the following:

(a) The completion of a degree or diploma in engineering, science or applied science.
(b) The completion of a degree or diploma in business with experience in new business creation.
(c) 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 is required.

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)

First year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF710</td>
<td>Entrepreneurship &amp; New Ventures</td>
<td>3</td>
</tr>
<tr>
<td>EF711</td>
<td>Product Development &amp; Life Cycles</td>
<td>3</td>
</tr>
<tr>
<td>EF712</td>
<td>Opportunity &amp; Feasibility Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Second year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF810</td>
<td>New Venture Marketing</td>
<td>3</td>
</tr>
<tr>
<td>EF811</td>
<td>New Venture Financial Planning</td>
<td>3</td>
</tr>
<tr>
<td>EF812</td>
<td>Entrepreneurship, Law &amp; Ethics</td>
<td>3</td>
</tr>
<tr>
<td>EF700</td>
<td>The Business Plan</td>
<td>3</td>
</tr>
</tbody>
</table>

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 commercialisation 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 commercialisation 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) have completed a degree in a professional field at a recognised University or College at essentially the Honours 2A level or above;
(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 course convener will take into consideration the balance of skills required for team participation and hence attendance at an interview is required.

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 and 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.

* First year (in conjunction with
Graduate Diploma in Entrepreneurship & Innovation students)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF810</td>
<td>New Venture Marketing</td>
<td>42</td>
</tr>
<tr>
<td>EF811</td>
<td>New Venture Financial</td>
<td>42</td>
</tr>
<tr>
<td>EF812</td>
<td>Entrepreneurship, Law &amp; Ethics</td>
<td>42</td>
</tr>
<tr>
<td>EF700</td>
<td>The Business Plan</td>
<td>42</td>
</tr>
</tbody>
</table>

Second year (all students)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF920</td>
<td>Managing the Growing Business</td>
<td>56</td>
</tr>
<tr>
<td>EF921</td>
<td>Finacing Entrepreneurial Ventures</td>
<td>56</td>
</tr>
<tr>
<td>EF922</td>
<td>Entrepreneurial Project I</td>
<td>28, 28</td>
</tr>
</tbody>
</table>

Third year (all students)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF930</td>
<td>Innovation &amp; New Ventures</td>
<td>56</td>
</tr>
<tr>
<td>EF931</td>
<td>Entrepreneur in Corporations</td>
<td>56</td>
</tr>
<tr>
<td>EF932</td>
<td>Entrepreneurial Project II</td>
<td>28, 28</td>
</tr>
</tbody>
</table>

Y001 Doctor of Philosophy

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 qualify 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 considerable value in providing opportunities to learn from practising 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.

Graduated 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, 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>M090</td>
<td>Degree of Bachelor of Engineering (Mechanical)</td>
</tr>
<tr>
<td>M081</td>
<td>Graduate Diploma in Maintenance Engineering</td>
</tr>
<tr>
<td>M082</td>
<td>Graduate Diploma in Air-Conditioning</td>
</tr>
<tr>
<td>M083</td>
<td>Graduate Diploma in Risk Management</td>
</tr>
<tr>
<td>P050</td>
<td>Degree of Bachelor of Engineering (Manufacturing)</td>
</tr>
<tr>
<td>P081</td>
<td>Graduate Diploma in Manufacturing Technology</td>
</tr>
<tr>
<td>P082</td>
<td>Graduate Diploma in Chemical Engineering</td>
</tr>
<tr>
<td>P085</td>
<td>Graduate Diploma in CAD/CAM</td>
</tr>
<tr>
<td>P091</td>
<td>Degree of Master of Engineering (Computer Integrated Manufacturing) by coursework and thesis</td>
</tr>
<tr>
<td>P087</td>
<td>Graduate Diploma in CIM</td>
</tr>
<tr>
<td>P093</td>
<td>Degree of Master of Technology (Computer Integrated Manufacturing)</td>
</tr>
<tr>
<td>Y098</td>
<td>Degree of Master of Engineering (Manufacturing)</td>
</tr>
<tr>
<td>Y099</td>
<td>Degree of Master of Engineering (Mechanical)</td>
</tr>
<tr>
<td>Y001</td>
<td>Degree of Doctor of Philosophy</td>
</tr>
</tbody>
</table>

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 tooling, 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, indicates that for many years the demand for manufacturing engineers will exceed the number available.
Faculty of Engineering

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>First year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE115</td>
</tr>
<tr>
<td>EE188</td>
</tr>
<tr>
<td>EF199</td>
</tr>
<tr>
<td>MM120</td>
</tr>
<tr>
<td>SM199</td>
</tr>
</tbody>
</table>

**Second year**

<table>
<thead>
<tr>
<th>Production Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM210</td>
</tr>
<tr>
<td>MM211</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Chemical Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM220</td>
</tr>
<tr>
<td>MM230</td>
</tr>
<tr>
<td>MM240</td>
</tr>
<tr>
<td>MM241</td>
</tr>
<tr>
<td>MM250</td>
</tr>
<tr>
<td>MM270</td>
</tr>
<tr>
<td>MM280</td>
</tr>
<tr>
<td>SK297</td>
</tr>
<tr>
<td>SM299</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Production Stream</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM271</td>
</tr>
<tr>
<td>MM272</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Core Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM309</td>
</tr>
</tbody>
</table>

**Third year**

<table>
<thead>
<tr>
<th>Production Stream</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM340</td>
</tr>
<tr>
<td>MM350</td>
</tr>
<tr>
<td>MM370</td>
</tr>
</tbody>
</table>

**Fourth Year**

<table>
<thead>
<tr>
<th>Core Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM441</td>
</tr>
<tr>
<td>MM470</td>
</tr>
<tr>
<td>MM471</td>
</tr>
<tr>
<td>MM480</td>
</tr>
<tr>
<td>MM481</td>
</tr>
<tr>
<td>MM482</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Stream</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM414</td>
</tr>
<tr>
<td>MM415</td>
</tr>
<tr>
<td>MM409</td>
</tr>
</tbody>
</table>

**Fifth year (commencing 1993)**

<table>
<thead>
<tr>
<th>Core Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM500</td>
</tr>
<tr>
<td>MM510</td>
</tr>
<tr>
<td>MM511</td>
</tr>
</tbody>
</table>

**Production Stream**

| MM540 | Design for Manufacture |
| MM541 | Manufacturing Technology |

**Chemical Stream**

| MM544 | Design for Manufacture |
| MM545 | Manufacturing Technology |

**Fifth Year**

Note: Students who commenced first year studies in 1988 (1985 syllabus) and who would be entering fifth year in 1992 will undertake the fifth year course set out below:

<table>
<thead>
<tr>
<th>Production Stream</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM551(P)</td>
</tr>
<tr>
<td>MM552(C)</td>
</tr>
<tr>
<td>MM553</td>
</tr>
<tr>
<td>MM554</td>
</tr>
<tr>
<td>MM555</td>
</tr>
<tr>
<td>MM556</td>
</tr>
<tr>
<td>MM557</td>
</tr>
<tr>
<td>MM558</td>
</tr>
</tbody>
</table>

P denotes Production stream, C denotes Chemical stream.
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 involved 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>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP713</td>
<td>Chemical Engineering Design</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>MP714</td>
<td>Stagewise Processes</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>MP711</td>
<td>Mass Transfer</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>ME729</td>
<td>Fluid Mechanics</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>MP715</td>
<td>Heat Transfer</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>MP712</td>
<td>Unit Operations</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>MP751</td>
<td>Design Applications</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>MP724</td>
<td>Chemical Engineering Design</td>
<td>5</td>
<td>1</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>Code</th>
<th>Subject</th>
<th>Hours per week</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME762</td>
<td>Risk Engineering</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>ME664</td>
<td>Risk Engineering</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>ME755</td>
<td>Risk Engineering (H&amp;S)</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>ME764</td>
<td>Risk Control Practices and Technology</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

Group 2 Environmental Studies Group

Students to choose a maximum of two subjects.

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP717</td>
<td>Industrial Processes</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>MP719</td>
<td>Occupational Health &amp; Safety</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>ME742</td>
<td>Health and Hygiene</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>EA491</td>
<td>Biochemical Engineering</td>
<td>6</td>
<td>1 &amp; 2</td>
</tr>
</tbody>
</table>

Group 3 Management and Economic Evaluation Group

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM755</td>
<td>Equipment Life Cycle</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Group 4 Instrumentation & Control

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM740</td>
<td>Instrumentation &amp; Measurement Systems</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>MM741</td>
<td>Control Engineering</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

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 (1990 syllabus)

Semester 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours per week</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM607</td>
<td>Manufacturing Technology</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>MM608</td>
<td>Manufacturing Technology</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>MM605</td>
<td>Design for Manufacture</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>MM614</td>
<td>Automation and Machining</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Semester 2

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours per week</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM606</td>
<td>Manufacturing Technology</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>MM604</td>
<td>Design for Manufacture</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>MM615</td>
<td>Manufacturing Automation</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MM616</td>
<td>Manufacturing Automation</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

A minimum of 3 semester hours of electives must be taken from the following list:

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours per week</th>
<th>Semester offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM622</td>
<td>Advanced Computer Techniques</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MM613</td>
<td>Micro CAD</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MM617</td>
<td>Introduction to CIM</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MM620</td>
<td>Computers and Interfacing</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MM612</td>
<td>CAD Practices</td>
<td>4</td>
<td></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.

Duration
The course is equivalent to one year of full-time study. However, it is usually taken in part-time mode over two years through evening study or a combination of day and evening.

Course structure (1990 syllabus)

Semester 1 Hours per week
MM611 Introduction to CAD 2
MM614 Automation and Machining 2
MM617 Introduction to CIM 2
MM620 Computers and Interfacing 2
MM621 Mathematics 2
MM618 Introduction to Robotics 2
MM612 CAD Practice 4

Semester 2
MM615 Micro CAD 2
MM622 Advanced Computer Techniques 2
MM615 Manufacturing Automation 2
MM623 Computer Based Management Systems 2
MM624 Management of CAD/CAM Technology 2
MM616 Manufacturing Automation 2
MM619 NC Project 4

P087 Graduate Diploma in 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
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.

Year 1 Hours per week Sem 1 Sem 2
MM617 Introduction to CIM 2
MM620 Computers and Interfacing 2
MM622 Computer Aided Design 2
MM614 Automation and Machining 2
MM625 Machine Systems 2
MM626 Advanced Mathematics 2
MM627 Manuf. Management Systems 2
MM628 Control Systems and Devices 2
Total hours per week 16

Y098 Master of Engineering (by research)
Y001 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 candidature for the degree of Master of Engineering or Doctor of Philosophy, by research.

The 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 or PhD and application forms are available from the Registrar's Office.

P091 Master of Engineering (Computer Integrated Manufacture) by coursework
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 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 Engineering (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 Engineering (CIM).

**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>Year 1</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM617</td>
<td>Introduction to CIM 2</td>
</tr>
<tr>
<td>MM620</td>
<td>Computers and Interfacing 2</td>
</tr>
<tr>
<td>MM632</td>
<td>Computer Aided Design 2</td>
</tr>
<tr>
<td>MM614</td>
<td>Automation and Machining 2</td>
</tr>
<tr>
<td>MM625</td>
<td>Machine Systems 2</td>
</tr>
<tr>
<td>MM626</td>
<td>Advanced Mathematics 2</td>
</tr>
<tr>
<td>MM627</td>
<td>Manuf. Management Systems 2</td>
</tr>
<tr>
<td>MM628</td>
<td>Control Systems and Devices 2</td>
</tr>
<tr>
<td>Total hours per week</td>
<td>16</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM629</td>
<td>Computers and Interfacing 2</td>
</tr>
<tr>
<td>MM615</td>
<td>Manufacturing Automation 2</td>
</tr>
<tr>
<td>MM630</td>
<td>Mathematics and Computing 2</td>
</tr>
<tr>
<td>MM633</td>
<td>Advanced CAD 4</td>
</tr>
<tr>
<td>MM622</td>
<td>Advanced Computer Techniques 2</td>
</tr>
<tr>
<td>MM631</td>
<td>Machine Systems 2</td>
</tr>
<tr>
<td>MM623</td>
<td>Computer Based Mgt. Systems 2</td>
</tr>
<tr>
<td>Total hours per week</td>
<td>16</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM901</td>
<td>Database Technology 3</td>
</tr>
<tr>
<td>MM902</td>
<td>Numerical Engineering 2</td>
</tr>
<tr>
<td>MM906</td>
<td>Project — Part A 8</td>
</tr>
<tr>
<td>Total hours per week</td>
<td>13</td>
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</table>

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM903</td>
<td>Numerical Engineering Project 1</td>
</tr>
<tr>
<td>MM904</td>
<td>Systems Integration 3</td>
</tr>
<tr>
<td>MM905</td>
<td>Computers and Interfacing 3</td>
</tr>
<tr>
<td>MM907</td>
<td>Project — Part B 12</td>
</tr>
<tr>
<td>Total hours per week</td>
<td>19</td>
</tr>
</tbody>
</table>

**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.
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.

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.

Course structure (1990 syllabus)

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours per week</th>
<th>Sem 1</th>
<th>Sem 2</th>
</tr>
</thead>
</table>
| CE115      | Engineering Science - Solid Mathematics | 3      | 4
| EE188      | Engineering Science - Electronics and Computing | 5      | 5
| EF199      | Engineering Graphics and Communications | 4      | 4
| MM120      | Engineering Science - Energy and Processes | 7      | 7
| SM199      | Engineering Mathematics | 3      | 3
|            | **Total** | **22** | **23** |

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Hours per week</th>
<th>Sem 1</th>
<th>Sem 2</th>
</tr>
</thead>
</table>
| MM220      | Energy Systems | 4
| MM221      | Energy Systems | 3
| MM230      | Engineering Materials | 2      | 2
| MM240      | Electronics and Measurement Systems | 2      | 2
| MM241      | Applied Mechanics | 4
| MM242      | Applied Mechanics | 3
| MM250      | Engineering Design | 2      | 2
| MM260      | Ergonomics | 2
| MM270      | Manufacturing Technology and CAD/CAM | 2      | 2
| MM280      | Introduction to Management | 2      | 2
| SK297      | Professional Computing | 1      | 1
| SM299      | Engineering Mathematics | 3      | 3
|            | **Total** | **22** | **22** |

**The project is undertaken over an 18 week semester and involves 148 hours of contact.**

Fourth Year

<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Sem 1</th>
<th>Sem 2</th>
</tr>
</thead>
</table>
| MM420         | Energy Systems | 4
| MM440         | Mechanics and Machine Systems | 5
| MM451         | Design for Industry | 4
| MM460         | Ergonomics | 3
| MM483         | Engineering Management | 4
| SM499         | Engineering Mathematics | 2
| MM409         | Industry Based Learning | 24 weeks

Fifth Year

<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Sem 1</th>
</tr>
</thead>
</table>
| MM501         | Engineering Project (plus 92 hours) | 4**
| MM509         | Engineering Mathematics | 2
| MM520         | Energy and Therm/Fluid Mechanics (2 of 3) (Thermo Fluids; Energy Systems; Energy Modelling.) | 4
| MM540         | Mechanics and Machine Systems (2 of 3) (Mechanics of Solids; Vibration and Model Analysis; Control Engineering; Machines Systems and Simulation.) | 4
| MM551         | Engineering Technology (3 of 5) (Engineering Ergonomics; Engineering Technologies; Equipment Life Cycle; Occupational Risk; Technology Modelling.) | 6
| MM580         | Management Practices | 3

**M081 Graduate Diploma in Maintenance Engineering**

This part-time course is designed for those who have a qualification such as a diploma or degree in engineering or applied science, and who wish to take advanced studies based on maintenance engineering, maintenance management and its interaction with industry in general. Course content comprises common core material with the Graduate Diploma in Risk Management, emphasising maintenance engineering's place as a major sub-set of business risk management activity, complemented by specialist subjects relating to the practice of maintenance engineering. The course will usually spread over two years.

Course structure (1989 syllabus)

<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Sem 1</th>
<th>Sem 2</th>
</tr>
</thead>
</table>
| ME660         | Risk Management | 2
| ME661         | Risk Engineering 1 | 1
| ME627         | Risk Psychology | 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
| ME675         | Maintenance Management | 2
|               | **Total** | **8** | **6** |

Faculty of Engineering
Second Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME776</td>
<td>Maintenance Engineering Science</td>
<td>3</td>
</tr>
<tr>
<td>ME774</td>
<td>Maintenance Practices and Technology</td>
<td>2</td>
</tr>
<tr>
<td>ME777</td>
<td>Maintenance Management</td>
<td>2</td>
</tr>
<tr>
<td>ME780</td>
<td>Major Project</td>
<td>3</td>
</tr>
</tbody>
</table>

People who have experience in the maintenance field but not the prerequisite qualifications may be enrolled if they have an adequate background and are able to cope with the course. Assessment is continuous throughout the course.

M082 Graduate Diploma in Air-conditioning

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 Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME621</td>
<td>Air-conditioning</td>
<td>4</td>
</tr>
<tr>
<td>ME622</td>
<td>Refrigeration</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME721</td>
<td>Air-conditioning</td>
<td>4</td>
</tr>
<tr>
<td>ME722</td>
<td>Refrigeration</td>
<td>3</td>
</tr>
<tr>
<td>ME731</td>
<td>Instrumentation and System Control</td>
<td>3</td>
</tr>
<tr>
<td>ME781</td>
<td>Project and Energy Management</td>
<td>4</td>
</tr>
</tbody>
</table>

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>Hours</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>
<tr>
<td>ME627</td>
<td>Risk Psychology</td>
<td>1</td>
</tr>
<tr>
<td>ME629</td>
<td>Risk Social Science</td>
<td>1</td>
</tr>
<tr>
<td>ME651</td>
<td>Risk Philosophy</td>
<td>1</td>
</tr>
<tr>
<td>ME652</td>
<td>Occurrence Analysis</td>
<td>1</td>
</tr>
<tr>
<td>SM741</td>
<td>Statistics and Reliability</td>
<td>2</td>
</tr>
<tr>
<td>BS625</td>
<td>Health and Safety Management</td>
<td>1</td>
</tr>
</tbody>
</table>

Do one of three:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME678</td>
<td>Health and Safety Management</td>
<td>2</td>
</tr>
<tr>
<td>ME676</td>
<td>Property and Production Risk Management</td>
<td>3</td>
</tr>
<tr>
<td>ME675</td>
<td>Maintenance Management</td>
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</tr>
</tbody>
</table>

Second Year (Do stream of choice)

Health and Safety stream

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME780</td>
<td>Major Project</td>
<td>3</td>
</tr>
<tr>
<td>ME641</td>
<td>Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>ME743</td>
<td>Health and Safety Practices and Technology</td>
<td>1</td>
</tr>
<tr>
<td>ME765</td>
<td>Risk Engineering (H&amp;S)</td>
<td>3</td>
</tr>
<tr>
<td>ME742</td>
<td>Health and Hygiene</td>
<td>4</td>
</tr>
</tbody>
</table>

Plant and Property stream

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME780</td>
<td>Major Project</td>
<td>3</td>
</tr>
<tr>
<td>ME664</td>
<td>Risk Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ME762</td>
<td>Risk Engineering</td>
<td>4</td>
</tr>
<tr>
<td>ME764</td>
<td>Risk Control Practices and Technology</td>
<td>4</td>
</tr>
</tbody>
</table>

Maintenance (Production Risks) stream

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME780</td>
<td>Major Project</td>
<td>3</td>
</tr>
<tr>
<td>ME776</td>
<td>Maintenance Engineering Science</td>
<td>3</td>
</tr>
<tr>
<td>ME774</td>
<td>Maintenance Practices and Technology</td>
<td>2</td>
</tr>
<tr>
<td>ME777</td>
<td>Maintenance Management</td>
<td>2</td>
</tr>
</tbody>
</table>

Y099 Master of Engineering

Y001 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 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 Handbook 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.

### BS294 Managerial Economics

One hour per week for two semesters

A second-year subject in the degree course in mechanical engineering aimed at introducing the basic concepts and principles of economics as used in business decision-making.

Among the concepts to be examined are markets and resource allocation, demand analysis and forecasting, cost and output relationships, firms' objectives and pricing strategies, investment analysis, industry economics, the structure of Australian industry and the role of industry assistance.

**Textbooks**

Davies, J. and Hughes, S. Managerial Economics. Plymouth: McDonald and Evans, 1977


### BS389 Financial Management

Three hours per week for one semester

A third-year subject in the diploma course in building surveying designed to develop in students an understanding of finance relevant to the profession of building surveying.


**Reference**


### BS399 Administration 1

Three hours per week for one semester

A third-year subject in the diploma course in building surveying, which introduces students to organisation and management theory and to developing their understanding of management problems in organisations and ways of dealing with them. Management and its environments. Current management thought and its origin: scientific management, traditional organisational principles. Bureaucracy, human relations management, systems theory. Contingency theory and problems of management: planning strategy, organisational design, mechanistic and organic systems of management.

**Reference**


### BS400 Administration 2

Four hours per week for one semester

A final-year subject in the diploma course in building surveying, which further develops students' understanding of administration and management principles.

