Please note

The text in this file has been automatically extracted and may contain minor errors. For the original version please consult the paper copy held in the Swinburne Library.
# 1989 Calendar

## January
- **1** New Year’s Day
- **3** Swinburne re-opens
- **9** VCE (HSC) results
- **30** Australia Day

## February
- **1** SCT semester 1 begins
- **6** SIT enrolment period begins for Round 1 offers through VTAC
- **6** SIT later year teaching begins: Art and final year Engineering
- **13** SCT full-time classes, apprenticeship classes and part-time classes in Business Studies begin
- **13** SIT part-time classes begin (except Business Studies)
- **13** SIT later year teaching begins: Applied Science and Engineering (except final year degree)
- **16** SIT enrolment period begins for Round 2 offers through VTAC
- **20** SIT teaching begins: Arts and Business (all years)
- **20** SIT first year undergraduate teaching begins: Applied Science and Engineering

## March
- **13** Labour Day
- **23** SIT and SCT classes end for Easter break
- **24** Good Friday
- **27** Easter Monday
- **28** Easter Tuesday

## April
- **3** SIT and SCT last day for applications for refund of General Service Fee
- **10** SCT last day for subject variations to enrolment for Semester 1
- **12** SIT last day for withdrawal from a first semester subject, unit or course without penalty of failure
- **25** Anzac Day

## May
- **3** SIT Graduation ceremony
- **30** SIT last day for application for awards for students completing courses in Semester 1 1989

## June
- **9** SIT Business semester 1 examination period begins
- **12** Queen’s Birthday
- **13** SCT semester 1 examination period begins
- **13** SIT semester 1 examination period begins (except Business)
- **14** SCT certificate and award presentation ceremony
- **19** SIT inter-semester break begins: Art
- **23** SCT semester 1 examination period ends
- **26** SIT semester 1 examination period ends

## July
- **3** SIT inter-semester break begins (except Art)
- **10** SCT semester 2 begins
- **10** SIT semester 2 begins: Applied Science, Arts and Engineering
- **12/13** SIT Business: re-enrolment for Semester 2
- **17** SIT semester 2 begins: Business

## August
- **1** SCT last day for subject variations to enrolments for Semester 2
- **2** SIT last day for amendments to enrolments without penalty of failure
- **15** SIT arts: classes end for mid semester break
- **22** SIT Applied Science, Arts and Engineering classes end for mid-semester break
- **28** Show Day

## September
- **2** SIT and SCT last day for application for awards for students completing their courses in December 1989
- **9** SCT courses resume
- **18** SIT graduation ceremony

## October
- **2** SIT classes resume

## November
- **3** SCT Business semester 2 examination period begins
- **6** SIT semester 2 examination period begins: Applied Science, Arts and Engineering
- **7** Melbourne Cup Day
- **20** SCT end of year examinations begin (internal and external)
- **17** SIT examination period ends

## December
- **1** SCT examination period ends
- **4** SCT re-enrolments begin
- **23** SCT semester 2 ends

---

SIT: Swinburne Institute of Technology
SCT: Swinburne College of TAFE
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.

Swinburne Institute of Technology and Swinburne College of TAFE
John Street, Hawthorn, Victoria 3122
Australia

P.O. Box 218, Hawthorn 3122
Telephone: (03) 819 8911
Telex: Swinbn AA37769
Facsimile: (03) 819 5454
Divisions of Swinburne Ltd

ISSN 0705 1964

Typeset by Graphiscst P/L, Mitcham, Victoria
Printed in Australia by Australian Print Group, Maryborough, Victoria
sections

- general information
- Swinburne Institute of Technology
- applied science
- art
- arts
- business
- engineering
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 Victorian 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 college of advanced education offering courses for professional qualifications (diploma and degree of Bachelor) and graduate qualifications (diploma and degree of Master). Enrolments in 1988 were 3,591 full-time and 2,881 part-time students.

Swinburne College of Technical and Further Education — a technical and further education college, offering courses at middle-level or para-professional, trade, technical and Victorian Certificate of Education (Tertiary Orientation Program) levels. A number of specialist courses are provided also, for industry and the community. Enrolments in 1988 were 972 full-time and 3,777 part-time students.

Campus

The campus covers an area of approximately four hectares in the suburb of Hawthorn, 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.

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 15 June 1988

Appointees of the Governor-in-Council
J.J. Eastwood, BA(Hons), DipEd(Melb)
M.S. Fallon, BA(Flin), ALA, ALAA
J.P. Hall, BE(Elec)(Melb), FAIM
J. H. Harvey, BJuris, LLB(Mon), Grad Dip Acc (PCAA), ACA,
Barrister and Solicitor (Vic), Supreme Court (Vic), President
M.A. Puglioli, LLB(Melb), Barrister and Solicitor (Vic), Supreme
Court
L.R. Stephens, BE(MCAE), Grad Dip Ind Rel (PIT)

Appointees of the Council of the City of Hawthorn
J.A. Wunderlich, MSc(Syd), Dr es Sc(Pari), ARACI

Nominee of the Minister for Education
M.M. Montague, PhD(Qld), BA(Hons)(Lond),
Grad Dip Publ Pol (Melb)

Members elected by the Council of Swinburne
A.M. Blonski, BA(Mon)
W.R.S. Briggs, PhD, BSc(Hons)(NSW), DipChemEng(STC),
ASTC, ARACI (President)
T.P. Coman, DipAppChem(STC), ARACI
J.M. Day, BE(Mech and Elec)(Syd), FIE Aust, SME
R.I. Learmont, BA(Hons), MEd(Mon), MACE

Members elected by general staff
N.H. Nilsen
L. Scheuch-Evans, BS in Foreign Service (G’town)

Members elected by students, SCT
A.W. McDonald

Council Secretariat
Secretary
F.G. Bannon, BCom(Melb), FASA, ACIS, LCA

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

Directorate
Director, Swinburne Institute of Technology and
Swinburne College of TAFE
J.G. Wallace, MA(Glas), MEd(Glas), PhD(Brist), FASSA

Associate Directors
F.G. Bannon, BCom(Melb), FASA, ACIS, LCA

Office of the Director
A. McCormick, BCom(Melb), MAAdmin(Mon), CPA

Project Officers
A.R. Grigg, BA(Hons), PhD(Otago)
I. Irvine, BSc(Hons)(Glas), PhD(Melb), DipEd(Melb),
Grad Dip Admin (CCAE), MACE, ARACI
E.A. O’Keefe, BCom(Melb)
Swinburne Institute of Technology

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

Faculty of Applied Science
Dean
J.G. McLean, PhD(Melb), BVSc(Syd), HDA(Hons)
Head, Department of Applied Chemistry
I.K. Jones, PhD, BAgrSc, DipEd(Melb)
Head, Department of Computer Science
(R.B. Kavanagh, MACPSM)
Head, Department of Mathematics
R.P. Kavanagh, MA(Dub), MSc(Gal), MASOR, MORS
Head, Department of Physics
R.B. Silberstein, PhD(Melb), BSc(Hons)(Mon), MAIP, MIBME, MACPSM

Faculty of Art
Dean
B.C. Robinson, F DipArt(RMIT), TTTC
Director, Computer Image Program
P.G. Brown, BA(Hons), HDFA(Lond)
Head, Department of Film & Television
J. Sabine, BA(ANU)
Head, Department of Graphic Design
D.G. Murray, BA(Graphic Design)(SIT) TTTC (Acting)

Faculty of Arts
Dean
L A. Kilmartin, BA(Qld), MA(ANU), PhD(LaT), MAPsS
Chair, Department of Humanities
P. Exceed, MA(Mon)
Head, Department of Liberal Studies
M. Harney, MA, DipEd(Melb), PhD(ANU)
GradDipArt(AppF&TV)(SIT)
Head, Department of Psychology
K. Heskin, PhD(Queens)
Chair, Department of Social & Political Studies
F.X. Walsh, BA(Melb), BEd(Mon)

Faculty of Business
Dean
M C. Frazer, BSc(Hons)(Mon), GradDipEdTert(DDIAE), MBA(Mon), PhD(Camb)
Head, Department of Accounting
B.C. McDonald, BCom, DipEd(Melb), FASA, CPA
Head, Department of Data Processing and Quantitative Methods
D.G. Adams, BCom(Melb), MAdmin(Mon), TTTC
Head, Department of Economics
J.B. Wielgosz, BCom(Hons), MA, DipEd(Melb)
Head, Department of Law
B.R. Clarke, LLB, BEd, LL(Mon), GradDipMkt(CIT), Barrister and Solicitor (Vic) Supreme Court
Head, Department of Marketing and Organisation Behaviour
L A.J. Zimmerman, BCom, MBA(Melb)

Faculty of Engineering
Dean
L.M. Gillin, PhD(DiCantab), MEd, MEngSc, BMetE(Melb), AS(MB(BallTr), FIEAust, FAIM, MACE, AAPI, MAIMME, MA/AIA
Head, Department of Civil Engineering
R.B. Sondle, MEngSc, BEng(Melb), FIEAust, MASCE, MACE
Head, Department of Electrical and Electronic Engineering
N. Zorbas, MEngSc, ME(Melb), BE(Hons)(Waust), MIEE, FIEAust

Dean, Graduate School of Engineering
J.R. Russell, MEngSc, BE(Ind), MSc(Melb), CEng, FIProdE, MIMechE, FIEAust
Head, Department of Mechanical Engineering
J.H. Perry, PhD(Ston), BSc(Tech)(NSW), MIEAust

Swinburne College of TAFE

Director
J.G. Wallace, MA(Glas), MEd(Glas), PhD(Brist), FASSA
Assistant Director
R.C. Chamberlain, DipMechEng, CEng(Engl/Aero), TTTC

Dean, Business Studies Division
R.W. Conn, BBus, DipEd, AASA, CPA (Acting)
Head, Finance and Information Technology Department
W. Ponton, BEc, DipEd (Acting)
Head, Marketing and Administration Department
I.M. Walker, MA, BCom, DipEd
Manager, Centre for Small Business
M.J. Joyce, BBus, DipEd, AASA, CPA

Dean, Engineering Division
F.A. Gaunt, SEC A Grade Licence, DipTT, TechCert(Electronics) (Acting)
Head, Building Construction Department
R.L. d'Argaville, DipTT, BldInsCert, TTTC (Acting)

Dean, Electronic and Electronics Technology Department
A.G. Hampton, BEc, TechCert(Electronics) (Acting)

Dean, Mechanical and Manufacturing Technology Department
J Brennan, BEng(Mech), DipEng(Naval Arch), DipEd, CEng, MI MechE
Manager, Centre for Engineering Technology
L.J. McLaughlan, TTTC, DipTT

Dean, Social and Applied Sciences Division
G.A. Harrison, BSc, DipMechEng, TTTC

Dean, Applied Science Department
R. Gullan, BSc(Hons), MEd, MACE

Dean, Social Science and Humanities Department
G. Amott, BEd, MEd, GradDipBusAdmin (Acting)

Dean, Access Education Department
J. Laarmont, BA(Hons), MEd(Mon), MACE

Senior Curriculum Development Officer
R.M. Carmichael, BA, BEd
Manager, Computer Services Unit
C.A. Burgess, BSc, DipEd (Acting)

Swinburne services

Manager, Development and Information Systems
M.O. Plunkett, BEc(Adel)

Education Unit
Head
B. Hawkins, BA(NewEng), MEd(Melb), MACE

Library and Information Technology Services
Swinburne Librarian
W. Linklater, BA, DipLib(NSW), DipEdTech(CNAAA), ALAA

Head, Information Technology Services
K. Anderson, MA(Adel), BSc(Melb), DipEE, MIEAust, MACE, TTTC
The reference and lending library is housed in a modern five-storey building with capacity for 600 readers. The major purpose of the library is to supplement and support formal course instruction in the two teaching divisions of Swinburne and to provide ample opportunity for recreational and general reading. There is a total of 67 staff in the department. All books, periodicals and other materials in the collection are available for use in the library and most may be borrowed. Copying facilities are available at a reasonable cost.

In 1987 the collection comprised approximately 170,000 items. In addition, 3,064 periodical titles are received, including a wide range of indexes and abstracts. There is a large collection of audiovisual material, including records, audio and videotapes, slides and films.
Library staff work in close association with teaching staff in developing these resources, and in helping the students by introducing them to a diversified collection of literature and a wide range of media on all types of subjects. Formal and informal instruction is given to students on the use of catalogues, reference works and bibliographical aids both in direct connection with their courses, and also in relating their specialist courses to society as a whole. Reciprocal borrowing facilities at other tertiary educational institutions have been arranged to increase the resources available to students and staff.

Rules and procedures

Persons entitled to use the library

The library at Swinburne is available for the use of students and staff who accept the following rules and procedures officially decided and agreed upon by the Library and Information Technology Services Committee, the Academic Board, and the Board of Studies.