Decision-making and planning. Organisational communication. Control systems. Organisational behaviour: motivation, behaviour, modification, group dynamics, management style, organisational climate, managing planned change. Staffing and manpower planning. The effective and efficient organisation.

**References**


**AB757 Archaeology**

Three hours per week for one semester

A general elective subject in all degree courses in engineering which introduces students to the techniques and reasons for archaeology in a stimulating and practical manner.

The emphasis is on field-work done in conjunction with the Aboriginal community. Students learn new skills or enhance their existing skills in photography, mapping, sketching and surveying; and in the specialist area of site investigation, site reading and analysis of materials.

**Reference**


**BS196 Introductory Law**

Three hours per week for one semester

A first-year subject in the diploma course in building surveying, intended to enable students to understand the origins of law and the use of law in their personal, civic and business affairs.

The concept of law, sources of law, origin and development of common law and Australian law, hierarchy of courts, the branches of law and the place of building law. The doctrine of precedent. Statutory interpretation. Subordinate legislation. Studies of relevant case law and statutory material, applicable to building and construction activities.
BS501 Accounting and Finance
Three hours per week for one semester
A general elective subject in all degree courses in engineering, which is designed to teach students to develop and integrate concepts and principles of accounting where they assist management decision-making and policy formulation within the business. No prior knowledge of accounting is assumed.

The topics studied are drawn from the following:
(a) the nature of financial statements,
(b) the analysis of financial statements,
(c) cash management,
(d) cost data and short-run decision analysis,
(e) long-run investment decisions.

Reference

BS502 Legal Studies
Three hours per week for one semester
A general elective subject in all degree courses in engineering. Its objectives are as follows: firstly, to give students a general insight into an alternative discipline or field of learning, and secondly to provide students with an appreciation of particular areas of law relevant to the future practice of their profession.

In pursuit of the initial objective, topics will deal with the nature of law, its historical origins, the institutional setting in which it is administered, the rules of evidence and the role of courts.

An appreciation of such matters is vital to engineers in bridging the communication gap which often exists between the legal and scientific communities.

In pursuit of the second objective, attention is paid to one or more of the following matters relevant to practice:

(a) contracts for the provision of engineering services by practices and employees;
(b) agreements involving resort to arbitration as an alternative to the courts;
(c) property law concepts relevant to the practice of engineering, including the so-called 'intellectual property' concepts applicable to patents, copyright, trademarks and industrial design;
(d) the consequences in civil law (the tort of negligence) for the careless provision of engineering services or advice;
(e) the comparative advantages and disadvantages of companies, partnerships, trusts and joint ventures as vehicles or entities for the practice of engineering.

Materials are provided to students and detailed references are referred to during tuition in this unit.

BS503 Managerial Economics
Three hours per week for one semester
A general elective subject in all degree courses in engineering except mechanical engineering. No prior knowledge of economics is assumed.

The topics covered are drawn from: markets and resource allocation; the nature of financial statements; industry economics; cash management, long-run investment decisions, the consequences in civil law (the tort of negligence) for the carelessness in civil law (the tort of negligence) for the careless provision of engineering services or advice; the comparative advantages and disadvantages of companies, partnerships, trusts and joint ventures as vehicles or entities for the practice of engineering.

Reference

BS504 Contemporary Macroeconomics
Three hours per week for one semester
A general elective subject in all degree courses in engineering. No prior knowledge of economics is assumed.

The emphasis of this subject is to examine how the Australian economy functions and why problems such as inflation, unemployment and external debt occur. A general framework of macro-economic analysis is established and used to apply to current macroeconomic management of the Australian economy.

All topics are oriented to current economic experience, and students are expected to master a set of concepts which will help them think more coherently about the wide range of economic problems that are present in the Australian economy. Students are encouraged to seek solutions to these problems and to critically evaluate government policy measures.

Textbooks

BS625 Health and Safety Law
One hour per week for one semester
A subject in the graduate diploma course in risk management.

Historical outline of the development of health and safety law and doctrines: common employment, contributory negligence and voluntary assumption of risk, volenti non fit injuria.

Common law principles in occupational, public and product health and safety, duty and standard of care, tests of negligence.

Legal relationships involving employers, employees, manufacturers and suppliers, service providers, consumers and occupiers.

The role of law in the control of health and safety, critical evaluation of relevant statutes (OH&S Act, Dangerous Goods Act, Accident Compensation Act, Occupier’s Liability Act, Trade Practices Act, 1986), Ligation practices.

The role and standing of codes of practice and standards.

CE114 Applied Mechanics
Four hours per week for first semester and two hours per week for second semester
A first-year subject in the diploma course 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: force and force components, loads, reactions, equilibrium, internal forces, determinacy, superposition. Applications to pin-jointed trusses: beams and similar frames. Shear force and bending moment diagrams.

Values for common building materials including metals, timber, rock, concrete, common plastics. Common tests to measure properties.

BEHAVIOUR OF SIMPLE STRUCTURAL MEMBERS: STRESSES AND DEFORMATIONS. TENSION MEMBERS AND SHORT, CIRCULAR MEMBERS. TORSION STRESSES IN BEAMS AND SIMPLE BOLTED AND WELDED JOINTS.

Practical work: tests will be carried out on structural models, typical beams, trusses and columns.

CE115 Engineering Science — Solid Mechanics
Three hours per week for first semester and four hours per week for second semester
A first-year subject in all degree courses in engineering, designed to introduce students to the fundamentals of engineering mechanics and materials behaviour.

Basic concepts: forces and force systems, loads, equations of equilibrium, reactions for statically determinate beams, frames and truss systems. Analysis of pin-jointed trusses. Shear force and bending moment concepts and diagrams.

Stress and strain: general load-deflection and stress-strain behaviour including elastic, plastic, strain hardening, brittle, non-linear and viscoelastic behaviour. Hookes Law. Linear elastic parameters (EG and Poission’s ratio).

Values for common building materials including metals, timber, rock, concrete, common plastics. Common tests to measure properties.

Behaviour of simple structural members: stresses and deformations of tension members and short, circularly loaded columns. Stresses in beams and simple bolted and welded joints.

Practical work: tests will be carried out on structural models, typical beams, trusses and columns.

Fracture: brittle and ductile behaviour, fracture mechanics creep and fatigue, environmental effects on properties and failure.

Standard Specifications: material standards in design and specifications.

CE171 Building Practice
Three hours per week for two semesters
A first-year subject in the diploma course in building surveying, designed to provide students with practical experience in the various trades and practices used in the construction industry. Practical work: carpentry and joinery, welding, plumbing, brickwork and masonry, electrical trades, fabrication and construction techniques in timber, concrete and steel.

CE172 Building Structures
Four hours per week for two semesters
A first-year subject in the diploma course in building surveying, intended to develop in students an understanding of the general principles of construction of single- and double-storey residential buildings and to develop students' written and graphic communication skills and problem-solving abilities in this area.

Principles of construction: basic structural systems, introduction to building products and materials used in domestic building (timber, plain and reinforced concrete, masonry).

Methods of fixing: mechanical fasteners, adhesives, timber joints. Domestic construction: details of foundations, footings, floors, walls, claddings and roofs, plumbing, joinery, fireplaces and chimneys, services, tiling and decoration, etc. Hardware.

Regulations and codes governing residential construction. Drawing practice: sketches and finished drawings for a variety of domestic construction components and structures.

Written and verbal reports on selected topics relevant to the syllabus.

CE191 Statutory Control
Two hours per week for two semesters
A first-year subject in the diploma course in building surveying, intended to provide students with an understanding of the role and duties of a building surveyor and an introduction to acts and regulations.

Administration and law: structure and operation of local government. The role of building surveyor and required skills. Statutory functions related to acts and regulations. Other responsibilities and liabilities. The building surveyor as Manager including communication skills, office organization, staff relationships, environment both physical and psychological and as educator.

Functions: liaison with other Council departments, public authorities and private enterprise. Comparison of building surveyor's role as a Council Building Surveyor and as a consultant in private practice. Acts and regulations: basic principles of the regulations, including interpretation method, how regulations are separated into parts, divisions and quick reference methods. Definitions and basic principles of each part, including recognition of major and minor building applications.

Computations: construction and demolition. General knowledge of related acts, regulations, and their applications.

CE195 Communications
Two hours per week for two semesters
A first-year subject in the diploma course in building surveying for developing basic skills in speaking and oral communication as well as an understanding of social and urban issues relevant to building surveyors.

References: To be advised.

Faculty of Engineering

CE211 Structural Mechanics
Three hours per week for two semesters
A subject in the second year of the degree course in civil engineering which develops in students an understanding of the principles of mechanics as applied to structures.


Statically determinate structures, modelling and equilibrium of forces in beams.

Statically indeterminate structures: development of the slope deflection relations and the beam element action-displacement relationship, introduction to the matrix stiffness method of analysis for 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.

CE231 Hydraulics
Three hours per week for two semesters
A subject in the second year of the degree course in civil engineering which develops in students an understanding of the principles of fluid mechanics.

Statics: pressure, thrust, buoyancy, 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.

Pipe flow: Darcy-Weisbach and Colebrook-White formulas, development of the Moody diagram, empirical formulas, shock losses, 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.

CE241 Surveying
Two hours of theory per week for two semesters and three hours of practical work for twenty weeks
A subject in the second year of the degree course in civil engineering which enables students to use basic surveying and computation methods and instrumentation in engineering practice.

Introduction: principles and types of surveys, error classification and sources, detail surveys, plotting procedures and plan layout. Distance measurement: chaining equipment, procedures and reductions. Principles and use of electronic distance measurement.

Levelling: construction, use and adjustment of level types, booking and reduction of levels. Contour properties, plotting and use of contour plans.

Theodolites: construction, use and adjustments of theodolites, traversing, angle reading, and setting out of points.


Practical work: exercises related to all aspects of theory, in particular levelling and theodolite use. Integration of manual drafting with computer generated plots.

CE242 Land Surveying
Five hours per week for one semester
A second-year subject in the diploma course in building surveying designed to enable students to understand basic 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 and setting out.

Cadastral surveying and laws related to surveying: identification and location of land from titles, check surveys, title amendments, old law, Subdivision Act 1988, encumbrances, easements, adverse possession.
CE253 Structural Design
Five hours per week for one semester and four hours per week for second semester
A second-year subject in the diploma course in building surveying, designed to give students an understanding of basic structural analysis and design methods and of the behaviour of structural components and assemblies.
Structural analysis: beam deflections, statically indeterminate beams, beam stresses, columns.
Singularity of curved structures, compression structures, truss forms, structures transmitting loads by bending action, space structures composed of continuous flat and curved elements, combined forms. Structural design: loads on structures, design methods, design of structural members, design of connections.
Practical work: tests will be carried out on structural models, on typical beams and connections.

CE255 Structural Design
Three hours per week for two semesters
A subject in the second year of the degree course in civil engineering which introduces students to the concepts and methods of engineering design and shows how structural principles are applied to the design of structural elements and simple civil engineering structures.
Design theories: The design process, load versus strength, limit states of stability, strength and serviceability, permissible stress design, deemed to comply provisions.
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.
Loads on structures: types of load, loading codes, and building regulations, load paths in structures, conversion to loads on elements, modelling of structural forms.
Analysis and design of plain and reinforced concrete elements, limited to statically determinate structures — including requirements of durability and fire resistance.
Design of simple steel welded and bolted connections — axially loaded single and double angles, beam and cantilever end connections, strut bases. Design of simple steel elements.

CE261 Road Engineering
Three hours per week for one semester
A subject in the second year of the degree course in civil engineering which introduces students to highway and traffic engineering.
Design of roads and streets, widths of all elements, cross falls, grades. Introduction to vertical and horizontal curves.
Construction of roads from clearing to bituminous surfacing, including types and uses of machines.
Drainage structures, erosion control, theory of compaction and stabilisation. Test on road materials.
Traffic engineering: Basic traffic studies, analysis of speed and travel time and delay results, traffic control devices.

CE272 Building Structures
Three hours per week for two semesters
A second-year subject in the diploma course 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. Structural systems, basis of design, structural materials used for buildings, up to three storeys. Foundations, footings. Fire protection. Framed buildings: materials, columns, trusses, portal frames, space frames.
Drawing office work: drawings of details and structures relevant to the above topics.

CE273 Practical Inspection
Three hours per week for one semester
A second-year subject in the diploma course in building surveying, which develops in students an understanding of the aims of site inspection and a knowledge of inspection methods.
Aims and objectives of site inspection. The organisation of the building site and areas of responsibility of various inspection authorities. Methods of inspection of foundations and structures. Prevention of unsound practices and the processes of acceptance and rejection. Inspection of remedial work. Students will visit sites and submit inspection reports.

CE274 Scaffolding A
CE275 Scaffolding B
Two hours per week for two semesters
These are second-year subjects in the diploma course in building surveying, designed to give students an understanding of the Act and the regulations pertaining to scaffolding and the use of scaffolding. Types of scaffolding systems, their erection and use. The Scaffolding Act 1971 and statutory rules and their interpretation. Practical erection of scaffolding. Safety in the use of scaffolding.

CE281 Geomechanics
Three hours per week for two semesters
A subject in the second year of the degree course 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.
Geological mapping, engineering geology including site investigation.

CE282 Geomechanics
Four hours per week for one semester
A second-year subject in the diploma course 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.
Field and laboratory tests.

CE293 Statutory Control
Two hours per week for two semesters
A subject in the Diploma 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.
Administration and law: the Building Surveyor’s role and legislative requirements; decision-making processes within his/her area of responsibility; the Building Surveyor as manager.
Functions: responsibilities, procedures and effective organisation of duties related to statutory requirements and management principles.
Acts and regulations: understanding of regulations; detailed principles and application of major regulation parts. Basic understanding of Building Control Act. Its functions and major areas of control. Application of individual regulation parts to various building examples.
CE295 Engineering Management
Three hours per week for one semester

A subject in the second year of the degree course in civil engineering which introduces students to autonomous learning, problem solving, communication, and basic management skills.

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 including: 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.

Introduction to industrial organisations and organisation management systems, engineering in conjunction with business management, people management and personal relations

CE296 Behavioural Studies
Four hours per week for one semester

A second-year subject in the diploma course in building surveying. This subject is designed to integrate with administration subjects. It is an experientially-based course which extends and develops earlier studies in communications by providing a focus on interpersonal skills relevant to personal development and relations in the workplace.

Textbook

References
Consult with the lecturer

CE301 Engineering Computing
Two hours per week for one semester

To develop an understanding of the operation and use of microcomputer systems in an engineering environment.

To introduce students to the BASIC and Fortran languages and to fourth generation languages.

Introduction to microcomputers: basic architecture, microprocessors, microcomputer systems, local area networks.

Operating Systems: role and function, review of MS-DOS, introduction to OS/2 and UNIX, screen editors, graphical user interfaces, writing batch files using operating system commands.

Languages: programming in BASIC, introduction to Fortran, use of scientific subroutines. Introduction to Autolisp and expert system shells.

Microcomputer Hardware: graphics cards, peripheral devices such as plotters and printers.

Engineering Software: principles of implementing application packages on microcomputer systems, device drivers, configuring application packages.

CE311 Structural Mechanics
Three hours per week for one semester

A subject in the third year of the degree course in civil engineering which aims to develop students' understanding of structural behaviour in skeletal frames with an emphasis on computer methods, balanced with approximate methods of analysis.

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, misfit of members, approximate analysis, matrix analysis by the general stiffness method.


Introduction to structural dynamics: one degree of freedom systems.

CE323 Urban Planning
Two hours per week for one semester

A third-year subject in the diploma course in building surveying which introduces students to the role of the engineer in urban planning. Plan and land use planning: the purpose of planning, history of settlements, urban and rural environments, sustainable development and urban settlements, sociological effects of the built environment.

The planning process: the purpose of planning, historical development of urban and rural environments, urban planning schemes, residential planning standards, physical and social surveys, planning legislation, landscape planning, shopping trends, inner city development.

Transport planning: transport planning schemes, bicycle planning, parking, public transport, freight transport, pedestrian traffic management.

Faculty of Engineering

CE324 Urban Planning
Two hours per week for one semester

A subject in the third year of the degree course in civil engineering which introduces students to the role of the engineer in urban planning. Plan and land use planning: the purpose of planning, history of settlements, urban and rural environments, sustainable development and urban settlements, sociological effects of the built environment.

The planning process: the purpose of planning, historical development of urban and rural environments, urban planning schemes, residential planning standards, physical and social surveys, planning legislation, landscape planning, shopping trends, inner city development.

Transport planning: transport planning schemes, bicycle planning, parking, public transport, freight transport, pedestrian traffic management.

CE331 Water Engineering
Three hours per week for one semester

A subject in the third year of the degree course in civil engineering designed to teach students the application of hydraulic theory to practice and introduce hydrological concepts.

Steady closed conduit flow: Pipe friction formulae, hydraulic and 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 gauging, the run-off process in the hydrologic cycle, rainfall intensity-frequency-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
Three hours per week for one semester

An elective subject in the third year of the degree course in civil engineering which extends basic survey theory and computations culminating in a practical project involving the following: 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 contour plans of engineering surveys.

CE351 Structural Design
Six hours per week for one semester

A subject in the third year of the degree course in civil engineering which extends students' knowledge of the principles of structural analysis and design in timber, concrete, prestressed, and steel and gives them the opportunity to apply these principles.

Design principles appropriate to steel, timber, reinforced concrete and prestressed concrete methods and load reduction and intensification and the application of these principles.


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 total structure including beams, two-way slabs, one-way and two-way footings, slender columns and walls. Reinforcement detailing.

Prestressed concrete: introduction to prestressed concrete, limited to statically determinate elements.
Exercises in loads on structures and structural steel and concrete design.
Computer software may be used to assist the design process where appropriate.

**CE352 Structural Design**
Five hours per week for one semester
A third-year subject in the diploma course in building surveying, designed to familiarise the student with the processes of design and checking of structural computations, with particular emphasis on codes of practice for metal structures.

The design of steel and timber structures and the principles underlying the main clauses in the relevant Codes of Practice; checking of computations for steel and timber structures.

**CE355 Structural Engineering**
Three hours per week for one semester
An elective subject in the third year of the degree course in civil engineering which aims to develop a high level of competence in the analysis and design of structures.

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 connectors 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.

**CE374 Building Structures**
Three hours per week for one semester
A third-year subject in the Diploma of Building Surveying designed to give students an appreciation of the various principles, structural details and associated services for multi-storey buildings.

Multi-storey buildings: structural systems, cladding and roofs, partitions, walls and ceilings, vertical and horizontal transportation, foundation systems, construction systems, effects of tall buildings on the environment.

**CE375 Fire Technology**
Two hours per week for one semester
A third year subject in the Diploma of Building Surveying dealing with causes of fire and the behaviour of building materials under fire conditions.

The combusting process: phases of fire, fire spread, smoke spread and control.

Material behaviour under fire conditions: combustibility of building materials.

Early fire hazard indices. Performance of surfaces under fire conditions. Heat sink effects. Fire loads and fire compartmentation.

Human behaviour in fires. Methods of egress, fire and smoke detection and control.

**CE394 Statutory Control**
Four hours per week for one semester
A third-year subject in the Diploma 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, and of the functions of a building surveyor.


Acts and regulations: analysis of regulations and detailed study of total regulations and standards. Ability to relate to all relevant codes and standards. Study of the Building Control Act and procedures.


**CE395 Engineering Management**
Three hours per week for one semester
A subject in the third year of the degree course in civil engineering which introduces students to some fundamental concepts in management and construction management.

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.

**CE396 Communications 2**
Two hours per week for one semester
A third-year subject in the diploma course in building surveying which aims to develop:

- Further skills in specific areas of communication (including relating to the public; reports for specific purposes; work diaries);
- Critical thinking skills and an understanding of social and political decision-making processes;
- An awareness of the social responsibilities of professional groups.

**References**
To be advised.

**CE403 Professional Projects**
Two hours per week for one semester
A final-year subject in the diploma course in building surveying, designed to consolidate and integrate the various strands of the course and to develop students’ self-education and communication skills further.

Preparation of a written report on material submitted for a building permit or alternatively 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.

**CE406 Water and Transport Engineering**
Four hours per week for one semester
An elective subject in the fourth year of the degree course in civil engineering which extends students’ knowledge and skills in the areas of transport engineering and water engineering.

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 road building materials, rheology of bitumens, skid resistance.

Railway Engineering: Conventional railway track, track design and geometry, track construction. High speed railways. Rubber tyred railways.

Reservoir yield.

Potable water treatment: methods, theory of sedimentation and filtration.

Wastewater treatment and disposal: methods and their applications, sampling of operations, queueing theory in determining economic buffer systems.

**Assessment is continuous**

**References**
To be advised.
CE415 Structural Engineering

Five hours per week for one semester

A subject in the fourth year of the degree course in civil engineering which further develops students' understanding of structural mechanics.

Stress analysis: stress-strain relations and the general equations of elasticity; plate strain and plane strain problems, yield criteria (Tresca, Von Mises), torsion of open cross sections.

Modelling of structures using finite element packages.

Influential lines.

Pre-stressed concrete analysis and design, including statically indeterminate structures and losses of pre-stress.

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.

Exercises in pre-stressed concrete, steel portal frame and masonry design.

Use will be made of computer software where appropriate.

CE416 Structural Engineering

Four hours per week for one semester

An elective subject in the fourth year of the degree course in civil engineering which introduces advanced topics in structural engineering analysis and design with a particular emphasis on computer application.

Structural dynamics: free and forced vibrations of single and multi-degree of freedom systems.

Introduction to the finite element method: formulation of an element stiffness matrix, the constant strain triangle, high order elements.

Plastic analysis and design of multi-storey frames.

Pre-stressed 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

A final-year subject in the course in building surveying, which further develops students understanding of urban planning.

Planning law: acts and legislation governing town planning.

Planning appeals: preparation for an appeal and participation in the appeals process.

Urban landscaping concepts relating to permit applications.

Possible developments of the approval of permits (BADAC and Bains Reports).

CE431 Water Engineering

Two hours per week for one semester

A subject in the fourth year of the degree course in civil engineering which introduces students to apply principles of hydraulics to the design of water engineering systems.

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.

CE452 Structural Design

Four hours per week for one semester

A final-year subject in the diploma course 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.

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.

CE461 Transport Engineering

Three hours per week for one semester

A subject in the fourth year of the degree course which enables students to become proficient in the areas of traffic engineering, pavement design, and road geometry.

Traffic engineering: Design, analysis and presentation of results for twelve types of traffic surveys. Design of at-grade intersections.

Pavements: Principles, mechanical modelling, CIRCLY program, and structural design of flexible pavements.

Design of sprayed seal and asphalt mixes. Types, joints, reinforcement and thickness design of concrete road pavements.

Road geometry: Speed parameters, sight distance, horizontal curves, vertical curves, auxiliary lanes.

CE474 Building Structures

Three hours per week for one semester

A final-year subject in the diploma of building surveying, designed to extend students' knowledge of structural behaviour and construction and demolition techniques, and to give them an appreciation of storm water drainage.

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: hydrology, surface and subsurface drainage, elements of hydrology, 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

A final-year subject in the diploma of building surveying, designed to give students an appreciation of fire engineering.

Performance of structural materials, structural members and structural systems under fire conditions.

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

Four hours per week for one semester

An elective subject in the fourth year of the degree course in civil engineering which introduces students to engineering practice in a range of construction activities. Excavation; excavation plant, drilling equipment, blasting rock, setting out of open excavations, support of open excavations.

Road construction: operations in road construction, quality control, plant output and selection, quarry operation, stabilisation of subgrades, roller compacted pavement. Block pavement, geotextiles, layout of road works, administration of road works.

Concrete: production, delivery and inspection, crushed aggregate and sand plant, concreting plant, delivery systems, site inspection and quality control, formwork, curing, cold and hot weather concreting, shotcrete, precast concrete.

Foundation construction: dewatering, ground anchors, underpinning and shoring, footing and slab construction.

Bridge construction: methods for reinforced and prestressed concrete bridges, segmental bridge construction, girder launched construction.
CE481 Geomechanics
Three hours per week for one semester
A subject in the fourth year of the degree course in civil engineering which enables students to design simple foundations considering both soil shear strength and settlement characteristics, to estimate the stability of soil slopes, and to apply the basic principles of site investigation:
- Analysis of different types of foundaional including immediate and consolidation settlement, bearing capacity for inclined and eccentric loads, foundation design for piles and pile groups.
- Slope stability: slopes in cohesionless soils, cohesive soils, total and effective stress analysis including Mohr 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, inspection tests. Slope stability for cohesionless and cohesive soils in terms of total and effective stresses.

CE482 Geomechanics
Three hours per week for one semester
A final-year subject in the diploma course in building surveying, designed to extend students’ knowledge further, in the area of geomechanics.
- Compaction: compaction process, compaction plant, control of filled sites.
- Foundation: bearing capacity, settlement, footing design with particular emphasis on residential and light industrial foundations.
- Excavations and underpinning.
- Site investigations: methods, reports and their interpretation.
- Approval of foundations, Regulations Responsibilities of various parties.

CE491 Building Law and Contracts
Three hours per week for one semester
A final-year subject in the diploma course in building surveying, which provides building surveyors with a suitable legal background for the proper discharge of their duties.
- Contracts: types and conditions of contracts and tenders.

CE495 Engineering Management
Three hours per week for one semester
A subject in the fourth year of the degree course in civil engineering which enables students to develop an understanding of the role of the engineer in a project team and the ability to manage projects. The subject covers:
- Setting of objectives, measurement of performance, introduction to the marketing function, sales, market research, segmentation, etc. Innovation and entrepreneurial aspects.
- Modern theories of management and current practices. For example: Total Quality Management, Value Adding Management, Just-In-Time.
- Supervision and leadership, practical industrial relations, 4-D, scheduling and control, construction management, teamwork and the team leader.
- Time management, effective speaking and writing, creative thinking, lateral thinking, technical communication skills. Problem analysis, problem solving, decision-making.
- Construction techniques: industrial and commercial buildings, medium and high rise buildings, reinforced and prestressed concrete, tilt-up construction, formwork, timber and steel, climbing formwork, and scaffoldings.
- Concrete technology: materials, plant, mix design, high strength concrete admixtures, delivery systems, formwork, placing, curing, testing.

CE505 Investigation Project
Four hours per week for one semester
A subject in the final year of the degree course in civil engineering which develops students’ initiative and self-education skills through work on an investigation project in an area relevant to the course. Students will work individually or in small groups. Each project will be selected by the student and supervised by the student’s supervisor. In general, projects will be staff-initiated, but students may also propose projects which will be considered by the staff. Projects may be selected in consultation with the student’s supervisor.

CE507 Municipal and Transport Engineering
Five hours per week for one semester
A major elective subject in the final year of the degree course in civil engineering which extends students’ knowledge into the field of non-steady, non-uniform flows. On completion, students should be able to apply the principles to practical problems.
- Flood engineering which extends students’ knowledge into the field of non-steady, non-uniform flows. On completion, students should be able to apply the principles to practical problems.
- Construction, demolition, and underpinning.
- Environmental considerations: traffic noise, vehicle emissions, transport economics, transport administration, transport planning.
- Environmental effects statements.
- Surveying: introduction to photogrammetry and remote sensing.
- Planning: aspects of planning and building control relevant to local government. Environmental effects statements.
- Buildings: architecture, building physics, building services.
- Ferries, selection of mode. Marine engineering, application of queueing theory, geometry.
- Traffic law, hierarchy: construction, lighting, design.
- Traffic generation, parking, pedestrianised streets.
- Environmental considerations: traffic noise, vehicle emissions.

CE516 Structural Engineering
Five hours per week for one semester
A major elective subject in the final year of the degree course in civil engineering which broadens the students’ understanding of the theory of structural behaviour and considers some advanced topics in structural engineering.
- Energy methods in structural analysis: work and energy, principle of virtual work, theorem of minimum potential energy, reciprocal theorems. Applications to buckling problems.
- The behaviour of plates and shells; yield line theory and strip methods.
- Advanced topics of structural engineering: structural dynamics, earthquake loading and analysis, fire engineering, floor systems, reinforcing systems, prestressing systems, foundation design, special structural forms.

CE533 Water Engineering
Three hours per week for one semester
An elective subject in the final year of the degree course in civil engineering which extends students’ knowledge into the field of non-steady, non-uniform flow. On completion, students should be able to apply the principles to practical problems.
- A selection of topics from the following:
  - Flood estimation, flood routing techniques, flood forecasting basin design, on-site stormwater detention, reservoir yield analysis methods, ground-water flow, pressure surges in pipe systems, river engineering, ocean engineering.
  - Emphasis on the use of computers in analysis of problems.
CE553 Structural Design
Three hours per week for one semester
An elective subject in the final year of the degree course in civil engineering which develops the design skills of students who have a particular interest in structural design. Students undertake a selection of more advanced structural design projects, chosen to emphasize interpretation of current design codes and current design practices.

CE555 Civil Design
Five hours per week for one semester
A subject in the final year of the degree course in civil engineering which develops students' abilities to apply theoretical knowledge to a range of practical design situations. A range of designs will be chosen from structural and civil engineering areas of the course. Assignments which require creative solutions will be included. Problem solutions may be in the form of written reports, design computations, drawings and models, as appropriate. In addition, students will be given a series of lectures on the design process and the co-ordination of activities involved. Particular reference will be made to legal processes and statutory requirements, permits and regulations.

CE576 Construction Engineering
Five hours per week for one semester
A major elective subject in the final year of the degree course in civil engineering which develops students' knowledge and skills in the construction area.

CE690 Construction Engineering Project Control
Four hours per week for two semesters
In this subject, the student is introduced to project management and control techniques for civil engineering projects. The student is introduced to the role of the project manager, the requirements of contract documents, the use of project evaluation techniques, and the role of the project manager in the construction process.

CE770 Construction Engineering
Four hours per week for two semesters
CE770 is a subject in the graduate diploma course in civil engineering construction which introduces the techniques for establishing and maintaining technical control of a civil engineering project.

CE691 Civil Engineering Management
Four hours per week for one semester
This subject is designed to develop an awareness of efficient site management techniques. Responsibilities of a project manager; responsibility of site engineer; construction techniques for civil engineering projects.

CE582 Geomechanics
Three hours per week for one semester
A minor elective subject in the final year of the degree course in civil engineering which extends students' knowledge of geology and soil mechanics, and introduces them to the role of the project manager in the construction process.

CE596 Engineering Management
Five hours per week for one semester
A subject in the final year of the degree course in civil engineering which develops students' abilities to apply theoretical knowledge to a range of practical design situations. A range of designs will be chosen from structural and civil engineering areas of the course. Assignments which require creative solutions will be included. Problem solutions may be in the form of written reports, design computations, drawings and models, as appropriate. In addition, students will be given a series of lectures on the design process and the co-ordination of activities involved. Particular reference will be made to legal processes and statutory requirements, permits and regulations.

CE670 Construction Technology
Four hours per week for one semester
A subject in the graduate diploma course in civil engineering construction which introduces the techniques for establishing and maintaining technical control of a civil engineering project.

CE692 Communications
Four hours per week for one semester
A subject in the graduate diploma course in civil engineering construction which introduces the techniques for establishing and maintaining technical control of a civil engineering project.
CE771 Construction Project Control
Four hours per week for one semester
A subject in the graduate diploma course 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.

CE790 Financial Project Control
Four hours per week for one semester
A subject in the graduate diploma course in civil engineering construction which introduces financial concepts that are important in evaluating projects, in financing projects; in financial control and in determining the profitability of projects.

Cost control; financial control; determination of profitability; evaluation of projects; evaluation of sources of finance.

EA411 Non-Newtonian Technology
Three hours per week for two semesters
Assessment: Laboratory work and examination
A subject in the graduate diploma in chemical engineering.

 Aim: To provide the student with a thorough understanding of Non-Newtonian flow and heat transfer.

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
Three hours per week (including practical work) for two semesters
Assessment: by examination
A subject in the graduate diploma in chemical engineering.

 Aim: To give students a grounding in the theory and practice of biological processes used in engineering.

Requirements for growth in biological material; variations in microorganism and fermentation pathways. Enzyme reaction kinetics and enzyme 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, euphotrophication 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.

Electronics
Semester I
Digital Circuits (Physics): Ohms law, series and parallel circuits, resistivity, conductivity, temperature coefficient of resistance.
Ideal Circuit Elements (Electronics): Resistance, Inductance, Capacitance, voltage sources, current sources, energy storage and energy dissipation.


Semester 2


Energy Transfer and Utilisation: Power calculations; instantaneous average power, reactive power and voltamperes, 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.

Prescribed texts
Koffman, Turbo Pascal. Reading, Mass.: Addison-Wesley, 1989

Reference texts
Kopetz, J.J. Fundamentals of Electrical Engineering. 1. 11, 1990

Computing Systems
Two hours per week for one semester

Brief history of computing.

Introduction to computer systems including 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, subrange types, arrays, procedures, functions, variable and value parameters, predefined functions, identifier scope, enumerated types, sets, records, with statements, text files.

Elementary input/output interfacing techniques using Pascal.

References

EE254 Electrical Design
Two hours per week for two semesters

A second-year subject in the degree course in electrical engineering.

To introduce the principles of coil design, heating and cooling, DC, power supply design, printed circuit board design, amplifier design, 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 dissipations. Project.

Heating and cooling: heat generation, storage and dissipation. Conduction, convection and radiation. General heating equation, cyclic heating and heating sink design.
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 model. Two stage amplifier design project. Software tools. Introduction to programmable Logic Controllers.

**Texts/References**


**EE258 Electrical Machines**

Four hours per week for two semesters

A second-year subject in the degree course of electrical engineering.

To introduce the principles of magnetic circuits, electromechanical energy conversion, transformers, induction machines, synchronous machines, power electronics, and measurements.


Introduction to electromechanical energy conversion: voltage-current, energy storage and force/torque expressions for singly and doubly excited transducers. Means of torque production.

Transformers: types and modes of construction. Ideal transformer equations for emfs, emf ratio, m.m.f balance, current ratios. Phasor diagram. The practical transformer, equivalent circuit, voltage regulation, efficiency, Instrument transformers.

Introduction to rotating machinery: construction and principles of operation of three-phase induction machines, direct current machines.


**References**


**EE263 Computer Systems Engineering**

Three hours per week for two semesters

A second-year subject in the degree course in electrical engineering.

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, registers and assembly language mappings for a multi-tile 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**


Sedgewick, R. Algorithms. 2nd edn, Reading, Mass.: Addison-Wesley, 1988


**EE282 Communication Principles**

Two hours per week for two semesters

A two-year subject in the degree course in electrical engineering.

General concepts: communication systems, spectral analysis, fundamentals of signal transmission.

Analogue Communications: Amplitude modulation/demodulation methods, angle modulation/demodulation, receivers, stereo broadcast.

Digital Communications: pulse amplitude modulation/demodulation, pulse coded modulation/demodulation, RF digital modulation/demodulation methods.

Multiplexing: TDM and FDM.

**Texts/References**

Sprenters, F.G. Introduction to Communication Systems. 3rd edn, Addison Wesley


**EE283 Electrical Circuits**

Three hours per week for two semesters

A second-year subject in the degree course in electrical engineering.

The aim of this subject is to consolidate the circuit theory topics dealt with in previous subjects and give students a firm foundation of circuit analysis techniques used in electrical engineering.

Circuit elements: Review R, L and C as element showing relations between v and i for each including response to sinusoidal (complex numbers). Dependent sources. Non-linear elements in circuits.

Circuit analysis: Revision of superposition, thevenin, and norton (includes dependent sources). Taylor transformations. Formulation 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 connection 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, H; hybrid showing how the interconnection of networks will be on which parameters will be used. Definition, elements and calculating these 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.

**Electrical Transients**

(1) Classical approach: The response of first order circuits (R-L-C) and second order circuits (RLC series or parallel) to 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 \( s \). The inverse Laplace transform will be used to convert the solution to the time domain.

Frequency response, resonance, Bode plots, frequency domain, poles and zeros.


**Texts**


References listed overleaf
EE287 Electronics  
Three hours per week for two semesters  
A second-year subject in the degree course in electrical engineering.  
Solid state devices: Non-linear and linear electronic models, 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 and MSI common functional blocks, standard symbols and behavioural descriptions. System design techniques using SSI, MSI, ROMs and PLAs.  
Sequential logic: Analysis of bistable and monostable circuits, behavioural description and timing of latches, master-slave and edge triggered flip-flops. MSI registers and counters.  
Synthesis of system controllers using finite state machine and ASM behavioural descriptions using MSI and PLDs.

References  
Fitzgerald, Higginbotham and Grabel. Basic Electrical Engineering.  

Suggested work book  

EE363 Computer Systems Engineering  
Four hours per week for one semester  
A third-year subject in the degree course in electrical engineering.  
Brief introduction to C as a mapping from Pascal.  
Introduction to software engineering including software life cycle and the design process using appropriate graphical representations.  
Computer organisation including representative microprocessor architectures and in particular the Motorola 68000 family, bus organisation, line driving and receiving, memory interfacing including address decoding, memory read/write cycles, timing diagrams, input/output interfacing, exception handling including asynchronous interrupt input (interrupt driven, polled); the Intel 8086 processor architecture will be briefly compared with the Motorola architecture. Programming used in computer organisation studies will emphasise the use of high-level languages as a first choice.  
Introduction of techniques for identification and selective optimisation of time-critical program regions.  
Introduction to multi-process and time-shared operating systems including basic concepts of scheduling and resource allocation.

References  
Stone, H.S. Microcomputer Interfacing. Reading, Mass.: Addison-Wesley, 1982  
Jones, G. Software Engineering. Wiley. 1990

EE383 Electromagnetic Fields  
Two hours per week for one semester  
A third-year subject in the degree course in electrical engineering.  
Magnetic flux and flux linkage; magnetic field intensity, Ampere's Law, Faraday's Law.  
Field conditions at material interfaces.  
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; propagating modes, characteristics impedance, discontinuities, reflection as a termination of lossy transmission line. Reflections and standing waves, input impedance, impedance matching; steps and pulses on lines.  
Plane Waves in Materials: Dispersive media, group velocity. Reflection and transmission waves normally incident on interfaces: between dielectrics; between dielectric and conductor. Propagation in good conductors, skin depth, Power flow, Poynting vector.  
Waveguides. Reflection of waves obliquely incident on interfaces reflection, refraction, total internal reflection. Guided waves in dielectric-dielectric and dielectric-conductor interfaces.

References  

EE384 Electrical Power and Machines  
Three hours per week for one semester  
A third-year subject in the degree course in electrical engineering.  
Step up and brushless DC motor drives using power transistors.  

References  

EE386 Electronics  
Three hours per week for one semester  
A third-year subject in the degree course in electrical engineering.  
Design and analysis and simulation techniques for discrete analog circuits: worst case design to meet minimum performance specifications, selection of configuration alternatives for implementing direct coupled complementary symmetry large signal amplifiers.

References  
Faculty of Engineering

EE388 Communications
Three hours per week for one semester
A third year subject in the degree course in electrical engineering.

- Basic concepts of signals and discrete systems, including the sampling theorem.
- Discrete models for linear time invariant systems and analysis techniques.
- Sturctural analysis of discrete systems, inclusive of Z-transformation and its uses.
- Applications of the Z-transform to discrete system analysis.
- The discrete Fourier series and its uses.
- Introduction to the Fast Fourier Transform and its uses.

Texts/References

EE389 Linear Control Systems
Four hours per week for one semester
A third-year subject in the degree course in electrical engineering.

System Introduction to systems and their representation in state space. Basic: state space model, state variables, and state equations.

Basic Analysis c Analysis of Linear Systems: The linear single input continuous systems model. Use of classical time domain, transfer functions and frequency response techniques. The second order system, stability criteria. State plane and frequency response. Analogue computer techniques. Analysis of electromechanical systems.


Transfer functions and block diagrams. Graphical representation of systems - the state plane, the root locus plot, the frequency plot of transfer functions. Stability and steady state performance.

Texts/References
Dorf, R.C. Modern Control Systems. 5th edn, Reading, Mass.: Addison-Wesley, 1989

EE402 Management Fundamentals
A single semester subject of three hours per week
A fourth year subject in the degree course in electrical engineering.

To provide students with a satisfactory understanding of the fundamentals of management in the environment of industry. Basic supervisory skills, including communications, team building, problem solving and decision making. Australian industrial relations and anti-discrimination.

Finance: Introduction to business finance, sources of funds, use of funds. Entry level book-keeping through to trial balance, management accounting, costing, capital investment, working capital.

Textbook
Samuelson, M. Supervision and Management. 1st edn, Australia: Jacaranda Press. 1990

References
Byrt, W. and Masters, P.R. The Australian Manager: Rev edn, MacMillan, 1982


EE403 Engineering Project Management
A fourth year core subject in the degree course in electrical engineering.

This subject is to be taken during the students’ final industrial period. There will be no formal lectures for this subject. Students will work from a text and submit a combination assignment.

The role of the manager in a high technology environment; senior management expectations, skill requirements of high technology managers, dealing with priorities, understanding matrix organisations. Working effectively with people. Understanding professional productivity leadership. Understanding creating stimulating environments dealing with risk and leadership expectations. Effective evaluation, framing the work and the project.

Planning and organising the work, examining the work process. An approach to engineering developments, developing schedules and managing projects, 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
A fourth year subject in the electrical power and control engineering stream of the degree course in electrical engineering.

Power electronics: Trigger circuits, for power semiconductor devices. Power switching circuits, regulation, control.

Illumination: Lighting fundamentals and photometric units. Light Sources: Indoor and outdoor lighting systems.

Electrical Design: Electrical Standards and Lighting codes.

Textbook
Dobson, M. Electrical Design. 3rd edn, Australia: Prentice Hall. 1988

EE458 Electrical Design
Three hours per week for one semester
A fourth year subject in the communications and electronics stream of the degree course in electrical engineering.