Members of the general public are welcome to read or use audio and video facilities within the library, provided that they, too, accept the rules. In general they are not entitled to borrow from the library. The Swinburne Librarian, or the senior staff member on the premises may refuse entry to the library to any person not registered as an approved borrower.

Persons entitled to borrow from the library

Members of the Swinburne Council.

Full-time and part-time staff members of the Institute and the College of TAFE.

Full-time and part-time students of the Institute and the College of TAFE.

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 semesters are:

Monday to Thursday inclusive – 8.45am to 10.00pm

Friday – 8.45am to 8.30pm

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.

Teaching breaks

Monday to Friday

9.00am to 8.30pm

Long vacation

Monday to Friday

9.00am to 5.00pm

Closed between Christmas and New Year, with limited opening hours in January.

Saturday 11.00am to 5.00pm

From the first Saturday in March, up to and including the Saturday at the end of the first week of examinations in second semester.

Sunday 1.00pm to 5.00pm

A limited number of Sundays towards the end of each semester.

Library loans to students

Loans to students are available only on acceptance of the following conditions:

General

All materials borrowed must be recorded at the loan, reserve, periodical or audiovisual counters and must be returned by the date and time indicated. Items borrowed, with the exception of audiovisual and periodical material, should be returned through the chutes located outside the main entrance.

Materials on loan that are required for inclusion in the Counter Reserve collection will be recalled. Failure to respond to a recall will incur suspension of borrowing entitlement.

Borrowing periods

Fortnightly loans

The normal loan period for most books and pamphlets is a fortnight, and a week for audiocassettes. Some video cassettes are now available for 2 day loan. Language tapes and Art slides may be borrowed for four weeks. This period may be extended provided the item has not been reserved and it is not overdue.

3-day loans

Available for material on the shelves which is in moderately heavy demand, and is marked ‘3-day loan’. This material may be borrowed at any time of the day, but may not be renewed.

Overnight loans

Available for unbound periodicals, including annuals and irregular publications (but excluding display issues). A small number of items in the Counter Reserve collection are also available for overnight loan.

This material may be borrowed after 4.00pm from the Counter Reserve and should be returned by 9.00am the next weekday.

This condition may be varied for part-time students.

Counter Reserve collection

Material in this collection may be borrowed for a period of two hours for use in the library, except as specified above, and will be issued in exchange for a current Swinburne identity card, which is held until the item is returned.

See the Guide to the Library for further details.

Audiovisual materials and equipment

Video cassettes and slide tape programs are available for use on the Swinburne campus only, with the exception of Art slides, which may be borrowed for four weeks. Language tapes may also be borrowed for four weeks. Most other material may be borrowed for one week and renewed if not reserved or overdue. A range of instructional personal computer software is available for use on learning stations located in the area. Both material and equipment must be booked.

Items not available

Items not available for loan outside the library include: material in the Reference collection (distinguished by the prefix ‘R’ in the call number), rare books (‘V’), archives (‘AR’), maps (‘M’), vertical file material, microforms and those materials marked ‘Not for loan’ or ‘Display’.

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

Most video cassettes and slides (other than Art slides) are available for use on the Swinburne campus only.

Reservations for all material on loan and for material located in Stack, may be made at the reservations 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, but all penalties shall continue to apply until the fine has been paid.

Fortnightly loans and audiovisual 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.

3-day loans — per item

$1.25 per day or part thereof overdue to a maximum of $5.00 per item, suspension of borrowing privileges and withholding of examination results.
Overnight loans — per item
First day: $0.50 per hour late. For each day thereafter: a further $2.00 to a maximum of $5.00, suspension of borrowing privileges and withholding of examination results.

Counter Reserve loans (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.

Recalls
Any items required for Counter Reserve will be recalled.

Lost library material
If an item is lost, the loss must be reported immediately to the Overtures Section, level 2. If after a reasonable search has been made, the item cannot be found, the borrower shall be responsible for the replacement cost plus a processing charge.

Identity cards
These are not transferable. Loss of an identity card must be reported immediately to the Overtures Section on level 2 of the library. The library can take no responsibility for items borrowed on that card. A current card must be produced when borrowing otherwise will be refused. Lost or damaged cards must be replaced at Student Administration at a cost of $5.00.

Rules for general conduct
Eating is not allowed in areas of the library open to the public.
Drinking, except from the drinking fountain, or in the immediate vicinity of the drink vending machines, is not allowed in areas of the library open to the public.
Playing games in the library is not allowed.
Smoking is not permitted in areas of the library open to the public.

Any 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. Silence must be kept in the areas indicated and conversation restricted to the areas set aside for this purpose.

Any person who, in the opinion of a member of the library staff and the senior staff member on the premises, repeatedly fails to observe the above rules, or who disfigures or damages a book, periodical or any other library resource or fitting in any way, may be excluded from the library for the rest of the day, and shall be responsible for all damage caused.

Persistent or serious offenders may be reported by the Swinburne Librarian to the Swinburne Registrar for disciplinary action which may include suspension of borrowing privileges, exclusion from the library, and withholding of examination results.

Power to alter rules
One or more of the rules for general conduct 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. Each suspension shall be reported at the earliest opportunity to the Director and to the Library Committee.

Photocopying
Photocopying machines available to staff and students are located on level 1 of the library building. These are operated by the Berwick Copytex card system; cards for $2.00 and $5.00 can be purchased from dispensers in the library. Users must note and abide by the relevant provisions of the Copyright Act.

Information Technology Services

General Information

Head, Information Technology Services
K. Anderson, MA (Brad), BSc (Melb), DipEE, MIE Aust, MACE, TTTC

Located in room BA 309 of the Business and Arts Building, Information Technology Services is available for use by all full-time and part-time staff of both divisions.

The services offered include the locating, 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 audiovisual services well in advance of the recording date.

Also available is the short-term loan of slide projectors, opaque projectors, audio and videotape recorders and other audiovisual equipment.