Digital systems design and testing. Modern methods of design for testability, external access to and control of internal states, and techniques for fault detection from fault signals. An introduction to hardware description languages and automated synthesis. Printed circuit board layout concepts for digital and analog systems. Students select a design topic and carry out formal design as part of their final year Design Project. Students are to be given guidance in the use of computer and manual methods of literature searching.

References
To be advised.

EE459  Electrical Design
Three hours per week for one semester
A fourth-year subject in the computer systems engineering stream of the degree course in electrical engineering.

**References**
IEEE Design of Test of Computers
IEEE Transactions on Computer-Aided Design
IEEE Transactions on Computers
Dillinger, T.E. VLSI Engineering. Prentice-Hall. 1988
Proceedings of Design Automation Conferences
Computer Aided Design (Journal)

EE465  Engineering Systems Software
Four hours per week for one semester
A fourth-year subject in the degree course in electrical engineering.

**Operating systems** including the internal and external operation of the UNIX system using MINIX as an example study.

**References**
IEEE Software (Journal)
Transactions on Software Engineering (Journal)

EE467  Computer Communications
Three hours per week for one semester
A fourth-year subject in the computer systems engineering stream of the degree course in electrical engineering.

**Introduces students to the basic concepts and techniques of data communications, computer networks and laboratory procedures.**

**Review of basic concepts used in data transmission:** Modulation, multiplexing, coding, error detection and correction.

Data transmission: Media, waveforms, impairments, intersymbol interference.

Coding and framing: PCM, source coding, synchron. and asynchronous transmission, error checking and control, interfaces, computer transmission, UART.

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.


Overview of integration of digital services: ISDN, electronic messaging. MAP, TCP.

**Text/References**
Best, B.K. Computer Communications. 2nd edn. Van Nostrand Reinhold

EE474  Computer Systems Engineering
Five hours per week for one semester
A fourth-year subject in the computer systems engineering stream of the degree course in electrical engineering.

Comparative computer architecture studies including rationale and tradeoffs for CISC and superscalar RISC and DSP architectures. Introduction to parallel computer organizations, including taxonomy and communication networks.

**Processor Organisation:** data path and control implementation (hardwired and micro-programmed), pipelining, techniques of formation and control, microprocessors, virtual memory, input/output devices, application specific controllers (graphics, communications).

**References**

EE475  Electrical Power and Machines
Five hours per week for one semester
A fourth-year subject in the electrical power and control engineering stream of the degree course in electrical engineering.

**Part A**

**Power systems**
System modeling: per unit quantities, single line diagrams.
Underground transmission line insulation, symmetrical faults, Synchronous machine: machine modelling, system fault studies, Node elimination using matrix partitioning, Loadflow, Load characteristics, uses of loadflow studies, Gauss-Siedel and Newton Raphson methods.

**Part B**

**Electrical machines**
The mathematical model, review of construction, properties of the mechanical commutators; block diagram representation of linearized equations, transfer functions; transient response of d.c. machines; matrix representation of equations, application of a.c. series motor Analysis of non-linear relationships, d.c. series motor.

The synchronous machine: construction, emf equation, synchronous machines, capability diagrams for both cylindrical and salient forms,Xd and Xq, meaning and measurement. Introduction to transient behaviour, Role of field circuit regulator.

Rotating reactance, meaning and determination.

The single phase induction motor, origin of equivalent circuit, operating characteristics.

The brushless d.c. machine, construction and applications.

**Part C**

**Power electronics**
Theory of power electronics and applications. Partly controlled and fully controlled converters for d.c. motor drives; regenerative braking. Introduction to the frequency inverters and its application: V/F's and AC machine drives.

**References**
EE476 Electronics
Three hours per week for one semester
A fourth year subject in the electrical power and control engineering stream of the degree course in electrical engineering.

Analog electronics
Current sources, DC power amplifiers with resistive load, driver thermal behaviour, Pseudo-dc switching amplifier, smoothing, AC power amplifier, class A behaviour, single ended resistive load, class A and B push pull resistive loads, capacitive and transformer coupling. Non linear behaviour of classical AC power amplifiers, driver non-linearity. Biasing of AC power amplifiers, effects of device variability and heating.

Microprocessor Electronics
Interfacing and I/O programming of 8088/8086 microcomputers. Hardware and software interrupts/Peripheral chips: keyboard scanners, display drivers, UARTs, DMA controllers, disk controllers. Bus Timing. Testing techniques.

Texts/References

EE482 Communications
Four hours per week for one semester
A fourth year subject in the communication and electronics stream of the degree course in electrical engineering.


References
Hatwell, F. Introduction to Data Communications and Computer Networks. 2nd edn, Wokingham, Addison-Wesley, 1988

EE483 Electronics
Four hours per week for one semester
A fourth year subject in the communication and electronics stream of the degree course in electrical engineering.
This subject emphasises the implementation of systems using microprocessors and digital signal processors.
Review of 8086/8088 architecture and programming model. Software interrupts and DOS/BIOS interrupts. Memory interfacing to 8086/8088 including ROM, SRAM and DRAM. Input/output interfacing including polling, interrupts and DMA using 8255 programmable peripheral interface, 8237 DMA controller and 8259 interrupt controller. Serial input/output using 8257 UART.
Non-recursive digital filter design (using the Fourier series method). Recursive digital filter design (using the Bilinear Transform method). Implementation of filter functions with DSP's using high level (C) and low level (assembler) languages. Implementation of A/D and D/A conversion functions.

EE489 Control Systems
Three hours per week for one semester
A fourth-year subject in the degree course in electrical engineering.
State variable method of analysis of continuous and discrete time systems. Multivariable control systems. State models output equation feedback equations and de-coupling.
Programmable logic controllers and their application to control systems.

Texts/References

EE502 Management Practice
Three hours per week for one semester
A final year core subject of the degree course in electrical engineering.
This subject introduces measurement of performance; introduction to marketing functions, sales, market segmentation etc. Innovation and entrepreneurial aspects. Theories and Practice: Modern theories of management and current practices, e.g., Total Quality Management, Value Adding Management, Just-in-Time.
Supervision and leadership; practical industrial relations; negotiating; 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.
A problem solving methodology using a systems approach.
Payment Systems: Industrial awards, payment systems, incentive schemes, job evaluation, wage and salary structures. Management development and personnel appraisals.
Legal: Australian legal systems, commercial law regarding employer liabilities; contract law; sale of goods; common law, criminal law and torts as they affect manufacturers; negligence defences; industrial property (patents etc.); principal and agent; company law; workers compensation insurance. The need to seek expert legal advice on many matters will be stressed.
Project management: Planning, resourcing, implementation, reviewing and case studies.

Texts/References
EE544 Electronic Communication Systems

Three hours per week for one semester

A final year subject in the communications and electronics stream of the degree course in electrical engineering.

Topics in this subject include:
- Mobile communication systems
- Network management and control
- Digital signal processing applications
- Satellite communications
- Radar
- Integrated circuit design
- Image and speed processing.

References

To be advised by lecturers.

EE545 Electronics

Four hours per week for one semester

A final year subject in the communications and electronics stream of the degree course in electrical engineering.

Applications specific design techniques and use of tools for synthesis and verification of digital and analog systems. Switched capacitor filters — theory, synthesis and applications. DSP applications in communication systems.

Text/References


EE548 Communications

Six hours per week for one semester

A final year subject in the communication and electronics stream of the degree course in electrical engineering.


Text/References

International Teletraffic Congress papers.

EE556 Project

A final year subject to be undertaken by all fifth year students, for one semester, in the degree course in electrical engineering. Each student will be required to nominate a project topic and to negotiate an acceptable specification for the work with a member of staff who shall be the supervisor of the project. The topic for the project may either be selected from a list of suitable topics proposed by staff members, or be nominated by the student, provided that a staff member is prepared to supervise the topic. It is expected that the majority of students will continue with the topic chosen in fourth year.

EE559 Electrical Machine Drives

Five hours per week for one semester

A final year subject in the electrical power and control engineering stream of the degree course in electrical engineering.


References


EE561 Computer Systems Engineering

Six hours per week for one semester

A fifth-year subject in the computer systems engineering stream of the degree course in electrical engineering.

Unit 1: Real-time Systems
Unit 2: Advanced Computer Architecture
Unit 3: Performance Modelling of Distributed Systems

References


EE562 Computer Electronics

Four hours per week for one semester

A fifth-year subject in the computer systems engineering stream of the degree course in electrical engineering.

Techniques for high speed digital system design; noise behaviour, grounding, line driving and receiving, line reflections. Application specific integrated circuits (ASICs): CMOS and NMOS circuit characterisation and performance estimation; structured design and design tools; system design. Field programmable devices including gate arrays and logic arrays.

References


IEEE Design and Test of Computers (a journal)
IEEE Transactions on Computer Aided Design of Integrated Circuits and Systems

EE563 Advanced Computer Techniques

Three hours per week for one semester

A fifth-year subject in the computer systems engineering stream of the degree course in electrical engineering.

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.

Text/References

IEEE and ACM transactions and magazines.

Other references as advised by unit lecturers.
EE576 Electronics
Three hours per week for one semester
A final-year subject in the electrical power and control engineering stream of the degree course in electrical engineering.

Part A: Microcontrollers.
The application of single chip microcontrollers to Electrical Engineering. A/D and D/A conversion. Data communications and interfacing.

Part B: Power Electronics

References
Williams, B.W. Power Electronics. N.Y.: MacMillan, 1987

EE597 Electrical Power Systems
Five hours per week for one semester
A final year subject in the electrical power and control engineering stream of the degree course in electrical engineering.


EE598 Control Systems
Eight hours per week for one half semester
A first year subject in the control systems engineering stream of the degree course in electrical engineering.


State variable feedback and design of continuous and discrete time multivariable control systems to meet a set of specifications. Advanced topics of adaptive control and optimisation.

References
Chase, F. Diagram Sets in Process Control and Computer Interfacing. 1989

EE641 Fundamentals of Computing
Eight hours per week for one half semester
A first year subject in the graduate diploma in computer systems engineering.

Brief history of computing.

Introduction to computer systems including 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, subrange types, arrays, procedures, functions, variable and value parameters, predefined functions, identifier scope, enumerated types, sets, records, with statements, text input and output.

Elementary input/output interfacing techniques using Pascal.

References

EE642 Data Structures
Eight hours per week for one half semester
A first year subject in the graduate diploma in computer systems engineering.

Data structures: Pascal pointer types, lists, stacks, queues, trees, directed and undirected graphs and algorithms for the manipulation of these structures. File types and organization. Commercial data bases.

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 hypothetical register computer with several registers and a two-address instruction format from a language's syntax using assembly language as an example. The assembly process, the fetch decode and execution process for simple instructions, and the arithmetic representation of data types. Integer and floating point numbers.

References

EE643 Computer Systems Software
Eight hours per week for one half semester
A first year subject in the graduate diploma in computer systems engineering.

Brief introduction to ‘C’ as a mapping from Pascal.

Introduction to software engineering including software life cycle and the design process using appropriate graphical representations.

Computer organisation including representative microprocessor architectures and in particular the Motorola M68000 family, bus organisation, line driving and receiving, memory interfacing including address decoding, memory read/write cycles, timing diagrams, input/output interfacing, exception handling including asynchronous input/output (interrupt driven, polled); the Intel 8086 architecture will be briefly compared with the Motorola architecture. Programming issues in computer organisation studies will emphasise the use of high-level language as a first choice. Introduction of techniques for identification and selective optimisation of time-critical program regions.

Introduction to multi-process and time-shared operating systems including basic concepts of scheduling and resource allocation.

References
Wexelz, H.S. Microcomputer Interfacing. Reading, Mass.: Addison-Wesley, 1989

References cont. overleaf
EE644 Computer Systems Design
Eight hours per week for one half semester
A first year subject in the graduate diploma in computer systems engineering.
A directed team based design project exercising the skills developed in other first year graduate diploma subjects.

References
- Stone, H.S. Microcomputer Interfacing. Reading, Mass.: Addison-Wesley, 1982

EE741 Computer Systems and Software Engineering
Eight hours per week for one half semester
A second year subject in the graduate diploma in computer systems engineering.
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.

References
- IEEE Software (Journal)
- IEEE Transactions on Software Engineering (Journal)
- IEEE Computers (Journal)
- IEEE Transactions on Computers

EE742 Computer Communications and Control
Eight hours per week for one half semester
A second year subject in the graduate diploma in computer systems engineering.
Introduces students to the basic concepts and techniques of data communications, computer networks and layered protocols.
Review of basic concepts used in data transmission: Modulation/multiplexing/codes/decoders.
Data transmission: Media, impairments, intersymbol interference.
Coding and framing: PCM, source coding, sync. and asynch. transmission, error checking and control, interfaces, computer transmission, UART.

References
- ACM Transactions on Computer Architecture
- IEEE Transactions on Parallel and Distributed Systems

References
- ACM Transactions on Computer Architecture
- IEEE Transactions on Parallel and Distributed Systems

EF199 Engineering Graphics and Communications
Four hours per week for two semesters
A first-year subject for all degree courses in engineering which provides an introduction to the methods of communication used by professional engineers.
Students will experience presentation of projects and ideas based on environmental issues and the engineering workplace, and the use of engineering drawing and graphics to communicate and understand design concepts.
EF611  Management Fundamentals
Four hours per week for one semester
A first year compulsory subject in the graduate diploma in management.
An introductory study of industrial development and the growth of managerial functions leading to an understanding of the complexities of managing an enterprise in the business world today. The importance of innovation and entrepreneurship is stressed.
As with other core subjects within the course, the study will integrate key elements — financial, human and organisational and legal — of management.
It includes a general introduction to classical management theory, to fundamentals of business finance, to human and organisational aspects of management and to fundamental legal concepts of organisation.

EF612  Engineering Management
Two hours per week for two semesters
A first year elective subject in the graduate diploma in management.
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 introductory subject addressing 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 costing, plant procurement, operation, reliability maintenance, update and disposal. 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

EF613  Industrial Engineering
Two hours per week for two semesters
A first year elective subject in the graduate diploma in management.
An introductory subject addressing the elements of management germane to production and manufacturing management. Techniques addressing various issues including: financial analysis, decision-making, inventory, quality, forecasting are considered and computer software used in related case studies. Modern approaches to management such as MRPII, 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.
The core of this subject will be business 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.
This subject is designed to build upon the work of the introductory subject and to 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, role theory, leadership, intergroup competition, interpersonal communication, perception, thinking processes and memory, Business politics.
Human Resources Management: recruitment, selection and training, Aptitude testing, Management development and personnel appraisal systems, Wage and Salary structures, benefits and financial reward schemes.
Performance factors: motivation, job satisfaction, morale, management of conflict, organisation structures and their effects on behaviour, effecting change in the organisation.
Industrial Relations: practical industrial relations for supervisors and Managers.

EF621  Financial and Legal Aspects
Three hours per week for one semester
A compulsory subject in the graduate diploma in management.
This subject is designed to build upon the work of the introductory subject. 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.
This subject addresses wider issues associated with effective engineering management. Considerations include: executive interfaces; equipment acquisition and procurement strategies; integrated logistics support management; configuration management; maintenance strategies; productivity and performance measurement.

EF623  Marketing
Three hours per week for one semester
A compulsory subject in the graduate diploma in management.
The subject will explore general concepts of marketing and its key place in business strategy.
Marketing function: sales market development, product development, market research, advertising, etc.
Marketing Practice: environment, types of market, segmentation and targeting. Buyer behaviour, market measurement and forecasting.
Marketing planning, Competitive strategies; product life-cycle, new product development. Price decisions, marketing channels, distribution, sales force, advertising and promotion.

Textbook

Faculty of Engineering
EF624  Management Practice
Three hours per week for two semesters
A compulsory subject in the graduate diploma in management for part-time students only.
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 planning and decision making, management structure and organisation; leadership, managerial effectiveness and motivation; financial control. The importance of entrepreneurial aspects of business, innovation and time management are emphasised. Extensive use is made of case studies.

EF625  Computing — Business Applications and Systems
Two hours per week for one semester
An elective subject in the graduate diploma in management.
Decision support packages — mathematical tools relevant to management and some packages relevant to the manufacturing process will be considered.

EF626  Computing — Engineering Applications and Systems
Two hours per week for one semester
An elective subject in the graduate diploma in management.
The subject seeks to extend the student's knowledge of engineering oriented applications packages, their relevant interactions, and their applications. It also aims to extend the student's programming skills.
In particular it addresses: high level languages, data structures and applications, project engineering and maintenance packages, design with computers, systems simulation with computers.

EF629  Sales Management
Two hours per week for one semester
An elective subject in the graduate diploma in management.
The Sales function: relationships with advertising, sales, promotion, just planning, market research and distribution, feed back from market.

EF630  Manufacturing Management
Two hours per week for one semester
An elective subject in the graduate diploma in management.
This subject will review integrated manufacturing systems and the management/management function: production, production planning and control, maintenance, quality control, etc.

EF631  Physical Distribution Management
Two hours per week for one semester
An elective subject in the graduate diploma in management.
This subject will review integrated manufacturing systems and the management/management function: production, production planning and control, maintenance, quality control, etc.

EF632  Corporate Communications
Two hours per week for one semester
An elective subject in the graduate diploma in management.

EF633  Energy Management
Two hours per week for one semester
An elective subject in the graduate diploma in management.

EF634  Civil Engineering Management
Two hours per week for one semester
An elective subject in the graduate diploma in management.

EF635  Construction Technology
Two hours per week for one semester
An elective subject in the graduate diploma in management.

EF641  Management Practice
Six hours per week for one semester
A compulsory subject in the graduate diploma in management for full time students only.

EF624  Management Practice
The relationship between manufacturing and other organisational functions in the company and the application of analytical techniques relevant to production and related functions such as market forecasting, scheduling, materials requirement planning will be covered.

EF631  Physical Distribution Management
An elective subject in the graduate diploma in management.
Topics relating to the design and management of the physical distribution of products from the point of manufacture to the point of sale. Organisation of the physical distribution function, warehousing and storage systems, transportation.
Financial, human and organisational management aspects are covered.

EF632  Corporate Communications
An elective subject in the graduate diploma in management.

EF633  Energy Management
An elective subject in the graduate diploma in management.

EF634  Civil Engineering Management
An elective subject in the graduate diploma in management.

EF635  Construction Technology
An elective subject in the graduate diploma in management.

EF641  Management Practice
A compulsory subject in the graduate diploma in management for full time students only.

The selling process: prospecting, presentations, handling objections, closing, follow up. Buyer behaviour and motivation.

Textbook

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EF700  The Business Plan

Three hours per week over two semesters

A subject in the second year of the graduate diploma in entrepreneurship & innovation and first year of the master of enterprise innovation.

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.

Textbooks

EF710  Entrepreneurship & New Ventures

Three hours per week over two semesters

A subject in the graduate diploma in entrepreneurship & innovation.

This unit aims to provide the student with the ability to: identify the potential risks and problems in a venture, testing and building the entrepreneurial team and planning the operation of a business.

Textbooks

EF711  ‘Product’ Development & Life Cycles

Three hours per week over one semester

A subject in the graduate diploma in entrepreneurship & innovation.

This unit aims to provide the student with the ability to: analyse the competitive advantage; choose a technological strategy for a venture; design and manage product innovations; design and manage process innovations; overcome barriers to technological innovation; direct customer driven innovations; and identify international markets for products.

Textbooks

EF712  Opportunity & Feasibility Analysis

Three hours per week over one semester

A subject in the graduate diploma in entrepreneurship & innovation.

This unit aims to provide the student with the ability to: analyse opportunities not only in the current business, but also in new ventures; assess the likelihood of new business creation; and using 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 over one semester

A subject in the second year of the graduate diploma in entrepreneurship & innovation and first year of the master of enterprise innovation.

This unit aims to provide the student with the ability to: develop and improve plans for the marketing 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 profit over the plan 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.

Textbook

EF811  New Venture Financial Planning

Three hours per week over one semester

A subject in the second year of the graduate diploma in entrepreneurship & innovation and first year of the master of enterprise innovation.

This unit aims to provide the student with the ability to: understand the basic financial principal 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).

Textbooks

EF812  Entrepreneurship, Law and Ethics

Three hours per week over one semester

A subject in the second year of the graduate diploma in entrepreneurship & innovation and first year of the master of enterprise innovation.

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 any ethical implications.

EF920  Managing the Growing Business

Fifty-six hours over one semester

A subject in the master of enterprise innovation program.

This unit aims to provide the student with the ability to: identify the stages of business growth; the problems and opportunities to be managed; recognise the increasing complexities of the entrepreneur, 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
Dave, 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 program.

This unit aims to provide the graduate 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;
- marketing: analysing the venture: initial public offering; partner-investor relations: takeovers; bankruptcy.

References
Davie, R.S. and Stamm, W.J. Australian Case Studies. 1990

Textbook

EF922 Entrepreneurial Project I
Sixty hours over two semesters

A subject in the master of enterprise innovation program.

This unit is undertaken with teams developing 'real time' start-up of a new business. This project will require a very substantial time commitment outside the formal class contact time indicated.

References

EF930 Innovation and New Ventures
Fifty-six hours over one semester

A subject in the master of enterprise innovation program.

This unit aims to provide the student with the ability to: understand the concepts of innovation and invention; differentiate between product and process innovation; categorise user, manufacturer or supplier initiated 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 to understand leadership types and management practices appropriate to supporting innovation in new ventures.

Textbook

EF931 Entrepreneurship in Corporations
Fifty-six hours over one semester

A subject in the master of enterprise innovation program.

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'; and the importance of design in an organisation and its effect on the organic design of a formal organisation.

Textbook

EF932 Entrepreneurial Project II
Fifty-six hours over one semester

A subject in the master of enterprise innovation program.

This unit is undertaken with 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 first-year subject in the diploma course 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

Fluid flow: introduction to incompressible flow in ducts and pipes, Bernoulli equation.

Ergonomics: effect of features of building services on human performance and special arrangements for technically handicapped, system effects of various services, noise protection.

Fire protection: human behaviour in fires, cause of fires and the ways fires develop. Design for fire protection. The roles of building surveyor, engineer, architect, builder and legislative authority. Fire detectors, monitors, controls, alarms, sprinkler systems.

Electrical services: basic principles of electrical circuits and devices including generators, transformers, transmission and distribution systems. Single and three-phase circuits. Motor types, construction and characteristics. Power and reactive volt-ampers.

References
Hughes, E. Electrical Technology. 5th edn. London: Longman, 1977
Relevant Australian and Victorian Standards and Codes.

ME269 Building Services
Three hours per week for first semester and two hours per week for second semester

A second-year subject in the diploma course in building surveying, intended to extend students' understanding of the services relevant to building.

Air-conditioning: basic principles of human comfort requirements and of equipment used to achieve these. Thermal equipment and human loads. Insulation. Smoke control, AS1660.4. Speciality services: including reticulated compressed air, vacuum lines, stand-by generating sets, fuel services, garbage disposal, security. Provisions for controls, adjustments, inspections and maintenance.


References
Relevant Australian and Victorian Standards and Codes.
ME621 Air-conditioning

Four hours per week for two semesters
A subject in the graduate diploma in air-conditioning.
Humidifying by steam and water.
Contaminants. Filtration and masking. Minimum fresh and total air for various situations. AS1668 Pt. 2.
Cooling load estimation. Introduction to computer methods (CAMEL, TEMPER, BUNYIP etc.). Internal heat gains. External heat gains. Direct solar gain, fenestration, shading, coefficients, shade effects. Unsteady state conduction in building perimeters, sol-air temperature, lag and attenuation as a function of zone aspect and construction, cooling load characteristics for continuous and intermittent plant operation, instantaneous heat gain, instantaneous cooling load.
Domestic installations.
Boilers and heat generation: revise fundamentals, package boiler units. Ruesgas analysis, regulations regarding boilers and atmospheric pollution.

References
American Society of Heating, Refrigerating and Air Conditioning Engineers. ASHRAE Handbooks — Fundamentals, Systems, Applications and Equipment Volumes. Atlanta, GA, USA: Published by this Society.

ME622 Refrigeration

Three hours per week for two semesters
A subject in the graduate diploma course in air-conditioning.
The vapour compression cycle. P-h diagram.
Properties of and selection criteria for primary and secondary refrigerants.
The chlorine-ozone reaction.
Positive displacement compressors. Descriptive treatment of construction of rotary vane, screw and reciprocating compressors. Classification according to duty.
Reciprocating-compressor clearance and actual volumetric efficiency.
Volumetric and isentropic efficiencies of all types. Effect of internal leakage on discharge temperature and efficiency.
Multipurpose systems. Flash intercoolers, staged compression and multiple evaporators. Regenerative cycles.
Evaporators and condensers. Types and applications. Heat transfer in finned coils and shell and tube exchanges.
Circuit piping layout and sizing. Pipe insulation. Filter dryers.
Liquid-suction line exchangers.
Absorption cycle. Properties of binary mixtures. Analysis of component operation and characteristics of the system.

References
American Society of Heating, Refrigerating and Air Conditioning Engineers. ASHRAE Handbooks — Fundamentals, Systems, Applications and Equipment Volumes. Atlanta, GA, USA: Published by this Society.
ME652 Occurrence Analysis

A subject in the graduate diploma course in risk management.

One hour per week for one semester

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

A subject in the graduate diploma in risk management.

Assessment by assignment

Insurance: Brief history and concepts of insurance. Principles of insurance: contents, claims estimates, premium determination, types of premiums (fixed, burning cost) re-insurance, the role of brokers. Liability insurance (product, public, employer and employee), contract types and administration. Professional indemnity: contract types and administration. Breakdown 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).

Risk control decision-making: models and principles. Systematic risk control and risk management systems, organisational national structure for risk management, crises management, assessment of organisation lethality ("MRT").

Risk management practices and case studies.

References


ME661 Risk Engineering

Two hours per week for one semester

A subject in the graduate diploma course in risk management.

Assessment by assignment

Risk Engineering:

Three hours per week for one semester including lectures, tutorials and workshops

A subject in the graduate diploma in risk management.

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:

— avoidance — control of ignition sources, damaging energy sources;

— design for control (particularly for fire);

— automatic detection and suppression systems; uses and applications;

— design for control by limiting loss potential — 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 Management Maintenance

Two hours per week for one semester

Assessment by assignment

A subject in the graduate diploma courses in risk management and maintenance engineering.

Maintenance function: relationship of maintenance within and to the organisation.

Terotechnology: 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.

Assessment by assignment

Risk 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 role and use of flow 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, reinsurance, self insurance, limits of cover, perils, business interruption, construction exclusions. Role of parties, insured, agent or broker, insurer and reinsurer; government.


Terotechnology: life cycle costing including the cost of risk.
ME722 Refrigeration

Three hours per week for one semester

A subject in the graduate diploma course in air-conditioning.

Vapour compression cycle.

Centrifugal compressors. Isentropic and actual operation.

Pressure coefficient and isentropic efficiency. Dimensions speed, flow and power.

Stability limit. Impeller proportions.

Condenser characteristics. Cooling capacity as a function of evaporating and condensing temperature, cooling fluid flow rate and entry temperature. Condensing unit characteristics.

Evaporator characteristics. Cooling capacity as a function of evaporating and condensing temperatures, cooled fluid flow rate and entry temperature and the refrigerant suction condition.

System performance. Effect on performance of changing one or more variables. Evaporator starving, heat exchanger fouling.

System operation with restrictor tubes.

Capacity control applied to all types of compressors. Hot gas by-pass. Analysis of thermal storage and storage mediums.

Time dependant considerations. Heat sources and sinks.


Some aspects of solar boosted and driven heat pumps.

References

American Society of Heating, Refrigerating and Air Conditioning Engineers. ASHRAEHandbooks (Fundamentals, Systems, Applications and Equipment Volumes). Atlanta, GA, USA. Published by this Society


Savage, C.J. and Small, J.R. Introduction to Managerial Economics.

Faculty of Engineering

ME729 Fluid Mechanics

Three hours per week for one semester

Assessment: Practical work and examinations

A subject in the graduate diploma course in chemical engineering. Aim: To provide a knowledge of fluid mechanics adequate for the graduate entering the process industry.

Kinematic equation. Bernoulli equation. Its application to Pitot tube, orifice and Venturi, and weir plates.

Momentum and the momentum equation. Viscosity, its measurement and use. Criteria of similarity: dimensional analysis and its application to the derivation of the Stanton (Moody) chart. Equivalent length and diameter. Stanton and von Karman charts. The Hagen-Poiseuille equation.

Operation 1 characteristics of centrifugal pumps and fans. Means of output rate. The virtual head equation 1 dimensional groups relating pump head, throughput, power consumption and efficiency with impeller diameter and speed. Specific speed; cavitation and NPSH; relationships between frictional head loss in pipework and head development of pump or fan.

Application of the above concepts to the solution of problems.

Positive displacement pumps and blowers: valves — gate, globe, diaphragm, pinch, ball etc.

Textbook

ME731 Instrumentation and System Control  
Three hours per week for one semester  
A subject in the graduate diploma course in air-conditioning.  
General concepts. Overview of instrumentation in monitoring, control and experimental analysis.  
Functional concepts. Functional elements of instruments and system control loops.  
Interrelation of Plant and control systems, and interpretation of schematic control drawings.  
Control devices and controllers. Broad understanding of pneumatic, electric and electronic control systems, relative merits, overview of controller types and a practical understanding of system control.  
DDC, Building automation and Monitoring.  
System studies. Linking of the above elements into control systems for air-conditioning, refrigeration and heating and fire services.  
Application of control systems within overall energy, management strategies — link with ME781.  
**References**  

ME742 Health and Hygiene  
Four hours per week for one semester  
Assessment: By assignment alone  
A subject in the graduate diploma course in risk management.  
**Aim:** To provide a working knowledge of types of hazards encountered in the workplace and means of overcoming these.  
Toxicology: routes of entry, dose-response relationships. Particular chemical hazards and their effects: solvents, dusts, welding fumes, heavy metals. Respiratory protection (dusts, mists and vapours); types of equipment effectiveness in use. Ventilation system design practices. Noise and vibration: effects on human beings. Thermal condition: Thermoregulatory mechanisms, effects on high and low temperatures on humans. Radiation (ionising and non-ionising): uses and applications. Biological hazards e.g. legionnaire’s disease. AIDS — principles and controls. Stress (physical, psychological and social stresses and stress effects) in the workplace.  
**References**  

ME743 Health and Safety Practices and Technology  
One hour per week for one semester  
A subject in the graduate diploma course in risk management.  
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 (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 course in risk management.  
**Risk assessment methods, models and control strategies.**  
**Risk assessment methods — how to use them.**  
Fault tree analysis.  
Threat and Vulnerability Assessments.  
Hazop and Hazan.  
Flow charting and criticality analysis.  
Use of historical databases.  
Use of insurance criteria.  
**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 course in risk management.  
**Particular skills, hardware and codes with applications to specific hazards.**  
Fire: fire-detection, heat detection, smoke detection. Extinguishing systems; water, CO₂, dry chemical, foam and Halon. Australia and US standards.  
Water sprinklers and hydrants, pumps and tanks. Australian and US standards.  
Explosion: detection and suppression for dusts, boilers and pressure vessels, gas trains.  
Flammable substances: handling and storage.  
Other perils.  
**References**  
Factory Mutual System. Various data sheets.

ME765 Risk Engineering (H&S)  
Three hours per week for one semester.  
Assessment by assignment  
A subject in the graduate diploma course in risk management.  
Engineering risk control for internal and external energy sources. Application of event analysis techniques to typical machines or processes. Principles and practices of priority setting and work scheduling for risk control tasks. Machinery safeguarding design.  
**References**  
ME774 Maintenance Practices and Technology
Two hours per week for two semesters
A subject in the graduate diploma course in risk management and maintenance engineering.

References
Collaot, T. Mechanical Fault Diagnosis & Condition Monitoring. London: Chapman Hall, 1977

ME776 Maintenance Engineering Science
Three hours per week for one semester
Assessment by assignment
A subject in the graduate diploma courses in risk management and maintenance engineering.

References

ME777 Maintenance Management
Two hours per week for two semesters
Assessment by assignment
A subject in the graduate diploma courses in risk management and maintenance engineering.
Strategies for systems operations and support; Maintenance strategies: emergency, corrective, preventive, RAM-D engineering, fundamental concepts & applications. Maintenance operations: selection of maintenance strategies based on management decisions, management, planning, system planning, and system inventories. Maintenance records: reporting, maintenance records, plant records.

References

ME780 Major Project
Forty-five hours over two semesters
Assessment by project, report and seminar.
A subject in the graduate diploma course in risk management.
Use of library, definition of computer search keywords, sources of data (databases). Research and project methods and discipline. Execution 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 course in air-conditioning.
Project management: Contract law, scheduling, costing, optimisation, maintenance program development.
Energy management: Including energy source selection, energy management, life cycle costing, system optimisation, basics of contracting and project management, and current state of the art applications where applicable.

Field Project: The project should be of a practical nature linking the course to air-conditioning, refrigeration and air conditioning control and involve the application of project and energy management techniques. Where practicable the project should be undertaken by groups and group size should not exceed 4.

References

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 course.

Textbooks

MM120 Engineering Science — Energy and Processes
Two semester subject comprising 7 hours per week of lectures, tutorials and laboratory work.
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.
Physics: Kinetic theory of gases; Linear Dynamics; Rotational Dynamics; SHM and Wave Motion; Fluid Mechanics.
**MM209 Engineering Practices**

A second year subject in the degree course in mechanical engineering. This subject provides students with an introduction to current engineering trade practices and the development of personal elementary ‘hands on’ skills in these trades.

**Students will attend for one week block of full time Engineering Practices, as one non-teaching week, prior to the start of semester 2.** The program will operate for 4.5 days per week and will permit students to complete the three trades within the week. Groups will be arranged to suit the current institute calendar.

The syllabus comprises 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**

2 hours per week for two semesters

Assessment: exam, practical work, assignments

Brief history of the development of the chemical industry. Fossil fuel and petroleum industry and their application in the chemical processing industries. History of the chemical industry and its development up to the present day. The chemical industry and its role in the chemical processing industries.

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**


**MM211 Introduction to Chemical Engineering**

2 hours per week for two semesters

Assessment: exams, assignments

Chemical engineering thermodynamics: Physical equilibrium, bubble and dew point relations, phase diagrams, activity and activity coefficients, Gibbs-Duhem equation, chemical reaction equilibria, heats of reaction and mixing.

**Basic Design Techniques**

Mass and energy balance calculations, flow-sheets; stoichiometry calculations involving bypass, recycle and purge; combustion and heat engine calculations.

**Textbooks**


**MM220 Energy Systems**

Four hours per week over first semester

This subject is a second year 1st semester subject of mechanical and 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).


**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, hydrostatic 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.

**MM221 Energy Systems**

Three hours per week over second semester

This subject is for all degree students in mechanical engineering.

This subject comprises:

1. Thermodynamics two hours per week.
2. Fluid mechanics one hour per week.

**Thermodynamics**

Rankine cycle with reheat and feed water heating. Turbine isentropic efficiency.

**Reciprocating gas compressors**

Introduce to power cycles including Carnot, Otto, Diesel, Rankine, Joule, Stirling.

**Fluid Mechanics**

Viscous fluid flow in pipes and ducts: Head loss due to friction; other head losses; friction factor for laminar and turbulent steady incompressible flow.

**References**


**Textbooks**

**Physics**


**Energy Systems**


**Chemistry**


**Materials and Processes**


**MM209 Engineering Practices**

(36 hours)

A second year subject in the degree course in mechanical engineering. This subject provides students with an introduction to current engineering trade practices and the development of personal elementary ‘hands on’ skills in these trades. Students will attend for one week block of full time Engineering Practices, as one non-teaching week, prior to the start of semester 2. The program will operate for 4.5 days per week and will permit students to complete the three trades within the week. Groups will be arranged to suit the current institute 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)**
MM230 Engineering Materials

Two hours per week for 2 semesters

This subject is a second year subject of mechanical and manufacturing engineering degree courses.

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 technology
- Material property data bases.

References

MM240 Electronics and Measurement Systems

Two hours per week over two semesters

This subject is taken in two parts: electronics and instrumentation and measurement systems, both of which run for two hours per week for one semester, and is common for all engineering 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; introduction to microcomputers; simplified microcomputer operation.
- Linear amplifiers — introduction to C/TJ amplifiers; characteristics of amplifiers; consideration of functions of components of simple single transistor amplifiers; input/output resistances; multistage amplifiers; bandwidth product; simple Bode plots; operation amplifiers.
- Transducers — active and passive transducers; thermocouple, Piezoelectric, piezoelectric, optical, resistive, capacitive, inductive.

References

Instrumentation and Measurement systems

Principles and role of sensors for the measurement of displacement, time, velocity, force, pressure, flow-rate, density and temperature.

Transducing elements for conversion among mechanical, thermal and electrical quantities, including examples of electro-mechanical, capacitance, piezoelectric, resistance, inductance, and thermo-electric transducers.

Analysis of the static and dynamic performance of electro-mechanical transducers, input-output characteristics of transducer; compatibility of transducers, amplifiers, measuring circuits and recorders in measuring systems.

Applications of digital measurement techniques, digital type transducers, digital to analogue and analogue to digital conversions, data transfer and communications between micro-computers.

References

MM241 Applied Mechanics

Four hours per week for one semester

A common course in the mechanics of materials and machines for all degree students in the school of manufacturing and mechanical engineering.

Mechanics of Materials

Statically determinate systems: tension and compression including thermal effects. Beam bending: review and extension of bending of beams and transverse shear stresses. Torsion: torsion and shear of circular cross sections. Analysis of Stress and Strain: stresses in cylindrical and spherical thin walled pressure vessels, stress at a point, plane stress, Mohr's Circle, principal stresses, maximum shear stress, transformation of axes. Strain at a point, plane strain, Mohr's Circle, principal strains, maximum shear strain, transformation of axes. Stress measurement for strain, strain gauge, rosette, and the 2D linear elastic stress-strain relations. Applications, combined bending and torsion and axial loading.

References

Dynamics of Machines


References
- Molian, S., Mechanism Design. Cambridge University Press, 1982

MM242 Applied Mechanics

Three hours per week for two semesters

This subject is taken by degree students in the mechanical engineering course offered by the school of manufacturing and mechanical engineering.

Mechanics of Materials

A course of lectures, tutorials and laboratory work which extends the treatment of topics covered in MM241 and includes more advanced topics in the stressing and deformation of machine members.


References

Dynamics of Machines


References listed overleaf.
References

MM250 Engineering Design
Two hours per week for two semesters
This subject is common for all students in the school of mechanical and manufacturing engineering. Lecture and tutorial topics are listed below:
- Introduction to the course; Introduction to design; Design documentation; Standards and specifications; Tolerances in design; Geometry tolerances; Design criteria; Failure theories for statics and dynamics; 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 limit; Shaft design; Shaft design standards; Estimating shaft dimensions; Mechanical drives; Couplings; Clutches and brakes; Electric motors; Introduction to pneumatic and hydraulic systems.

References
Design Standards for Mechanical Engineering Students. Standards Association of Australia

MM260 Ergonomics
Two hours per week over second semester
A second year subject in the degree course in mechanical engineering. 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 to and to establish a broad understanding of ergonomics with an introduction to the identification and assessment of common industrial ergonomic problems. Ergonomics systems concepts: Introduction to ergonomics, applications and scope of ergonomics, ergonomics modelling. Human Body: Functional anatomy: excitable cells, skeletal muscle, vision, hearing, tactile senses, CNS aspects, motor behaviour. Work physiology: limits to work capacity, cardio-respiratory adjustments, thermoregulation and use to stress. Engine psychology: characteristics of human memory; short term, long term, recognition vs recall; forgetting, vigilance and attention concepts applied to monitoring and inspection tasks. Physical environment factors: influence of heat, light, noise, acceleration and vibration on human physical factors; the relationship to anthropometric measures, display and control characteristics interactions between the operator and the machine. Workplace assessment methods, checklists. Work organisation: skills analysis, task analysis, work measurement methods.

References

MM270 Manufacturing Technology and CAD/CAM
Two hours per week for two semesters
This subject is a second year subject in the mechanical and manufacturing engineering degree courses. This subject is comprised of a CAD/CAM section (of 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 semester 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 CAM 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
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 a range of manufacturing technologies. In addition, students are introduced to concepts and techniques associated with engineering and quality in manufacture.

Texts

MM272 Manufacturing Practice
Four hours per week for one semester
Assessment: practical work and assignments
- 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 the students experimental skills;
- To develop the students report writing skills.

MM280 Introduction to Management
2 hours per week for two semesters OR 4 hours per week for one semester
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.

MM312 Unit Operations
Four hours per week for one semester
Assessment: practical work and examination
A third year subject in the degree course in manufacturing engineering. 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 course in manufacturing engineering.

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.


Prediction of heat transfer coefficients by the mechanisms of natural and forced convection, boundary layer laminar and turbulent, film and dropwise condensation, NTU and E-NUT methods to determine temperature driving forces.

Thermodynamics 1.5 hours/week for one semester.

Fluid mechanics 1.5 hours/week for one semester.

Fluid Mechanics:
Dimensional analysis and similarity. Methods of dimensional analysis; Boiling and condensation. Types of heat exchangers, NTU, effective equations for stoichiometric, rich and lean mixtures. Solid, liquid and gas fuels, exhaust and flue gas analysis. Enthalpy of formation and parallel arrangements. Rotodynamic machinery; Classification and system matching.

References

MM320  Energy Systems

Four hours per week

A third year subject in the degree course in mechanical engineering.

This subject comprises:
Thermodynamics 2.5 hours/week for one semester.

Fluid mechanics 1.5 hours/week for one semester.


Rotation Dynamics: Classification and System Matching.

Fluid Mechanics:

References

MM330  Advanced Materials

One hour per week for one semester
Assessment: Practical and Assignments

A third year subject in the degree course in manufacturing engineering.

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.

Lamine composite analysis, examples of laminate analysis using computer packages.