Student Health and Welfare Unit

Unit staff
Head, Student Health and Welfare Unit
R. Vines, BA (Hons) (Melb), MSc (Abdn), MAPsS, Assoc BPsS

Administrative Officer
L. Cacavas, Assoc Dip PSP (SIT)

Student Counselling staff
Student Counsellors
R. Vines, BA (Hons) (Melb), MSc (Abdn), MAPsS, Assoc BPsS
L. Moloney, MA (Clin Psych) (Melb), MSc (Ed Psych) (Edin)
R. MacDonald, BA (Melb), Dip Ed Psych (Mon), MAPsS
A. McGinnis, BSc (Melb), BSW (Melb)
H. Silberg, BA (Mon), GDip Voc Coun (RMIT)

Receptionist
J. Ralph

Careers Information Centre staff
Careers Information Counsellor
S. Wayth, BA (Melb), GDip LS Stud (WAIT), AILAA

Schools Liaison Officer
D. Wright, MB, BS, BMedSc

Administrative Officer
J. Duff, BA (Hons) (Mon), MA (Mon)

Graduate Placement, Student Employment and Housing staff
Graduate Employment Adviser
R. Ware, BA (Latrobe), Grad Dip Ed (MSC), Post Grad Dip in Careers (Vic College)

Housing and Student Employment Officer
B. Graham, BAppSc (Pharm) (TCAE)

Receptionist
R. Hamlett

Student Health Service staff
Medical Officer
S. Clarke, MB, BS (Lond)

Sisters
J. Fischer, RN, RM (Vic) (UK), RN (USA)
A. Hart, RN (Vic)

Chaplaincy
Ecumenical Chaplain
H. Aveling, MA (Syd), BEd (WACA E), TSSF, STM (Wston)

Jewish Chaplain
M. Katz, BJuris (Mon)
**Student health and welfare services**

The following services are available to all students:

**Careers and course information**
- Counselling - Course and vocational information
- Employment - graduate and part-time positions

**Health**
- Housing
- Low interest loan
- Student health and welfare services
- Chaplaincy
- Schools liaison program

These services, with the exception of those of the Chaplain, are administered by the Student Health and Welfare Unit.

**Student counselling**

Location: room 206, level 2, BA 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 and 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.

The Counselling Service is open from 9.00am to 5.00pm on Monday, Tuesday, Thursday and Friday and from 12 noon to 8pm on Wednesday throughout the year. Times outside the advertised hours may also be arranged. The service operates on both a fixed appointment and "drop in" basis.

**Careers Information Centre**

Location: room 206, level 2, Business and Arts Building

Telephone: 819 8023

The CIC is available to Swinburne students and staff, parents, prospective students and school teachers. The CIC service is free and offers a confidential Careers Information Counselling Service.

The CIC maintains an up-to-date Careers Library with information about courses, careers, prerequisite and recommended subjects, application and selection procedures, transition to the educational campus, special entry procedures and student financial assistance schemes, in particular, AUSTUDY. Students are assisted in accessing and understanding the information through a Careers Information Counselling Service.

A Schools Liaison Program is developed within the CIC to facilitate communication between secondary schools and Swinburne and to assist prospective students to explore educational opportunities available at Swinburne.

The CIC is open throughout the year from 9am to 5pm on Monday, Tuesday, Thursday, Friday and from 12 noon to 8pm on Wednesday.

Information on employers and employment opportunities is provided by the Student Employment Office.

**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, hearing tests (audiograms) and referral information is available (e.g. physiotherapy, dental care and local doctors).

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

Doctor by appointment — 3 hours daily.

Student housing, part-time and vacation employment

Location: Room 401b, top floor, Student Union Building (above the Cafeteria)

Telephone: 819 8882

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

Assistance is also provided for students seeking part-time, casual and vacation 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 and vacation employment notice-board.

The office is open from 9.00am to 5.00pm Monday to Friday (later on Wednesday by appointment for the convenience of part-time students).

Graduate or placement, student employment advice

Location: room 401a, top floor, Student Union Building (above the cafeteria)

Telephone: 819 8521

Assistance is provided for students, former students and graduates seeking full-time employment.

Several services are available including:

- an information and placement service for students seeking full-time employment and details of major recruiting campaigns;
- an employment register for students and graduates seeking work and wishing to change their employment;
- assistance with job application and interview techniques, individually or in group workshops;
- personal guidance and support for students in their search for appropriate employment;
- a campus Interview program where a range of employers visit the campus to interview final-year diploma and degree students;
- an employment resources library including details of employment prospects and career opportunities with private and public employers.

The office is open from 9.00am to 5.00pm Monday to Friday (later on Wednesday by appointment for the convenience of part-time students).
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 on level 2 (room 207), Business and Arts Building. Telephone: 819 8025

Swinburne Chaplaincy

Location: room 207, level 2, BA Building
Telephone: 819 8489

The Chaplain provides spiritual support and pastoral care to members of specific faiths, those seeking a personal framework of meaning and purpose for their own lives and to persons of no particular commitment at all. The Chaplain can provide spiritual advice and direction as well as counselling in an open manner aimed at assisting the individual to find his or her own personal solution to a particular problem or problems. They are also involved in the community life of Swinburne and take part in student activities where appropriate. In particular, they seek to promote a deeper awareness of the dignity and value of human life in all its aspects. The Ecumenical Chaplain is available to celebrate weddings and christenings for members of the Swinburne community. Both the Ecumenical and Jewish Chaplain work in close co-operation with the Student Health and Welfare Unit.

Students and staff are invited to drop in to the Chaplaincy at any time. New students especially, are encouraged to introduce themselves early during their course.

Student loans

With approval of the Loans Fund Committee, long-term and short-term financial assistance may be obtained for full-time students from the following emergency loan funds, some of which are restricted to SIT:

- Commonwealth postgraduate awards assist people studying part-time for Master’s degrees. Details are available from the Registrar.
Access Education Department
Head
J. Learmont, BA(Hons), MEd(Mon), MACE, 819 8816

Compensatory Education
Individual assistance in English and mathematics is available to students of all courses at Swinburne. The need for tuition may be related to a student's problems with a mathematics and/or English subject. Alternatively, difficulties in English or mathematics may affect a student's progress in a range of subjects of their particular course of study. Particular attention is given to the provision of English tuition to TAFE and SIT students from non-English speaking backgrounds.
Tuition may be short-term to overcome a specific difficulty or arranged on a weekly basis over a longer period of time.

Community Access Programs
Staff at the Centre are also responsible for providing access to any members of the community who wish to improve their English and/or mathematics skills.
Consequently, a variety of courses in mathematics and English are available at a range of different skill levels from 1:1 tuition to small group classes. In addition, courses are provided with appropriate mathematics and English content to cater for students interested in sitting an entrance examination in nursing, the police force or the fire brigade.
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.

Catering Department
Manager
P. Boxshall, AFCIA, 819 8172
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 Applied Science 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 (no. 30 on campus map). Hot and cold drinks and food are available.
The Staff Dining Room is located on level 3 of the Applied Science Building, Room no F318.

Central Technical Workshops
Manager
G. Netleship, CEng, MIManE, 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.

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, BEc(Adel)
Enquiries
R. Hodges
Senior Programmer
R. Schorer, BSc(Hons)(Mon)
Operations Supervisor
Q. Kelly
Telephone: 819 8509
The Swinburne Computer Centre provides computing and data processing facilities for teaching, research and administrative applications.
In 1989 the Computer Centre will have three processors available to students who require access to Swinburne's central computing facilities. All these machines will be located in the Computer Centre's main computer room.
(a) IBM 3090/120E
The largest of these three systems is the IBM 3090 Model 120E. This system which replaced the Facom M180N and IBM 4341 mainframes was installed in 1988. The 3090 represents both a major upgrade to the institute's computing resources and a closer association with the mainstream requirements of the computing industry. This association is reflected in the curriculum of the new Bachelor of Information Technology degree and Swinburne's association with IBM which sees Swinburne staff members involved with IBM in the presentation of training programs to industry.
The 3090 is configured with 32 Mb main memory, 16 channels, 15 giga bytes of disc storage and a communications subsystem to support asynchronous and synchronous terminals, local area and wide area networks and several remote user sites. Local terminal facilities are distributed through the Applied Science, Art, Arts, Business and Engineering faculties and the TAFE college.
Users have access to a range of programming languages (including COBOL, FORTRAN, PASCAL, RPG, APL, C, Modula 2, BASIC and Assembler) and software packages (including SPSS, SAS, SIR, IMSL, PDE-PROTRAN, NASTRAN, CADAM and CATIA). Data base products available on the 3090/120 are CICS/DB2, and CULLINET IDMS; support for artificial intelligence applications is provided by IBM’s Expert Systems Environment (ESE) and the operating systems available include VM/XA, MVS/XA and PK.

Swinburne entered an arrangement in 1988 with McCormack and Dodge which has resulted in that company’s financial software being included in Swinburne’s under-graduate accounting programs. Along with our arrangements with IBM (Aust) Limited this is further evidence of commitment to the provision of industry standard computing facilities for our students.

(b) Expert Systems
In association with Intelligent Systems Research Pty Ltd., Swinburne has installed an Olivetti minicomputer to allow access to the 5th Generation language "XL". The facility allows post graduate students to undertake research in the area of expert systems.

(c) UNIX
The first semester 1989 will see the introduction of a new super mini computer specifically assigned to the UNIX operating system. It is anticipated all faculties will become users of the system which will ensure a steady growth path for UNIX use. Access to the machine will be via the existing Microm based, campus wide network. Initially the system will be applied to the study of UNIX and the "C" language and simulation packages.

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 terminal 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 for those problems that cannot be solved by the teaching staff. In addition, seminars are conducted specifically for UNIX at Swinburne. Access to the machine will be via the 5th Generation language.

The Computer Centre produces a publication ‘User News’ several times throughout the academic year. Designed to assist and acquaint users of the system which will ensure a steady growth path.

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

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/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
S. Reilly, PhD(Oregon), BEd(Melb) 819 8855
Assistant to Equal Opportunity Officer
L. Middleton, BA(RMIT), GradDipUrbanSociology(SIT) 819 8804

Location: 463 Burwood Road

Equality of educational opportunity is Swinburne policy. Council’s policy on equal opportunity forbids discrimination on the grounds of sex, race, marital status, impairments, religious or political beliefs, age, sexual preference, and being a parent, childless and de facto spouse. Council is committed to providing an environment which is free from sexual harassment. Admission to courses and assessments of student performance will be conducted according to merit. Special efforts will be made to address imbalances in the distribution of male and female students in some disciplines. Shalini Reilly and Lucille Middleton may be contacted for advice and assistance.

Information Office
Publicity Co-ordinator
R.J. Moore, 819 8460

General enquiries: 819 8444

The Information Office directs internal and community relations activities. The duties include writing and compiling the Swinburne magazine and Swinburne Staff News, producing the Swinburne Handbook and course brochures, staffing the Swinburne Enquiries Office, liaising with the media, placing course advertisements, disseminating course information and publicising the activities of Swinburne Institute of Technology and Swinburne College of TAFE.

Student parking
Enquiries
Student Union, 819 8520

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 a student car park;
- the car being within a parking space and not in an aisle, garden or other inappropriate area; and
- the driver’s observance of directions given by any of Swinburne’s Parking or Security Officers.
Parking permit stickers
Available free of charge from the Student Union Office. ID number and car registration number 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 parking space is not assured.

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

Infringement of parking rules
Parking infringements on Swinburne land attract the same fines that apply on public roads, currently $30.00. Under the Transport Act 1983, 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 car park offers 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, four staff car parks may be used by students after 5.00 pm only:
- North end of John Street
- East end of Wakefield Street
- Paterson Street
- Frederick Street

Additional parking areas which can be used are located immediately behind the Hawthorn Football Ground, accessible from Linda Crescent. Only 6 minutes walk from Swinburne, that area offers ample parking.

Swinburne Commercial Enterprises
Manager
P. Quail, BEC, DipEd, 819 8847
Assistant Manager
E. Gerrand, BBus(SIT), AASA, 819 8069

Swinburne Commercial Enterprises short courses
A. Cassidy, MA(Lond), MIPM, MAITD, 819 8463

Conference Centre bookings
M. Birtwhistle, 819 8554 or 819 8463

General enquiries
S. Donhuie, 819 8463 or 819 8847

The function of Swinburne Commercial Enterprises is to establish and maintain close working relationships between Swinburne staff and outside organisations. This involves interaction with industry, commerce, government organisations and the community.

The Office manages the following services:

Swinburne Applied Research and Development Division
This division organises the services of the staff of Swinburne Institute of Technology or Swinburne College of TAFE for consulting, technical information services, testing or design and development of special projects.

Swinburne Intellectual Property and Technology Transfer
The Liaison Office provides assistance to Swinburne staff in the areas of patents, copyright and trade marks and assists in the marketing of Swinburne ideas and inventions.

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, several small discussion rooms 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.

Swinburne Commercial Enterprises short courses
The staff of the office co-ordinate and manage training courses. Organisations with training needs can have courses developed for their special requirements. The office also assists Swinburne staff in planning departmentally-organised short courses.

Hire of Swinburne facilities
Outside groups wishing to use Swinburne facilities should contact the office to discuss their requirements. Swinburne lecture theatres and classrooms may be booked for use by outside organisations and such bookings must be made through SCE.

TechSafe
TechSafe is a joint venture between Swinburne Institute of Technology, Swinburno College of TAFE and the National Safety Council of Australia (Victorian Division), which provides consulting expertise and training in the field of occupational health and safety. Enquiries should be directed to 819 8463 or the TechSafe telephone, 819 2624.