Surface Engineering:
Nature of wear, quantitative description of wear, testing and evaluation for wear resistance.

Review of industrial coating for modification of surfaces by infusion and surface treatment, properties and applications resulting from:
- Transformation Hardening
- Electrochemical Techniques
- Thermalal Techniques
- Physical and Chemical Deposition

Selection of surface modification techniques. Development of expert systems.

References


Tsai, S.W. Composites Design. 4th edn, Dayton, Ohio: Think Composites, 1988


Richardson, D.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 1 laboratory
A third-year subject in the degree course in manufacturing engineering.

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 response of 1, 2, and multidegree of freedom discrete linear systems (with and without damping) to free, transient and steady state harmonic forcing.

Textbook

References
Bishop, R.E.D. Vibration. 2nd edn. Cambridge: Cambridge Univ. Press, 1979

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
A course that concentrates on structural analysis, buckling instability and complex bending.


References

MM341b Mechanics of Machines
Two hours per week for one semester
A basic course in vibrations covering the response of 1, 2, and multidegree of freedom discrete linear systems (with and without damping) to free, transient and steady state harmonic forcing.


Textbook

References
Longmans Scientific & Technical, 1987

MM341c Control Engineering
Two hours per week for one semester
An introduction to the application of classical methods for the analysis of the dynamic performance of linear systems.


References
Drausill, P.S. Systems and Control. Part 1 and 2, Monash University, 1988

MM350 Design for Production
Four hours per week for one semester
Assessment by examination, assignments and project work

A third-year subject in the degree course in manufacturing engineering.


Design of Dieses for Sheetmetal Work: Blankings, bending, deep drawing dieses design.


Textbook

References

American Society of Tool and Manufacturing Engineers (ASTME),
MM351 Design for Industry

Four hours per week for one semester

A third year subject in the degree course in mechanical engineering. This subject is designed to develop students in design aspects of conventional 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; Advanced aspects of decision-making strategies within Australian industry. Further consideration of techniques applicable to divergent idea generation and convergent solution selection processes.

Mechanical transmission systems: Hierarchy of useful mechanical power transmission systems for fixed and variable speed ratios. Design of spur and helical gear systems. Force analysis and stresses 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.

Pressure vessel design: Introduction to AS1210 Unfired Pressure Vessels. Design aspects of available materials, vessel features, cylindrical shells, dished ends and quick-actuation closures. Inspection openings and bolted connections with gaskets. Calculations for pressure vessels and submission to local regulatory authorities.

References


MM360 Ergonomics

Three hours per week for one semester

A third year subject in the degree course in mechanical engineering. This subject is a continuation of MM260 and expands on the material introduced in the second year subject.


References


Wickens, C.D. Engineering Psychology and Human Performance. Columbus, Ohio: Merrill, 1984

MM380 Productivity Improvement

Two hours per week for one semester

A third year subject in the degree course in manufacturing engineering. 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


ILO Introduction to Work Study. 3rd rev. edn, I.L.O., 1986


Appropriate papers/references from journals will be given in class. Class discussions will be supported by videos, etc.

MM381 Managerial Economics

Two hours per week for one semester

Assessment: assignments and examinations

A third year subject in the degree course in manufacturing engineering. Economics and Finance

Topics will be drawn from:

— supply and demand, elasticity, pure competition, monopoly and oligopoly
— macro 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 accountingfinance package will be used in teaching the accounting section.

Textbook


References


MM414 Stagewise Processes

5 hours per week for one semester

A fourth year subject in the degree course in manufacturing engineering.

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 packing; bubble cap and sieve trays, weirs and downcomers; flooding, hold-up and pressure drop; selection of optimum column diameter.

The concept of the equilibrium stage as applied to distillation, liquid-liquid extraction, leaching and other mass transfer operations.

Graphical and computer-based design techniques employing this concept: McCabe-Thiele, Sorel, and Ponchon-Savarit methods; batch and continuous operation.

Textbook


Reference

**MM415 Mass Transfer**

4 hours per week for one semester

Assessment: examinations, laboratory work, assignments

A fourth year subject in the degree course in manufacturing engineering.

Mass transfer theory: Fick's law of diffusion; steady state diffusion in single-phase systems; multiphase and transient diffusion; determination of mass transfer coefficients.

Convective mass transfer; mass transfer coefficients; interphase mass transfer; thermodynamic properties; heat and momentum transfer analogies.

**Textbook**


**References**


**MM420 Energy Systems**

Four hours per week

A fourth year subject in the degree course in mechanical engineering.

There are two parts:

Thermodynamics — Two hours per week for one semester.

Fluid Mechanics — Two hours per week for one semester.

Thermodynamics: Radiation, Interchange and geometric factors, network analysis for multi-surface interchanges, Reciprocating IC engines, Normal and abnormal combustion in SI and CI engines, fuel octane and cetane ratings, knock and detonation, Carburettors and fuel injection, Turbo-expanders, Degree of reaction, pressure and velocity compressing, Stage efficiency in terms of blade speed ratio, losses, External characteristics of turbines, swallowing capacity, Isentropic efficiency, Turbine compressors, pressure ratio as a function of speed, Flow instability in radial and axial compressors.

Fluid Mechanics: Rotodynamic machinery - internal characteristics, moment of momentum equation, introduction to flow through vane cascades, cavitation, significant net positive suction head, and total head, pressure and system matching and analysis, Fluid drag, boundary layers and wakes, Flow about submerged bodies, pressure drop, boundary layer, boundary layer equations, 1P of transition, Separation of pressure gradients, skin friction, wake flows.

**References**


**MM440 Mechanics and Machine Systems**

Five hours per week for one semester

A fourth year subject in the degree course in mechanical engineering.

This subject comprises three parts:

**MM440a Mechanics of Materials**

One and a half hours per week

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 in strength of materials.

Topics covered include:

- Thin plates and shells.
- Deformations Symmetrical about an Axis.
- Experimental Stress Analysis — applications of techniques to design.

**References**


**MM440b Vibration and Noise Control**

Two hours per week for one semester

This subject provides basic understanding of acoustic measurements and noise control techniques; and extends the earlier study of 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**


**MM440c Control Engineering**

One and a half hours per week

This subject provides experience in the analysis and design of control systems by classical and state-space methods.

**Topics covered include:**

- Transient response and the root locus method; Root loci and constant gain loci; Construction of root loci.
- Application of the root locus method to the analysis of the transient performance of closed loop systems.
- Frequency response analysis; Polar plots; Nyquist stability criterion.
- Modern control and state space techniques, State variable, state vector, state space and the representation of multiple input/multiple output systems; Solution of the time-invariant state equation.

**References**

Dransfield, P. Systems and Control. Part 1 and 2, Monash University, 1988


**MM441 Control Systems**

Two hours per week for one semester

Assessment: Assignment and examination

A fourth year subject in the degree course in manufacturing engineering.

**Aim:**


**Textbooks**

Dransfield, P, Systems and Control. Part 1 and 2, Monash University, 1988

Ross, G. Computer Programming Examples for Chemical Engineers. Amsterdam: Elsevier, 1987

**References**


**MM450 Design for Manufacture**

Four hours per week for one semester

Assessment: Assignments, project work and examination

A fourth year subject in the degree course in manufacturing engineering.

**Aim:**

The subject as the second part of design for manufacture aims to prepare students with further knowledge of design of tools, machinery and systems for quality production.

Tooling design for metal working: economy and batch quantity, relationship. Tool design for: cold and hot forging, and diecasting.
MM450 Design for Industry

Four hours per week for one semester

A fourth year subject in the degree course in mechanical engineering. This subject is designed to develop students in design aspects of advanced industrial systems and to provide competence in project engineering work ready to do good second industrial placement. Assessment will be by projects and assignments on these topics: Design analysis of thermo-fluid systems: Design characteristics of fluid flow equipment: Pumps and fans, boilers, turbines, Vessels, valves, piping and flanges. Heat exchanger design options, configurations and insulation. System flow sheeting. Design analysis of control systems: Design classification of feedback control systems. Design procedures, trade-off between accuracy and stability. Component modelling and sizing for system design. Design analysis of fractional and integral derivative control systems. Phase compensation. 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 course in mechanical engineering. At the completion of this subject students should be able to demonstrate competence in ergonomic assessment of workplaces. The major assessment for this subject will take the form of an ergonomic design of a workplace.


Human body: Kinesiology: lower body elements, locomotion and gait cycle in walking, running and jogging. Engineering psychology: memory modelling, mental loading, application to task design, attitude survey design and administration. Assessment of physical quantities using psychophysic methodology.

Physical Environmental Factors: Illumination: design criteria, application of lighting standards and codes to various workplace situations. Noise: application of standards, codes and regulations, hearing conservation processes and programs. Acceleration: sources and body elements, impact loading effects, alleviation of dynamic loading.

Human-Environment-Workplace Interface: Workplace requirements for screen based equipment, hand tools, work benches and desks, seating, Strain injury analysis: application to manual material handling, slipping, tripping and falling incidents, design criteria, relevant standards. Occupational overuse injury: types, origins, task design criteria, control measures.

Occupational Health and Safety Issues: Occurrence analysis: application to accidents and mishaps, energy damage model, generalised time since model. Rowe's risk estimation model, application of the models to accident investigations. Safety: health and safety program design, H. and S. management principles, injury claims management.

References
OCCUPATIONAL HEALTH & SAFETY ACT, 1985
Accident Compensation Act. 1985

MM470 Computer Interfacing and Microprocessors

Two hours per week for one semester

Assessment: Project work and examination

A fourth year subject in the degree course in manufacturing engineering.

Aim: To provide students with a sound introduction to basic computer architecture, interfacing and networking principles as they relate to advanced manufacturing technology.


References
Cripps, M. Computer Interfacing — Connection to the Real World. Edward Arnold

MM471 Numerical Engineering

Two hours per week for one semester

Assessment: Tutorial assignments and examination

A fourth year subject in the degree course in manufacturing engineering.

Aim: To develop an understanding of the mathematics of Finite Element Analysis and the application of FEA to engineering problems.


Textbooks
Prenter, P.M. Splines and Variational Methods. 3rd edn. N.Y.: Wiley, 1985
References

Faculty of Engineering
MM472 Manufacturing Technology

Five hours per week for one semester

Assessment: Assignments and tests

A fourth year subject in the degree course in manufacturing engineering.

Mathematically analysis of forming: equilibrium analysis of common working processes, e.g. wire drawing strip drawing extrusion tube drawing. Reinforging. Redundant work, friction and lubrication.

Deformation mechanics: slip line field applied to forming problems — metal flow.


Textbooks


References


Roe, G. Elements of Metalworking Theory. London: Edward Arnold, 1979

MM480 Facilities Planning and Design

Three hours per week for one semester

A fourth year subject in the degree course in manufacturing engineering.

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, will be introduced where they are needed for design of facilities.

Significance and objectives and strategies in 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. Spacing and activity relationship. Layout design, conventional and computer aided approaches. Analytical models used: queuing, location, is, facility design for JIT, WCM.

Textbook


References


Relevant articles and papers from journals.

MM481 Decision Analysis

Two hours per week for one semester

Assessment: Project, assignment and examination

A fourth year subject in the degree course in manufacturing engineering.

Aim: The aim of this subject is to introduce the decision making methodology and techniques available. To emphasise the need for formal approaches and the gain of structured, formal decisions. To examine several areas in manufacturing environments where crucial decisions benefit from the use of these methods.


Presentation of decision results. Multi criteria decisions: Traditional approaches such as Delphic technique reviewed. The analytical hierarchy process, methodology, modelling. Structuring the problem, judgements. Group decisions with AHP, other methods. Sensitivity analysis and presentation of results. Use of a computer package to experiment with AHP.

References


Additional references will be given in class.

MM482 Manufacturing Operations Management

Two hours per week for one semester

Assessment: Assignments, project and exam

A fourth year subject in the degree course in manufacturing engineering.

Aim: The aim is to achieve a thorough understanding of all functions and their relationships in a manufacturing system, how it is planned, operated 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 function and manufacturing; PMS, CAD/CAM ...; scheduling techniques at shop floor level; inventory control policies and models; MRP, MRP II, methodology; introduction to a computer implemented MRP II, hands on experience; requirements for successful MRP implementations.

References


MM483 Engineering Management

Four hours per week for one semester

This subject provides an introduction to fundamental financial and commercial engineering as well as and consideration of organisational environment effects on engineering outcomes. Such studies are to be reinforced by students being required to report on management and organisational aspects related to their work experience.

Topics covered include:

Commercial management; Financial Management; People Management; Project Management.

Textbook


Plus supporting references

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 course in mechanical engineering.

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.

References
MM509 Engineering Mathematics
Two hours per week for one semester
Assessment: Tutorial assignments, practical work and examination

A fifth year subject in the degree course in mechanical engineering. Aim: To round off the student’s knowledge of mathematical methods required by practicing engineers and to place these methods into perspective through a study of different mathematics structures used in the mathematical modelling of engineering systems.

Section A: Mathematical Methods
Numerical Analysis


Complex Variable

References

Section B: Mathematical Modelling
The objective of this section of the subject is to develop the students’ perspective in applying the diverse mathematical tools and techniques that they have learned in their course to real engineering problems. The focus is on the understanding of the optimum use of analytical methods rather than on the techniques of numerical modelling elsewhere.

Introductory lectures will include an overview of mathematical tools and techniques and their use in mathematically modelling an engineering problem. The emphasis will be on understanding the advantages and disadvantages of different mathematical structures in the solution of engineering problems. For example: Which is the “best” mathematical structure for describing the kinematics and dynamics of robot motion? (Robot motion has been modelled in the literature by at least 10 different mathematical systems.)

In the main part of the section students will be assigned a set of engineering problems, each of which may be solved by using a variety of mathematical methods. The objective is for students to survey the collection of mathematical tools they have accumulated and learnt to use over their course, to determine if there is a “best” solution method, to compare the method with those methods applied by other students, and to generalise their findings to help guide future modelling activities. Students will give a seminar presentation of their comparative results.

References
Brind, L. Vector and Tensor Analysis. Wiley, 1947

MM520 Energy Systems
Two hours per week for one semester including lectures, tutorial and laboratory work
Assessment: Laboratory, assignment and examination

Aim: To provide students with an opportunity to pursue a number of advanced areas in energy systems including available energy, properties of steam-air mixtures and solar energy.

The subject deals with available energy, Exergy and energy of heat, internal energy and enthalpy, Exergetic effectiveness of processes.

Properties of steam-air mixtures. The psychrometric chart. Heating, cooling, humidifying and dehumidifying.


Textbooks

MM520c Energy Modelling
Two hours per week for one semester including lectures and tutorials
Assessment: Reports

A fifth year subject in the degree course in mechanical engineering. Aim: This subject aims to introduce students to the application of numerical methods to the solution of engineering problems. Students will gain experience in applying finite difference and finite element techniques to selected problems in thermofluid mechanics where alternative solutions are available from physical measurements or analytical solutions.

Objectives will cover modelling accuracy, degree of difficulty, computing time, economic effectiveness in comparison with alternative solutions and relative accuracy of experimental data.

The program includes: Introduction to available numerical packages for thermofluid 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. MISCIPAL, NASTRAN, FIDAP, INFERNO). Write a report covering both tasks and addressing the above objectives.

References listed overleaf
MM540d Machine Systems and Simulation
Two hours per week for one semester

The syllabus includes advanced application in the analysis, synthesis and design of machines and mechanisms. Topics are selected from:


References
Cameron, A. Basic Lubrication Theory 3rd edn, Chichester: Halstead, 1981

MM551 Engineering Technology
Six hours per week for one semester

A subject in the fifth year of the degree in mechanical engineering. Five 26 hour units are offered: Engineering Ergonomics, Engineering Technologies, Equipment Cycle and Occupational Risk. Students must take three of the five alternatives.

MM551A Engineering Ergonomics
Two hours per week for one semester including lectures and tutorials
Assessment: Assignments

Aim: To provide further studies in topic areas which will enrich the student's knowledge and understanding of ergonomics and design. 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 professional periodicals.

The syllabus covers postural strain and overuse injuries; types, origins, pathology, task design criteria, management strategies for risk control. Overload injuries; types, origins, pathology, task design criteria, management strategies for risk control. System design and developing design strategies for socio-technical systems; physiological and socio factors. Human-computer interaction: Input device characteristics; keyboards, mice, graphic tablets, balls, gloves, voice recognition, touch screens, new techniques; Output; screen displays, voice synthesis, printers, character based screens versus high resolution graphics. Computer control versus user control, causes of user anxiety. Control techniques: windows, menus, buttons, command keys.

References

MM551b Engineering Technologies
Two hours per week for one semester including lectures, workshop and excursions
Assessment: Assignments and project

Aim: To explore aspects of the design process critical to an industry maintaining a competitive edge in a rapidly developing technological society.

MM551c Equipment Life Cycle

Two hours per week for one semester including lectures, workshops and project consultations.

Aim: To introduce students to engineering aspects of equipment life cycle from conception through definition, realisation, integration, commissioning, life usage and ultimate decommissioning and disposal. The syllabus includes: Types of equipment; fixed and mobile equipment acquisition and procurement cycle; major equipment acquisition, minor equipment acquisition, forecasts, budgets and estimates, conception definition and realisation. Design research and development, FMECA and LSA, adaptive design and off-the-shelf design options, Equipment training, testing and demonstration, use requirements, engineering requirements, reliability, maintainability, maintenance and logistic support requirements, trials and demonstration plans and contracting for reliability.

MM551d Occupational Risk

Two hours per week for one semester including lectures and tutorials.

Aim: To provide an exposure to topics in occupational hygiene and associated risk engineering methods for those students interested in Occupational Health and Safety issues. 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 for one of the major Occupational Health and Safety periodicals.

The syllabus covers:
- Occupational hygiene: methods and limitations of sampling and measurement of contaminants, control aspects of occupational hygienists.
- Toxicology: routes of entry, dose-response relationships, threshold limit values and other measures applied to chemicals, noise, vibration and radiation.

Chemical hazards and effects: solvents, dusts, welding fumes, heavy metals, sensitisation, cancer, respiratory, skin and other systemic effects: respiratory protection against dusts, mists and vapours, equipment types, effectiveness and program requirements.
**Risk Modelling**


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, starting from the basic definition of the problem, and following right through to the final managerial report.

**References**


**MM580 Management Practices**

Three hours per week for one semester

Assessment: Examination, assignment and class participation

A fifth year subject in the degree course in mechanical engineering.

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 manufacturing and innovative engineering. It consists of a compulsory core in which the key elements for managing productive and innovative (typically that associated with research and development) environments are studied. Students then select an elective from one of the following:

- Engineering leadership: project management; research and development management; risk management; occupational health and safety management; maintenance informatics management; production management.
- Elements of a productive environment: The working environment; factors contributing to work form, structure, occupational and social relations in production, organisational structure; impact of technology on work, social environment, occupational health and safety. The engineering environment and optimisation of a system of technology and people for maximising the desired engineering outcomes. Applications 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 environments; perspectives of the labour process and factors contributing to the design of j, needs and policies in the recruitment and selection of achievees. 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**


**MM604 Design for Manufacture**

Four hours per week for one semester

Assessment: Assignments, project work and examination

A subject in the graduate diploma in manufacturing technology.

Aim: Design for manufacture aims to provide students with good knowledge of designing tooling, machinery, equipment and systems used for quality production.

Design of tools for metalworking: Cutting tools, high removal tools, single points, multipoint and special form tool design.

Design of diesets for sheetmetal work: Blanking, bending, deep drawing diesets design.

Dies and fixtures design: Locating, clamping and other elements design. Dimensional analysis: calculation of locating errors.


Automation of production: Logic circuits, pneumatic circuits and electropneumatic circuits design. Circuits design with PLCs, hydraulics, introduction to robotics.

Major project: automation of manual tasks. 13 weeks’ duration.

**Textbook**


**References**


**MM605 Design for Manufacture**

Four hours per week for one semester

Assessment: Assignments, project work and examination

A subject in the graduate diploma in manufacturing technology.

Aim: The subject as the second part of design for manufacture aims to prepare students with further knowledge of design of tooling, machinery and systems for quality production.


**References**


**MM606 Manufacturing Technology**

Five hours per week for one semester

Assessment: Assignments and tests

A subject in the graduate diploma in manufacturing technology.

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, recoll, springback, blair, alignment. Deep drawing; planning, force requirements, variables, effects of clearance, cutting with shear, stripping force. Materials selection for press forming; general requirements, mechanical tests, tensile tests, analysis of stress-strain curves and parameters, s and n values, tests to simulate processes, stretch forming tests, deep-drawing tests, bending tests, forming-limit diagrams, applications. Function and
MM607 Manufacturing Technology

Five hours per week for one semester

Assessment: Assignments and tests

A subject in the graduate diploma in manufacturing technology.

Mathematical analysis of forming: equilibrium analysis of common working processes, e.g. wire drawing. Drawing, tube extrusion, tube drawing, forgings. Redundant work, friction and lubrication.

Deformation mechanics: slip line field applied to forming problems — metal flow.


Textbooks


References


MM608 Manufacturing Technology

Five hours per week for one semester

Assessment: Assignments and tests

A subject in the graduate diploma in manufacturing technology.