Swinburne Press
Manager
D. McNaughton, 819 8123

The publications department was established in 1952 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, student 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. It's objectives being to provide an efficient and convenient service to the Swinburne Community as a whole.

The bookshop was set up as a Co-Operative structure to be able to raise working capital via the sale of shares and also to ensure that the control of the operation remained with the members who used the Co-Operative. All profits of the Co-operative 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.
  - Computers, monitors, printers etc.
  - Typewriters.
  - Binding service for presentation of assignments etc.
- You are also able to see 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 12-1.00pm
  - Christmas vacation: Closed mid-December to early February

Services
The bookshop offers a variety of services to students and staff and is receptive to any new ideas.

Further information, rules and regulations can be sought from the Registered Office of the Co-operative, situated in the Union Building, John Street, Hawthorn.

Student activities
Student Union — What is it?
This is a campus-based organisation that is independently managed by students. It unites all students who are enrolled at Swinburne. It is like a trade union in its role of representing and fighting for the rights and entitlements of students.

Through the Student Representative Council, the Union allows students to have input into, and be creative with, their academic courses. Fundamentally, the Student Union strives to ensure that the time a student spends on campus is rewarding, educational, memorable and safe.

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 membership to the Union is automatic on receipt of your general service fee. The purposes for which the Union is established are:

1. To advance the social, educational and general welfare of the student body of Swinburne and to provide services for the student body.
2. To represent and safeguard the students in matters affecting their interests and privileges and to afford a recognised means of communication between the students and the authorities of Swinburne 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 1988 Executive of the Union consisted of:
- President: Lisa King
- Vice-president: Michelle Fergus
- Activities Director: Tory Meathrell
- Education Director: Malcolm Harding
- Media Director: Simon Kirby
- Finance Director: Hilda Thein

The role of the Executive is to control and manage the business and affairs of the Union. The meeting of the Executive occurs 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 and welfare, resource, social activities, and media. These areas are governed by Management Committees, whose responsibility is to develop and implement the 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 shall convene a general meeting to receive and consider the statement submitted by the management committees.

In February or March of each year the Executive calls an Annual General Meeting of the members of the Union. In October or November of each year the Executive convenes a Budget Meeting. At this meeting the proposed Budget for the next financial year is presented by the Executive to the student body for their approval. Further, the Executive reports on the activities of the Union during the period since the last 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 resuming. 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.

Activities Department — clubs and societies

The Activities Department of the Student Union and various clubs and societies organise numerous functions, both of a social and educational nature. The range of activities include lunchtime concerts with bands, solo performers, Union nights, Union days with entertainment and barbeques, comedy and contemporary performers, workshops, Union/issue weeks, part-timer evenings, film afternoons, street theatre and plays, and not forgetting the event of the year — "The Union Ball".

The Activities Department is also responsible for co-ordinating and assisting the student based clubs and societies on campus.

Those active in 1988 included:

- ACES (Association of Civil Engineering Students)
- ASPS (Association of Swinburne Psychology Students)
- Bahai Faith
- BIT P.C. (Bachelor of Information Technology P.Club)
- Business (TAFE)
- Christian Association
- Creation Club
- Electrical & Electronics
- Esoteric Club
- Explorers Club
- Fire Technology (TAFE)
- Gay Society
- Greek Club
- Italian Club
- Japanese Club
- Laboratory Technicians (TAFE)
- Mechanical & Manufacturing (TAFE)
- MEKS (Mechanical Engineering Klub of Swinburne)
- MESS (Manufacturing Engineering Swinburne Students)
- Music Club
- Photographic Society
- Resistance
- SAM (Swinburne Association of Marketing)
- SCABS (Swinburne Chemical And Biology Students)
- SCATT (Swinburne Club Against Tertiary Taxes)
- SLABS (Swinburne League of Advanced Bldg Students — TAFE)
- SLOBS (Swinburne League of Boisterous Students)
- Social & Applied Sciences (TAFE)
- SOSA (Swinburne Overseas Students Association)
- Swinburne Campus Chapter of Engineers
- SWINJSS (Swinburne Jewish Students Society)
- Vietnamese Society
- Wargaming and Role-Playing Society
- Wine Appreciation Society
- Womens Support Network
- World Issues Forum

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 all accidents, 24 hours a day, worldwide. For further details, please contact the Administration Officer 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, administration forms for clubs and societies, and general information. Union personnel that are located in the Union Office include the President, Manager, Education Research Officer and Assistant, and the Administration Officer.

Telephone numbers: 819 2156/2656/2966/8520/8553.

Contact/Information Desk

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 also has listings of various off-campus political/solidarity 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).

Reading Room

This room is designed for quiet reading and discussion, in a non-smoking environment. Newspapers, magazines and information on various groups, issues and organisations are located in this area. Also located in the lounge are two photocopiers. These copiers are cheaper than the library — only five cents per copy (A3 or A4). The Reading Room is open Monday to Thursday from 9.00am to 6.00pm and Friday 9.00am to 4.00pm. It is located in the Student Services Centre.

Tool Library

The Tool Library is located in the Student Services Centre, telephone 819 8291. As the library is a non-profit organisation, its hire rates are very reasonable. All equipment requires a deposit and student/staff ID for borrowing. Deposits can be waived for students/staff if current ID is left in lieu of deposit. Library catalogues are available from the Contact/Information Desk, Tool Library and the Union Office.

Equipment available includes: lawn mowers, engine tune-up kit, arc welder, brush-cutters, electronic typewriters, auto tools, orbital sanders, percussion drills, belt sanders, barbeques, PA system, tents and rucksacks.

The Tool Library is open:

- Monday 9.00am — 5.00pm
- Tuesday 2.00pm — 6.30pm
- Wednesday 2.00pm — 5.00pm
- Thursday 2.00pm — 6.30pm
- Friday 9.00am — 5.00pm

Equipment may be borrowed and returned only during the above hours.
Union coffee lounge
Situated on the third level of the Union Building, this is a comfortable and popular lounge which serves tea, cappuccinos, iced coffee, fresh fruit juices, and quality cakes and pastries. Ideal for those who only want a 'cuppa' without queuing in the cafeterias with the noisy lunch and dinner crowds. Seats 150.

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

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

SCT Resource and Drop-in Centre
To meet the needs of TAFE students a Resource and Drop-in Centre is located on the TAFE campus. In this Centre, parlour games, magazines and tea and coffee making facilities are available free of charge to students. A lounge and study area is also provided for student use.

Radio station
3SSR — Swinburne Student Radio.
Located on the fourth level of the Union Building.
3SSR provides students with a variety of music and other programs which are broadcast to a number of outlets throughout the Swinburne campus. Students are involved in various activities at the station including supervision, work, production of 'on air' programs (DJ'ing), and the general running, management and organisation of station activities.

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

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

Legal Advisor
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.

Education, Welfare and Research Department
All matters pertaining to the quality of education and the socio-political welfare of students on campus are handled by this department. The Union employs a Co-ordinator (on a full-time basis) who oversees the activities of this department. The Co-ordinator is available for consultation on any facet of 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, whether its in regard to their course/assessment, teacher relationship, enrolment process, or whatever. This 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 Union Office.

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 Assistant Education Research Officer to undertake this program. This person is situated in the Union Office.

Camps 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.

Campus Clippe Shoppe
The Union Hairdresser provides an excellent service at very competitive rates. Situated adjacent to the Video Pit — 4th level of the Union Building — the Shoppe is open three days a week. To check opening times, or make bookings, ring the hairdresser direct on 819 8495 or the Union Desk on 819 8520.

Student publications
A twice-weekly publication, Sibull, is provided by the Student Union. This publication provides information about on-campus student activities and other matters of particular interest to students as well as free advertising. It also provides a forum for students to present and argue their views on all matters.

SCAM is the monthly newspaper of Swinburne students. SCAM is published every month, and carries articles on various subjects which probably won't be found in the monopoly media. It is a vocal newspaper analysing social issues pertaining to students and the wider community of which they are part.

Both these are produced at the Media Office of the Student Union. Contributions by students to SCAM are always welcome, in graphics, cartoons or articles. The Union diary and year planner are available at the beginning of each year from the Contact Desk and at re-enrolment.

Club printing
Clubs and societies can have their publicity materials printed free in the Contact/Information Centre. Other publicity materials can be produced at minimal cost.
Word Processing (Typing) Centre
Using IBM word-processors the Student Union operates an essay typing service. It is designed to give you, the student, the opportunity to present your assignments, resumes, etc. in a professional manner. The cost is extremely competitive with those available commercially, and the normal job “turn-around” time is 2-3 days (subject of course to demand). The centre is located on the 4th floor of the Union Building (opposite the Union Office).
Telephone numbers: 819 296618553.

Typing Room
A number of electric typewriters are made available by the Union, free of charge, for use by Swinburne students. To gain access to the machines, students need only exchange their ID cards for a typesetter at the Word Processing Centre (which is situated next door). The Typing Room is open Monday to Friday during Union Office hours.

Sports Association
Executive Officer
A. Clarke, BAppSci(FIT), 819 8018

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, Motorcycle, Netball, Nordic skiing, Orienteering, Sailboarding, SCUBA diving, Skydiving, Snowski, Soccer, Squash, Surfing, Tai Chi, Tae Kwon Do, Tang Soo Do, Tennis, Volleyball and Waterskiing.
Swinburne competes in many intercollegiate 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.
Senior staff
Academic Board
Courses offered and abbreviated titles
Entrance requirements
- Undergraduate
- Postgraduate
Application procedure
- Undergraduate
- Postgraduate
Student Administration Office
Academic statements
Awards
Enrolment regulations
- Conditions
- Fees
- Confirmation
- Amendments
- Leave of absence
- Identity cards
Scholarships and awards
Assessment regulations
- Examinations
- Special examinations
Statute for the degree of Master (by research)
Statute for the degree of Master (by publication)
Statute for the degree of Doctor of Philosophy
Swinburne Centres
Centre for Applied Colloid Science
Swinburne Centre for Applied Neurosciences
Centre for Computer Integrated Manufacturing
Centre for Computing Productivity Institute
Centre for Industrial Democracy
Centre for Marketing Strategy
Science Education Centre
Taxation Research and Advisory Centre
The Science Shop
Centre for Urban and Social Research
Centre for Women's Studies
Swinburne Institute of Technology
Director
J.G. Wallace, MA(Glas), MEd(Glas), PhD(Brist), FAiSSA

Faculty of Applied Science
Dean
J.G. McLean, PhD(Melb), BVSc(Syd), HDA(Hons)
Head, Department of Applied Chemistry
J.K. Jones, PhD, BA(GaR Sci), DipEd(Melb)
Head, Department of Computer Science
(to be appointed)
Head, Department of Mathematics
R. Kavanagh, MA(Dub), MSc(Gal), MASOR, MORS
Head, Department of Physics
R.B. Silberstein, PhD(Melb), BSc(Hons)(Mon), MAIP, MIBME, MACPSM

Faculty of Arts
Dean
B.C. Robinson, FDipArt(RMIT), TTTC
Director, Computer Image Program
P.G. Brown, BA(Hons), HDFA(Lond)
Head, Department of Film & Television
J. Sabine, BA(ANU)
Head, Department of Graphic Design
D.G. Murray, BA(Graphic Design)(SIT) TTTC (Acting)

Faculty of Business
Dean
M.C. Frazer, BSc(Hons)(Mon), GradDipEd Tert(DDIAE), MBA(Mon), PhD(Cumb), AIMM, MAIP
Head, Department of Accounting
B.C. McDonald, BCom, DipEd(Melb), FASA CPA
Head, Department of Data Processing and Quantitative Methods
D.G. Adams, BCom(Melb), MAdmin(Mon), TSTC
Head, Department of Economics
J.B. Wielgosz, BCom(Hons), MA, DipEd(Melb)
Head, Department of Law
B.P. Clarke, LLB, BEd, LLM(Mon), GradDipMkt(CIT), Barrister and Solicitor (Vic) Supreme Court
Head, Department of Marketing and Organisation Behaviour
L.A.J. Zimmerman, BCom, MBA(Melb)

Faculty of Engineering
Dean
L.M. Gillin, PhD(Cantab), MEd, MEngSc, BMedEng(Melb), ASMB(Bali†), FIEAust, FAIM, MACE, AAIP, MAIMME, MAIAA
Head, Department of Civil Engineering
R.B. Sandock, BCE(Melb), FIEAust, MASCE. MACE
Head, Department of Electrical and Electronic Engineering
N. Zorbas, MEngSc, MEd(Melb), BE(Hons)(WAust), MIEEE, FIEAust
Head, Department of Manufacturing Engineering
J.K. Russell, MEngSc, BE(Ind)(Melb), CEng, FIProdE, MiMechE, FIEAust
Head, Department of Mechanical Engineering
J.H. Perry, PhD(Ston), BSc(Tech)(NSW), MIEAust

Composition of Academic Board
Members ex-officio
President of Council
Director
President, Student Union
Deans (5)
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 Art 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.
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, the staff of the Corporate Division, the Swinburne Library, the Education Unit, the Student Health and Welfare Unit and the Computer Centre.
6 members elected by and from the enrolled students of Swinburne Institute of Technology.
2 members of Council elected by Council.
Total membership 47
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)**
- Applied Chemistry
- Biochemistry
- Biophysics
- Computer Science
- Environmental Health
- Instrumental Science
- Mathematics

**Bachelor of Arts (BA)**
- Economics
- Film and Television
- Graphic Design
- Historical and Philosophical Studies
- Italian
- Japanese
- Korean (subject to accreditation)
- Literature
- Media Studies
- Political Studies
- Psychology
- Sociology

The courses in film and television and graphic design are offered by the Faculty of Art; the remainder by the Faculty of Arts.