Automation and automated assembly: CAM, CAD, manufacturing systems. NC robots feeding orientation and placement.


Polymer processing — comparison of techniques of polymer processing. Extrusion, injection moulding, thermforming and blow moulding for the production of particular components. Selection and coating with the optimisation of the use of the materials. Comparison of thermoplastics versus thermoplastic materials using elastomers and examples.

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.

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 conditions and work holding locations.

References


Hong, J.K., and Strasser, W. Advances in Computer Graphics Hardware II. Berlin: Springer-Verlag, 1988

MM615 Manufacturing Automation

Two hours per week for one semester

Assessment: Examination, assignments, and lab reports.

A subject in the graduate diploma in CAD/CAM, graduate diploma in CIM, Master of Engineering CIM and Master of Technology CIM.

Aim: To develop an understanding of aspects of numerical control and its relationships with other advanced manufacturing technologies.

Numerical control — conventional and modern — with a focus on the various aspects of numerical control.

NC programming: Manual and automated programming.

NC part processing: Manual and computerized programming.

Postprocessors: The APT language.

Economics of NC.

Introduction to automated assembly.

Laboratory sessions: NC milling, NC turning, CATIA/NCP, postprocessing, and link.

Textbook

MM616 Manufacturing Automation

Two hours per week for one semester

Assessment: Examination, assignments, and lab reports.

A subject in the graduate diploma in CAD/CAM.

Aim: The subject is intended to provide an understanding of the use of automation and expert systems in manufacturing.

F Lines and K Line balancing: Mechanics, analysis of flow lines, flow line balancing, computer simulation of flow lines.

Flexible automation, robot logic path (PLC), robots in their applications, automated guided vehicles (AGV) Automated warehousing.

Expert and knowledge based systems: Discussion of relevance and characteristics of expert/knowledge based systems.

Laboratory: Practice work relating to programming coordinate measuring 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

Assessment: Assignments and examination

A subject in the graduate diploma in CAD/CAM, graduate diploma in CIM, Master of Engineering CIM and Master of Technology CIM.

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.

Integrated Manufacturing (CIM): Definitions, integration of CIM via common data bases, data base management systems, relationship between FMS and CIM.

Reference

MM618 Introduction to Robotics

Two hours per week for one semester

Assessment: Assignment work/lab reports and examination

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: Machine tending, spray painting, glueing, arc spot welding and assembly.

Technical and financial evaluation of robotic installations.

Organisational effects of “robotisation”.

Robot programming: Walkthrough, leadthrough and offline programming.

References

MM619 NC Project

Four hours per week for one semester

Assessment: Assignments, class participation, final report and presentation

A subject in the graduate diploma in CAD/CAM.

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 CADICAM, graduate diploma in CIM, Master of Engineering CIM and Master of Technology.

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 buffers and signal conversion circuits for interfacing. Students are required to provide a major seminar in conjunction with relevant project work.

Reference
Lupton, M. Computer Interfacing — Connection to the Real World.

MM621 Mathematics

Two hours per week for one semester

A subject in the graduate diploma in CADICAM, graduate diploma in CIM, Master of Engineering CIM and Master of Technology.

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.

 References

MM622 Advanced Computer Techniques

Two hours per week for one semester

A subject in the graduate diploma in CADICAM, graduate diploma in CIM, Master of Engineering CIM and Master of Technology.

Aim: To provide students with the skills necessary to undertake structured program development.

 Structured programming in Turbo PASCAL

 — control structure (sequence, repetition, conditional)

 — 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

A subject in the graduate diploma in CADICAM, graduate diploma in CIM, Master of Engineering CIM and Master of Technology.

Aim: The subject is intended to provide a grounding in the application of computers to the management and control of a manufacturing enterprise. Particular emphasis is placed on practical familiarisation 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

A subject in the graduate diploma in CADICAM, graduate diploma in CIM, Master of Engineering CIM and Master of Technology.

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.

 References
Savitch, W. Turbo Pascal 5.5. Benjamin Cummings, 1990

MM625 Machine Systems

Two hours per week for one semester

A subject in the graduate diploma in CADICAM, 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.

 Drive systems and motors: The servomotor. Analogue and digital transducers: synchro resolver, optical gratings, shaft encoders, inductosyns.

 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

A subject in the graduate diploma in CADICAM, graduate diploma in CIM, Master of Engineering CIM and Master of Technology.

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 listed overleaf
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.

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 management practices leading to needs for flexibility in all aspects. Role of technology and approaches such as MRPII philosophy, just-in-time, OPT are discussed in detail.

References
Schonberger World Class Manufacturing, Free Press, 1985

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 CIM and Master of Technology.

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 stability and dynamic performance; to provide an appreciation of modern adaptive control theory and application.

Introduction to closed loop control and applications in integrated manufacturing. Classical treatment of feedback control is extended to include the analysis of non-linear systems.

Applications include chatter and instability in machine tools and manufacturing processes.

Masters by coursework students are required to complete a research assignment in the area of modern control of multivariable 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/Examination 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.

Data conversion from internal to external representation, Parallel and serial external communications 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
Halsall, F. Data Communication, Computer Networks and OSI. 2nd edn, Wokingham: Addison Wesley, 1988

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.

Aim: To develop an understanding of mathematical and statistical techniques for computer applications. To introduce students to common computer 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/OR, industrial applications.


Multiple Linear Regression: Review of linear regression with one predictor.

Computing

— Introduction to computer organisation
— DOS — command interpreter, windows environment
— End-User Software — spreadsheets, graphics packages

References

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.

Aim: To develop an understanding of software and hardware aspects of CIM systems.

Development of N.C. and robot programming languages: Online and offline programming of N.C. 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: Robos in material handling, automated guided vehicles (AGV) — control and implementation, automated warehousing — description of hardware, integration with other elements of automated material handling system.

Expert and knowledge based systems: Description of elements, knowledge and problem representation in an expert system, use of expert systems ‘shells’ and commercial systems, development of expert systems including prototyping, role of expert systems in machining.

References

Further references will be supplied by lecturer.

MM632 Computer Aided Design

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.

Aim: To introduce theoretical foundations of computer 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

Aims: To introduce advanced topics of CAD and related theory, review various CAD systems and provide hands on experience in advanced 3D geometric modelling system.


References

MM689 Minor Thesis
Sixteen hours per week for one semester
Assessment: Continuous assessment of work and participation/labor 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.

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 on approved problems under staff supervision. External supervisors may also be appointed. Each project will require a literature survey, and a theoretical in instrumentation and measurement systems used in the chemical Kelly, A. Maintenance Planning and Control. London: Butterworths, 1976

References

MM741 Control Engineering
Two hours per week for one semester
Assessment: Assignment and examination

A subject in the graduate diploma in chemical engineering.

Aim: 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.

Aim: To introduce students to engineering aspect of equipment life cycle; from conception through definition, realisation, integration, commissioning, life usage and ultimate decommissioning/disposal.

Types of equipment; fixed and mobile: Equipment acquisition and procurement cycle; design research and development; equipment trialling, testing and demonstration.

Maintenance strategy: Types and approaches, preventive maintenance, condition monitoring, integration and commissioning process.

Maintenance operations; Maintenance planning and control, work planning, resource analysis and allocation, maintenance activities, repair and performance and condition monitoring. Maintenance access and creation of maintenance windows. Measures of maintenance effectiveness.

Configuration: Configuration control and modification. Decommissioning, disposal and system replacement.

Textbooks
To be advised

References
Bryt, W.J. and Masters, P.R. The Australian Manager. 2nd edn, Melbourne: MacMillan, 1982
Dhillon, B.S. and Reiche, H. Reliability and Maintainability Management. N.Y.: Von Nostrand Rheinhold, 1985

Faculty of Engineering

Analysis of the static and dynamic performance of electro-mechanical transducers: compatibility of transducers, amplifiers, measuring circuits and recorders in measuring systems.

Applications of digital measurement techniques, digital type transducers, digital to analogue and analogue to digital conversions, data transfer and communications between micro computers.

References

MM741 Control Engineering
Two hours per week for one semester
Assessment: Assignment and examination

A subject in the graduate diploma in chemical engineering.

Aim: 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.

Aim: To introduce students to engineering aspect of equipment life cycle; from conception through definition, realisation, integration, commissioning, life usage and ultimate decommissioning/disposal.

Types of equipment; fixed and mobile: Equipment acquisition and procurement cycle; design research and development; equipment trialling, testing and demonstration.

Maintenance strategy: Types and approaches, preventive maintenance, condition monitoring, integration and commissioning process.

Maintenance operations; Maintenance planning and control, work planning, resource analysis and allocation, maintenance activities, repair and performance and condition monitoring. Maintenance access and creation of maintenance windows. Measures of maintenance effectiveness.

Configuration: Configuration control and modification. Decommissioning, disposal and system replacement.

Textbooks
To be advised

References
Bryt, W.J. and Masters, P.R. The Australian Manager. 2nd edn, Melbourne: MacMillan, 1982
Dhillon, B.S. and Reiche, H. Reliability and Maintainability Management. N.Y.: Von Nostrand Rheinhold, 1985

Faculty of Engineering
MM756 Chemical Engineering Design
Two hours per week for one semester
Assessment: Examination
A subject in the graduate diploma in chemical engineering.
Aim: To give students a basic understanding of the principles involved in the design of a continuous reactor, and to specifically study the operation of small and batch plant as used in many Australian industries.
Reactor design — a review of chemical reaction kinematics, flow rates, etc.; gas reactor types including batch, tubular and CSTR, temperature and pressure effects on reactor performance. Adiabatic and isothermal operation. Gas and liquid phase reactions. Heterogeneous operations.
Batch processes — unsteady state operation of chemical plant with examples including batch distillation, batch drying, batch filtration, batch reactors and batch-leaching and absorption, solvent extraction, ion exchange, semibatch operation.

Textbooks
Levenspiel, O. Introduction to Reaction Engineering

MM901 Database Technology
Three hours per week for one semester
Assessment: Assignments/examination
A subject in the Master of Engineering CIM.
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.
Database design: modelling reality, data dictionaries, entity relationship, 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, C.J. Introduction to Data Base 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.

Textbooks

References

MM903 Numerical Engineering Project
One hour per week for one semester
Assessment: Project
Prerequisite: MM902
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.
The aim of this subject is to discuss the issues related to computer integrated manufacturing (CIM) systems by introducing the elements and systematically integrating those elements to a unified, efficient system. Characteristics of integrated, flexible manufacturing systems: CIM, FMS, peoples attitudes, managerial implications, financial analysis, decision making.
Computer control: Data bases, types of data, program storage and distribution, system control, system monitoring, reporting.
Group technology: Background, part families; parts classification and coding systems; production flow analysis, algorithms. MIC cell design, types (single, groups) (manual, semi-integrated). FMS; MIC arrangement in cell (Hollier’s algorithms) cell utilisation, benefits of GT, process planning.
Flexible Manufacturing Systems (FMS): Economics; leading planning and design; scheduling; modelling and computer support.
Simulation: In design and study of performance of CIM; modelling process, use of computer packages.
Managerial aspects of CIM: Training, industrial relation, contribution to JIT, quality.

References

MM905 Computers and Interfacing
Three hours per week for one semester
Assessment: Projects/examination
A subject in the Master of Engineering CIM.
Aim: To introduce students to the techniques in the design of computer/industrial equipment, provide a high level of understanding of the principles involved in communications protocols development. OSI networks.
Designing with A/D and D/A converters, control of multiple servo-driven axes (CNC). PLCs and specialised interfacing hardware. Selection of communications parameters and systems. Design and implementation of point to point communications protocols. OSI/OSI (CIM) bus networks and protocols.

References
Cripps, M. Computer Interfacing — Connection to the Real World. Edward Arnold, 1989
Halsall, F. Data Communication, Computer Networks and OSI. 2nd edn, Wokingham: Addison Wesley, 1988
MM906 Project A
Project B — Eight hours per week for one semester
Project B — Twelve hours per week for one semester
Assessment: Continuous assessment, final report and presentation
(Assessment will be in accordance with the regulations of the Faculty of Engineering. Projects will be approved by external supervisors. Each project will require a literature survey, and a theoretical investigation. Results and conclusions will be presented in a written report and oral presentation to selected audiences. Students must determine whether traditional materials are being used correctly and appraise new materials. Diagrams of behaviour of selected materials used in building: rubbers, steels, high-strength weldable steels, aluminium alloys, plastics and rubbers used for cladding and pipe systems. Joining methods: principles of behaviour of the different joining systems including welding, adhesive bonding, soldering, brazing, mechanical fasteners, comparative costs of various joining methods. For textbooks and references see MP183.

MP186 Building Materials
Three hours per week for one semester
Assessment by assignments and examinations
A first-year subject in the diploma course in building surveying, intended to give students an understanding of the behaviour of building materials so that they can determine whether traditional materials are being used correctly and appraise new materials. Phases, solid solutions, metal crystal structures, polymer structures, silicate structures. Equilibrium: phase relationships and equilibrium diagrams. Mechanical properties: deformation and fracture, non-destructive testing. Cement and concrete: constituents, setting and hardening, admixtures. Corrosion and deterioration: causes, prevention and minimisation. For references and textbook see MP183.

MP286 Building Materials 2
Four hours per week for one semester
Assessment by assignment and examination
A second-year subject in the diploma course 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 used for cladding and pipe systems. Joining methods: principles of behaviour of the different joining systems including welding, adhesive bonding, soldering, brazing, mechanical fasteners, comparative costs of various joining methods. For textbooks and references see MP183.

MP414 Manufacturing Technology
Two hours per week for one semester
Assessment: by tests and assignments
An elective subject in the fourth year of the degree course in mechanical engineering. An introduction to CAD: CAM, i.e. numerical control, CNC, DNC, DDCNC use of CATIA, complex surfaces. Wire frame, solid and geometric modelling. Robot and NC simulation. Flexible manufacturing systems: integration of manufacturing technology and systems management. Robotics, guided vehicles, quality, CIM.

MP422 Engineering Administration
Two hours per week for one semester
Assessment: by test and assignments
MP521 Industrial Management
Three hours per week for one semester
Assessment by assignments and tests
A fifth-year subject in the degree course in manufacturing engineering. Legal: Australian legal systems; commercial law regarding appointed or delegated employees, employer liabilities; contract law; sale of goods; common law, criminal law and torts as they affect manufacturers; negligence; defences; industrial property (patents, etc.); principal and agent; companies law; workers' compensation, insurance. Management performance: modern theories of management, motivation, job enrichment; participation in practice, organisation development, professionalism; overseas trends; case studies. Industrial relations in Australia; collective bargaining; conciliation and arbitration; wage and salary administration; case studies.

MP531 Industrial Engineering
Three hours per week for one semester
Assessment by assignments and test

MP551 Design for Manufacture (P)
Five hours per week for ten weeks plus a project in industry
Assessment by assignments, projects and examination

References

MP552 Design for Manufacture (C)
Five hours per week for one semester
Assessment by examination
A fifth-year subject in the degree course in manufacturing engineering. Computer-aided design: computer graphics including flowsheet and layout preparation; exercises in preparation of computer solutions to problems in momentum, heat, and mass transfer. Examples of solid, liquid and gaseous effluents associated with chemical manufacturing and other industries: methods of treatment and disposal; ecological considerations; legal requirements.

MP711 Mass Transfer
Four hours per week for one semester
Assessment: Laboratory work, assignment and examination
Aim: To provide the student with an insight into the theory, and physical reality of diffusional mass transfer. Mass transfer theory: Fick's Law of diffusion; steady state diffusion in single-phase systems; multicomponent and transient diffusion; determination of diffusion coefficients. Convective mass transfer; mass transfer coefficients; interphase mass transfer. Theory and design of continuous differential/contacts; mass transfer with chemical reactions; mass, heat and momentum transfer analogies. Gas absorption, 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 course in chemical engineering. 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

MP713 Chemical Engineering Design 1
Four hours per week for one semester
Assessment: Assignments an examination
A subject in the graduate diploma course in chemical engineering. Aim: To instruct students in the fundamentals of chemical engineering thermodynamics and the 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; flowsheets; stoichiometry calculations involving bypass, recycle and purge; combustion and heat engine calculations. Chemical engineering thermodynamics: Physical equilibrium, bubble and dewpoint relations, phase diagrams, activity and activity coefficients, Gibbs Duhem equation, chemical reaction equilibria, heats of reaction and mixing.

Textbooks
MP714  Stagewise Processes

A subject in the graduate diploma course in chemical engineering. 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 and packed columns; characteristics of packings; bubble cap and sieve trays, weirs and downcomers; flooding, hold-up and pressure drop; selection of optimum column diameter. The concept of the equilibrium stage as applied to distillation, liquid-liquid extraction, leaching and other mass transfer operations. Graphical and computer-based design techniques employing this concept: McCabe-Thiele, Soret and Ponchon-Savarit methods. Textbook: Treybal, R.E. Mass Transfer Operations. 3rd edn, (SI Units), McGraw Hill, 1983


MP715  Heat Transfer


MP717  Industrial Processes and Pollution Control

A subject in the graduate diploma in chemical engineering. 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 problems (aluminium industry, electroplating, etc.). Major environmental issues of general concern (acid rain, atomic power, PCBs, dioxide, dumping of toxic waste).

MP719  Occupational Health and Safety


MP724  Chemical Engineering Design

A subject in the graduate diploma course in chemical engineering. Aim: To provide the student with the responsibilities of the professional chemical engineer and some of the issues he or she may have to confront. A separate segment seeks to consolidate the student's previous work in computer programming by applying it to problems relevant to his or her future career. Computer-aided design: The use of software packages for flowsheeting, flowsheet preparation and layout; exercises in preparation of computer solutions to problems in momentum, heat and mass transfer. Textbook: Treybal, R.E. Mass Transfer Operations. 3rd edn, (SI Units), McGraw Hill, 1983


SK297  Computer Programming

A second-year subject in the degree course in manufacturing and mechanical engineering. The subject teaches the development of structured programming techniques in PASCAL and FORTRAN. Supporting studies in operating systems, compilers, editors, linkers, etc. are included. Texts and references will be given by the lecturer at the beginning of the course.
SK396 Computer Science
Two hours per week for one semester

A subject in the third year of the degree course in manufacturing engineering.

The subject introduces the use of computer systems in the manufacturing environment. It consists of a selection of topics from the following areas:

Computer architecture, database management and design, and numerical methods. Specific packages, such as C, which are of particular value in manufacturing engineering.

Test and references will be given by the lecturer at the commencement of the course.

SM191 Computations
Three hours per week for first semester and two hours per week for second semester

A first-year subject in the diploma course in building surveying, intended to develop manipulative skills in mathematics and computing techniques for use in later subjects.


Elementary digital programming using a procedural language: language syntax (BASIC or FORTRAN); program and data structure; functions, differentiation, integration methods, applications of differentiation and integration, infinite series, complex numbers, hyperbolic functions, differential equations, analytical geometry, functions of more than one variable, linear algebra, numerical methods.

SM199A Mathematics Alternate
Five hours per week for first semester, four hours per week for second semester, excluding the first two weeks of each semester which will be seven hours per week.

This subject is for the Special Entry program.

The subject covers the mathematical knowledge considered to be essential to the concurrent first-year studies in engineering, but also covers extra mathematical groundwork.

A second-year subject in the degree course in electrical engineering.

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, goodness of fit, ANOVA (One and Two-way), correlation and simple regression, experimental design, MINITAB package used.

SM293 Engineering Mathematics
Three hours per week for lectures and practical workshops practice for two semesters

A second-year subject in the degree course in engineering. Integration and differentiation 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, goodness of fit, ANOVA (One and Two-way), correlation and simple regression, experimental design, MINITAB package used.

SM294 Engineering Mathematics
Three hours per week for lectures and practical workshops practice for two semesters

A second-year subject in the degree course in civil engineering.

Integration and differentiation 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, 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.

SM294A Engineering Mathematics Alternate
Three hours per week for second semester

This subject is for the Special Entry program.

A first-year subject in the degree course in chemical engineering.

Integration and differentiation 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, goodness of fit, ANOVA (One and Two-way), correlation and simple regression, experimental design, MINITAB package used.

SM295 Engineering Mathematics
Five hours per week for second semester

A second-year subject in the degree course in civil engineering.

Integration and differentiation 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, 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.

SM295A Engineering Mathematics Alternate
Five hours per week for second semester

This subject is for the Special Entry program.

A first-year subject in the degree course in chemical engineering.

Integration and differentiation 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, 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.
SM295 Engineering Mathematics

Six hours per week for five weeks, seven hours per week for nine weeks

A subject in the bridging program for engineering students from S.E. Asia.

Vector geometry, functions of more than one variable, partial differentiation, differential equations.

Statistics: Multiple integration, vector calculus, linear algebra.

References


SM299 Engineering Mathematics

Three hours per week of integrated instruction and practice for two semesters

A second-year subject in the degree course in manufacturing and mechanical engineering.

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 Gaussian 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 variables and continuous variables, 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


SM394 Engineering Mathematics

Three hours per week of integrated instruction and practice for one semester

A third-year subject in the degree course in electrical engineering.

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-transform and its properties. Discrete mathematics — mathematical logic, counting methods, recurrence relations, applications.

Prescribed course material

Steiner, J.M. and Clarke, G.T. Discrete Mathematics, 1988

SM395 Engineering Mathematics

Three hours per week of integrated instruction and practice for one semester

A third-year subject in the degree course in manufacturing engineering.


References


SM399 Engineering Mathematics

Three hours per week of integrated instruction and practice for one semester

A third-year subject in the degree course in mechanical engineering.


References


SM493 Engineering Mathematics

Two hours per week for one semester

A subject in the fourth year of the degree course in civil engineering.

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 of integrated instruction and practice for one semester
A four-year subject in all streams of the degree course in electrical engineering.
Orthogonal curvilinear coordinates, linear systems, functions of a complex variable, applications.

References

SM499 Engineering Mathematics
Two hours per week of integrated instruction and practice for one semester
A four-year subject in the degree course in mechanical engineering.
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 course in risk management.

References

SP191 Building Science
Three hours per week for one semester
A first-year subject in the diploma course in building surveying, which introduces students to basic scientific principles underlying the behaviour of physical and chemical systems.
Measurement: quantities, units, SI.
Waves: types, propagation, speed, reflection, transmission, interference, standing waves, forced oscillations, resonance. Thermal physics: temperature, heat, internal energy, first law of thermodynamics, thermal conductivity, specific heat, calorimetry, adiabatic and isothermal processes.
Optics: mirrors, lenses, diffraction, resolution, optical instruments. Physics of the solid state: crystal structure, lattice parameters, bonding of crystals, force-separation and potential energy — separation curves; equilibrium atomic separation. Structure and subdivisions of matter: atoms, and molecules; compounds and chemical reactions; acids, bases, oxidation, reduction principles of corrosion; the chemical processes involved in: the formation and weathering of soils, the constituents and treatment of natural water and domestic effluents from a chemical viewpoint. Simple treatment of air pollution.
The practical work supplements the lectures. Students are placed in practical situations in order to encourage logical thinking in the simple treatment of air pollution.

SP294 Engineering Physics
Two hours of lectures per week for two semesters
A second-year subject in the degree course in electrical engineering.

Textbook

SP4190 Occupational Hygiene and Safety
Four hours per week for one semester
Assessment by examination and assignments
A subject in the graduate diploma course in chemical engineering.
Environmental hazards
Toxicology
Toxic substances, mechanisms of action and pathogenic effects (carcinogens, mutagens, teratogens). 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
design

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School of Design

Head
D.G. Murray, BA(Graphic Design)(SIT), TTTC

Principal Lecturer
C.J. Austin, BA(Graphic Design)(SIT)

Senior Lecturers
J. Bassani, DipArt & Design(Prahran), GradDipEd
S. Huxley, DipArt & Design(Bristol), CGLI CertPictGraphics and P(London) GradDipEd
R. Graham, AssocDipArt(Graphic Design)(RMIT), DipArt(Advertising)(Bendigo), TTTC

Lecturers
P.E. Blair, DipArt(Graphic Design)(RMIT), GradDipEd
D. Bryans, BA(Graphic Design)(SIT), DipEd
C.E. Condell, BA(Graphic Design)(SIT), DipEd
F.E. Gleeson, BA(Mon), BEd(Melb)
R. Ganoe, DipEd(Haw), CAM, FBIPP(England), FPSA(USA), MFIAP(Belgium), FMPA(Lon), Hon, FRPS(England), AAIPP(Aust)
R. Jones, BA(ANU)
R.F. Kinnane
H. Lueckenhauzen, GradDip(Industrial Design)(RMIT), DipEd
R.A. Newbound, CertPrint
T. Steel, BA(Graphic Design)(SIT), CATD(London)
M.C. Van Geloven, Dip(Art), MA
D.M. Whitehouse, ALAA, BAHons(LaTrobe), MA

Computer Systems Officer
C.A. Higman

Courses offered
Diploma of Art (Graphic Design)
Bachelor of Arts (Graphic Design)

*At the time of publication it is likely that the courses in Graphic Design and Industrial Design at present offered on the Prahran campus of Victoria College may become part of the Swinburne Institute of Technology as from January 1, 1992. For further information, ring the Prahran campus on 805 3333.

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. A Faculty Pass may be awarded under exceptional circumstances. The School Board is the final authority for deciding passes or failures 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.

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.
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, marketing, education and film and television. 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 and three-dimensional design.

Entrance requirements

VCE 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.

Applications for second year and higher must be made direct to Swinburne and not through VTAC.

Second year

The 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 an art course, either graphic design or film and television at this Institute, must follow carefully the procedure for enrolment, which is given with dates and 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.

Mature-age applicants apply direct to Swinburne. 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.

Course structure

<table>
<thead>
<tr>
<th>Semester</th>
<th>Subject Name</th>
<th>Semester hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>First year</td>
<td>Assigned Projects 1</td>
<td>320</td>
<td></td>
</tr>
<tr>
<td></td>
<td>History of Arts 1</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Media (two semesters)</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Result of Studies</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second year</td>
<td>Assigned Projects 2</td>
<td>320</td>
<td></td>
</tr>
<tr>
<td></td>
<td>History of Arts 2</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Behavioural Studies (two semesters)</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Result of Studies</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third year</td>
<td>Assigned Projects 3</td>
<td>320</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art and Design Culture (two semesters)</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Print Technology (one semester)</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Result of Studies</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:

Results will be published for each subject and for the year as a whole.

Bachelor of Arts (Graphic Design)

G020 First and second years
G050 Third and fourth years
G060 Fourth year conversion diploma/degree

4 years cooperative

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 cooperative education 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 Institute 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 Year Degree Conversion

Diploma students who achieve a high pass are eligible to apply for degree conversion.

This means they will spend the fourth year in the Swinburne Design Centre undertaking Professional Commissions from industry as well as studying Design Management.

Course structure

G020 First and second year

(common to both diploma and degree)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Subject Name</th>
<th>Semester hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>(4% days in industry)</td>
<td>Assigned Projects 4</td>
<td>336</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art and Design Culture (two semesters)</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Print Technology (one semester)</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Result of Studies</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

G050 Fourth year

(full-time at the Institute)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Subject Name</th>
<th>Semester hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assigned Projects 4</td>
<td>336</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Design Management (one semester)</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Result of Studies</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

G060 Fourth year conversion diploma/degree

<table>
<thead>
<tr>
<th>Semester</th>
<th>Subject Name</th>
<th>Semester hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assigned Projects 4 (Professional)</td>
<td>384</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Design Management (one semester)</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Industrial Year</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Result of Studies</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:

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').
Packaging, Graduating student

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>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
</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.

1989 GRAPHIC DESIGN STUDENT AWARDS
All years — Maurice Cantlon Memorial Drawing Prize, $300
1st year — Tomasetti Award, $500
2nd year — Tomasetti Award, $500
Margery Withers Scholarship, $200
3rd year — Emery Vincent Award, $500
Hawthorn Football Club, $600
4th year Conv. — FHA Design Award
4th year Coop. — FHA Design Award
Graduating student — PakPacific Paperboard Packaging, $500

Graphic Design diploma/degree subject details

A: 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 three-year 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, skillfully-executed assignments and to communicate the solutions in a way that likely to ensure acceptance of their implemenation. These assignments allow an opportunity 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 participation in an area of three dimensions. In the first year, the student progresses, design projects increasingly interact with drawing, photography and design for. In this way students develop an appreciation and competence over a broad range of communication problems.

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 costing.

Drawing
Expanding on the development of a coherent technique in drawing, the student is encouraged to develop control over drawing as a critical and creative activity. The 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
Two hours per week for two semesters
Prerequisite, nil
Assessment is continuous

This course explores the development of 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 includes themes such as gender 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
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, typographic, 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. It is included in the study of design, photography, 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**

Two 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 symbolism 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.

Second semester begins with Abstract Expressionism, moves on to Assemblage, Performance Art and Earthworks, 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
Prerequisite, nil
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.

**RG324 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. Photo-engraving, 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 phototypesetting, 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.
**RG322  Print Technology**  
Two hours per week for one semester  
Prerequisite, RG240 Result of Studies 2  
Assessment is continuous  

Investigations into the theory and application of modern print technology. It is not intended that this course will go deeply into the electronic, mechanical, or chemical aspects of printing, but rather explore the possibilities for design, production and distribution by reproduction methods. These include type composition, photomechanical processes (offset, screen, letterpress and gravure), and studies of paper and other stocks. 

This course will include the economics of production and relate to sections of the course in business administration. 

**Fourth year**

**RG410  Assigned Projects 4**  
Eighteen hours per week for two semesters  
Prerequisite, RG341 Result of Studies 3  
Assessment is continuous  
N.B. Additional work required outside scheduled hours, including evenings and weekends  

Working in a professional atmosphere, emphasis is given to developing the student's special capabilities through assigned professional projects or self-defined problems, culminating in a major design assignment.

**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 professional practice 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.
Film and Television School
 Academic staff
 Head
 J. Sabine, BA(ANU)
 Senior Lecturers
 J.E. Bird, DipArt(SIT), TTTC
 C. McGill
 P. Tammer, BA(Melb)
 Lecturers
 D. Atkinson, DipArt(SIT)
 N. Bell
 H. Burton, BEd(MSC)
 N. Ghazarian, GradDipArt(AppF&TV)(SIT)
 D. Price, BArch(RMIT), GradDipEd(HIE)

Film and Television School
Bachelor of Arts (Film and Television) Graduate Diploma in Film and Television

* From January 1 1992 these courses will be administered by the Victorian College of the Arts.

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. A Faculty Pass may be awarded in the event of failure in one theory subject. This allows a student to progress to the next stage/semester of the course. However, if the same theory subject, or its equivalent, must subsequently be completed satisfactorily, in addition to all other subjects, in order to meet the requirements for the award of a diploma or degree. If the subject or subjects are not completed successfully within two years, the complete set of final examinations must be attempted again.

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 Film and Television School.

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 Film and Television School Board is the final authority for deciding passes or failures in any of the examinations for the Film and Television School.

F050 Bachelor of Arts (Film and Television)
3 years full-time
Aims and objectives
1. To provide training to a professional level for creative people who envisage working in the film and television program production industry.
2. To facilitate the production by students of short film and video programs of a high creative, technical and artistic standard.
3. To provide training in script writing, production management, directing, sound, lighting/camera and editing studies.

Entrance requirements
There are no prerequisite subjects.
Year 12 previously accredited by VISE: Recommended Group 1 subject: English
All Group 2 subjects will be considered.
Victorian Certificate of Education (Tertiary Orientation Program): All students who have successfully completed a VCE(TOP) course will be considered.

Applicants are initially required to undertake tests set each year by the Selection Officer.
1. Write a script for a short film or video program on a dramatic theme, and
2. Complete a sequence of images illustrating a dramatic theme by predominantly visual means.

Following the assessment of the tests, selected applicants are to attend an interview where they are required to:
1. Present examples of their creative work.
2. Demonstrate an awareness of the contents and requirements of the course.
3. Provide academic reports.

Tests and interviews are conducted from October to December of each year to qualify for entry. All applicants who specify film and television at this Institute, must follow carefully the procedure for enrolment, which is given with dates and other details in the Victorian Tertiary Admissions Centre publication, Guide to Courses in Colleges and Universities. This is published in September, 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. All applicants must be in Australia to participate in interviews if required.

Course structure
First year

<table>
<thead>
<tr>
<th>Subject</th>
<th>First semester (seventeen weeks)</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF150</td>
<td>Assigned Projects 1</td>
<td>272</td>
</tr>
<tr>
<td>RF160</td>
<td>History of Cinema 1</td>
<td>68</td>
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<tr>
<td>RF140</td>
<td>Script Writing</td>
<td>68</td>
</tr>
<tr>
<td>RF170</td>
<td>Result of Studies</td>
<td>408</td>
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Second year

<table>
<thead>
<tr>
<th>Subject</th>
<th>First semester (seventeen weeks)</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>RF200</td>
<td>Assigned Projects 2</td>
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<tr>
<td>RF210</td>
<td>History of Cinema 2</td>
<td>58</td>
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<tr>
<td>RF240</td>
<td>Script Writing</td>
<td>68</td>
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<tr>
<td>RF270</td>
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Third year

<table>
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<tr>
<th>Subject</th>
<th>First semester (seventeen weeks)</th>
<th>Hours</th>
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<tbody>
<tr>
<td>RF300</td>
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<tr>
<td>RF350</td>
<td>History of Cinema 3</td>
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<tr>
<td>RF330</td>
<td>Methods of Production</td>
<td>68</td>
</tr>
</tbody>
</table>
Second semester (seventeen weeks)

RF350 Assigned Projects 3
RF370 Result of Studies 408

Results are published for each subject and for the year as a whole.

*Result of Studies is not a subject but a clear-cut decision on each student’s success or otherwise in the year’s studies as a whole.

RF350 Assigned Projects
3 Colour television, 16mm film and animation equipment are provided.

Application forms
These are available from the Secretary, Film and Television School, and must be returned by the date specified thereon. Telephone 819 8328.

F080 Graduate Diploma in Film and Television

1 year full-time
This course is offered to graduates who want to make objective use of film, television or animation production skills.

Aims and objectives
1. To provide practical training in short program production to a professional level in film or video or animation.
2. To provide training that would aid creative people to gain employment in the film and/or television industries.
3. To facilitate the production by students of short programs of a high technical and artistic standard.

Eligibility
Applicants are initially required to undertake tests set each year by the Selection Officer.
1. Write a script for a short film or video program on a dramatic theme, and
2. Complete a sequence of images illustrating a dramatic theme by predominantly visual means.

Following the assessment of the tests, selected applicants are to attend an interview where they are required to:
1. Present examples of their creative work.
2. Demonstrate an awareness of the contents and requirements of the course.
3. Provide academic reports.

Selection tests and interviews are conducted from September to November each year. Applicants usually will have taken a first degree or diploma in any discipline; in other words they need not have studied film or television seriously. They should have, however, developed some expertise in the field of science, fine art or the arts, as it is usual to draw upon this knowledge when devising program content. However, there does not have to be an absolute connection between what a person has done in the past and what they propose to do in the future.

A small number of ‘mature-age entry’ applicants, who are not graduates, may be admitted if they have had substantial industrial experience.

Those applying for the animation stream must have proven graphic ability.

Quotas
Video 8
Film 8
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In the three areas of specialisation offered, it is not possible to transfer from one stream to another.

Course structure

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Resources
Swinburne provides all usual equipment and assists with production costs. Budget expenditure is determined by the individual student subject to departmental approval.
Bachelor of Arts (Film and Television)

Subject details

First year

RF140 Script Writing 1
Sixty-eight hours during first semester
Prerequisites, nil
Assessment is continuous

Through lecture, discussion and the screening and analysis of moving pictures, the student examines the relationship of moving pictures to the broad spectrum of fine and performing arts. In order that the inherent strengths and limitations of the picture medium may be appreciated, the potentialities available to the screenwriter through manipulation of image, movement, time and sound are examined closely as a characteristic, and the function of conflict, plot and genre. A series of short writing exercises is undertaken. These matters occupy the first eight classes.

Also included is a continuing assignment for each student to work on a project for production in the second semester. Progress is monitored at tutorials.

RF150 Assigned Projects 1
Sixteen hours during first semester
Twenty-four hours per week in second semester
Prerequisites, nil
Assessment is continuous

In the first semester, lectures, demonstrations and tutorials in video production techniques and technology lead to short practical exercises including production undertaken in location. Working in crews and assigning roles, students experience the responsibilities of scriptwriting, directing, production management, sound recording and post-production, camera operation, lighting, art direction, continuity, videotape operation and editing.

In the second semester students are directed and edit a video production that they have written during the first semester. The aim throughout is to facilitate the production of student programs of a high artistic and technical standard.

RF160 History of Cinema 1
Sixty-eight hours during first semester
Twenty-four hours per week in second semester
Prerequisites, nil
Assessment is continuous

History of Cinema 1 is an introductory course on the development of narrative. Its codes, conventions and structures from the silent era to the contemporary film. It also looks at how technical processes determine cinematic styles and the function of conflict, plot and genre. A series of short writing exercises is undertaken. These matters occupy the first eight classes.

Also included is a continuing assignment for each student to work on a project for production in the second semester. Progress is monitored at tutorials.

RF240 Script Writing 2
Four hours per week in first semester
Prerequisites, AR170 Result of Studies 1
Assessment is continuous

The basic principles of dramatic structure are covered by dealing with the themes, story, conflict, character design, dynamic script, context and business. Imagery, movement, time and sequence, film and resolution. The aim is for each student to develop a creative and critical overview of the cinema to complement their work in film and television production.

Second year

RF250 Assigned Projects 2
Sixteen hours per week in first semester
Twenty-four hours per week in second semester
Prerequisite, AR170 Result of Studies 1
Assessment is continuous

During the first semester students undertake introductory studies in film technology and production covering lighting, camera operation, wild and synchronous sound recording, mixing and laying sound tracks, editing, titles, continuity, A&B roll, negative matching and laboratory services, producing, production management and direction.

During the initial short exercises the students gain technical control of the medium before embarking on more complex group productions. They change their crewing roles from production to production until they are familiar with all the major functions of a film crew.

By the end of the second semester each student will have finished the production of their major project.

During second semester script tutorials will be conducted in preparation for third year.

RF260 History of Cinema 2
Sixty-eight hours during first semester
Prerequisite, AR170 Result of Studies 1
Assessment is continuous

History of Cinema 2 is designed to foreground certain aspects of film post-production. The bulk of the course focuses on the first semester but it also takes in aspects of editing and camera movement.

The course is divided into three sections: the first looking at how the soundtrack organises the overall rhythm of a film; the second section looks at how technical processes determine cinematic styles; and the third section looks at the role the film score plays in modifying other factors of the film process.

The movies selected are employed to highlight these facets of soundtrack production so as to aid in the student's perception of sound and music in the cinema.

RF330 Methods of Production
Four hours per week in first semester
Prerequisite, AR270 Result of Studies 2
Assessment is continuous

Current developments in film and video technology are examined with particular emphasis on areas in which new production techniques are evolving.

Subsequently, master classes are conducted by specialists from industry in subjects such as prosthetics and unconventional make-up, sound recording, front projection, film editing, lighting and cinematography.

Students select and research a production area of special interest to them. Each student presents a thirty-minute lecture followed by a thirty-minute discussion on his or her selected topic. Each student is then given a thirty-minute assignment to reflect their information into a 2000-word essay.

RF350 Assigned Projects 3
Sixteen hours per week in first semester
Twenty-four hours per week in second semester
Prerequisite, AR270 Result of Studies 2
Assessment is continuous

During the first semester critical and conceptual program production skills are concentrated on through tutorials, demonstrations, excursions, screenings and analysis. Guest lecturers from the film and television industry participate in this process.

Concurrently each student undertakes script writing for a program of not more than twenty minutes duration. Suitable for production in the second semester. Students attend script writing tutorials to develop theme, plot and structure, characterisation and dialogue. The second semester is devoted entirely to program production with the students crewing for one another. However students may elect to specialise in cinematography, sound, production management or editing.

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RF360  History of Cinema 3  
Sixty-eight hours in first semester  
Prerequisite: AR270  
Result of Studies 2  
Assessment is continuous  

While History of Cinema 3 expands on some of the issues raised in first and second year the choice of film will be derived almost exclusively from the period of the late 1950's to the present. The focus will be on one or more of the so called modernist phases of international cinema i.e. French New Wave, New German Cinema, New Japanese Cinema, American Cinema of Post-Hollywood Studio Period etc.  
The aim of the course is to study in some detail the transition period from the classical style to the modernist style noting changes and developments on the level of narrative form, mise-en-scène, relationship and editing techniques.

Film and Television graduate diploma subject details  
RF450  Assigned Projects  
Twenty-four hours per week for two semesters  
Prerequisite, nil  
Assessment is continuous  

Each of these strands of study has a similar structure, but only script writing is taught jointly. In the first semester the students study script writing and production techniques. In the second semester each student undertakes the production of a program, assuming responsibility for the script, direction, and editing thereof. Students are also expected to crew, where possible, on the productions of their classmates.

Semester 1  
Script writing  
Eight four-hour lectures  
Sixteen two-hour tutorials  
All students attend eight lectures dealing with the advantages and limitations of script writing. Areas covered include the dramatic potential of image, movement, time and sound, manipulation, the principles of characterisation, the benefits of conflict to a narrative, dramatic form, structure and genre. Students undertake short script writing exercises. Subsequently the students undertake the script writing of a major project to be produced in the second semester. During this phase of writing their progress is monitored at tutorials.

Production techniques  
Twenty hours per week for seventeen weeks  
Lectures, demonstrations, screenings, and discussions.  
The intent of these sessions is to impart practical program production skills to animation, film and video students, respectively.

Semester 2  
Production  
Twenty-four hours per week for seventeen weeks  
During second semester students work on their projects.  
This involves a considerable amount of work outside of the twenty-four hours per week, including evenings and weekends.
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