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

**Bachelor of Business/Bachelor of Arts (Japanese)(BBus BA)**
- Bachelor of Engineering (BEng)*
  - Civil Engineering
  - Chemical Engineering
  - Computer Systems Engineering
  - Electrical Engineering
  - Electronic Engineering
  - Manufacturing Engineering
  - Mechanical Engineering

**Bachelor of Information Technology (BIT)**

**Bachelor of Technology (B'Tech)***
* In certain circumstances this degree may be combined with the Graduate Diploma in Management.

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

- Diploma of Art (DipArt)
- Graphic Design
- Diploma of Building Surveying (DipBld Surv)

---

**Postgraduate Graduade diplomas**

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

- **Accounting**
  - GradDipAcc
- **Air-conditioning**
  - GradDipEng
- **Applied Colloid Science**
  - GradDipAppSc
- **Applied Psychology**
  - GradDipApplied Psych
- **Biomedical**
  - GradDipAppSc
- **Business**
  - GradDipBusAdmin
- **Business Forecasting**
  - GradDipBusForc
- **Business Information Technology**
  - GradDipBusInfoTech
- **CAD/CAM**
  - GradDipEng
- **Chemical Engineering**
  - GradDipEng
- **Civil Engineering**
  - GradDipEng
- **Construction**
  - GradDipAppSc
- **Computer Science**
  - GradDipEng
- **Computer Systems Engineering**
  - GradDipEng
- **Corporate Finance**
  - GradDipCorpFin
- **Digital Electronics**
  - GradDipEng
- **Entrepreneurial Studies**
  - GradDipEng
- **Equal Opportunity**
  - GradDipEng
- **Administration**
  - GradDipEng
- **Film and Television**
  - GradDipArt(F&T)
- **Industrial Chemistry**
  - GradDipAppSc
- **Indusrrial Microbiology**
  - GradDipAppSc
- **Italian**
  - GradDipItalian
- **Japanese**
  - GradDipJapanese
- **Maintenance Engineering**
  - GradDipEng
- **Management**
  - GradDipEng
- **Management Systems**
  - GradDipMgtSys
- **Manufacturing Technology**
  - GradDipEng
- **Operations Research**
  - GradDipAppSc
- **Organisation Behaviour**
  - GradDipOrqBeh
- **Risk Management**
  - GradDipEng
- **Scientific Instrumentation**
  - GradDipAppSc
- **Social Statistics**
  - GradDipAppSc
- **(subject to accreditation)**
- **Telecommunications Systems**
  - GradDipAppSc
- **Management**
  - GradDipAppSc
- **Urban Research and Planning**
  - GradDipUrban
- **Research and Planning**

Not all these courses will be offered for new students in 1989.

**Degree of Master**

By coursework:

- Master of Applied Science in Applied Colloid Science
- Master of Applied Science in Information Technology (from 1990)
- Master of Business (Information Technology)
- Master of Business (Organisation Behaviour)
- Master of Engineering in Computer Integrated Manufacturing
- Master of Engineering (Information Technology)

By research and thesis, and publication: can be undertaken in those areas shown under Bachelor degrees above.

**Degree of PhD**

By research and thesis. Enquiries should be made to the Registrar.
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
For students studying at HSC or TOP level in 1988. Copies of the form are made available through the schools and colleges concerned. Students should consult the VTAC publication, Guide to Courses in Colleges and Universities.

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

Special entry

Applications for all courses, except full-time Arts, must be made to the Admissions Officer on a Swinburne application form.

Application for full-time study in Arts should be made through VTAC.

Full-time

Second year and higher

Applications for 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: 13 January 1989
- Art — Film and Television: 21 October 1988
- Graphic Design: 11 November 1988
- Business Administration: 13 January 1989
- Applied Science: 13 January 1989
- Arts: 13 January 1989
- Business: 13 January 1989
- Engineering: 13 January 1989

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: 13 January 1989
- Arts: 13 January 1989
- Business: 13 January 1989
- Engineering: 13 January 1989

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

Deferred entry

Students who are offered a place in first year for 1989 may apply for a deferment until 1990. 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: 13 January 1989
- Art: 30 September 1988
- Arts*: 30 September 1988
  - Applied Psychology: 21 October 1988
  - Japanese: 18 November 1988
  - Urban Research and Policy: 13 January 1989
  - Business Administration: 6 January 1989
  - Business Information Technology: 6 January 1989
  - All other courses in Business: 27 January 1989
  - Engineering: 13 January 1989

*Late applications will be considered if places are available.

Closings dates for part-time places in second and higher years are:
- Applied Science: 13 January 1989
- Art — Film and Television: 21 October 1988
- Graphic Design: 11 November 1988
- Business Administration: 13 January 1989
- Applied Science: 13 January 1989
- Arts: 13 January 1989
- Business: 13 January 1989
- Engineering: 13 January 1989

Applications for Arts and Business should be made to VTAC, 40 Park Street, South Melbourne, 3205.
All applications for enrolments in courses leading to the degree of Master by research or by publication or Doctor of Philosophy should be addressed to the Registrar.

Copies of the Statutes for the degree of Master by research and by publication and PhD are set out on pages IT13-15.

**Student Administration Office**

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

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

**Location and office hours**

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

Office hours are as follows:

During teaching weeks:
- 8.30am – 6.30pm Monday to Thursday
- 8.30am – 5.00pm Friday

During non-teaching weeks:
- 9.00am – 5.00pm Monday to Friday

Note: The Office is closed on public holidays.

**Academic statements**

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

2. Other statements are available, on request, at the fees shown:
   - (a) List of all results
     - There is a surcharge of $5.00 if results are prior to 1971 as a manual search is then required
   - (b) A list of all results and a statement indicating completion of course
     - $10.00
   - (c) A list of all results plus a list of those remaining to be passed for the completion of the course
     - $10.00
   - (d) A special letter indicating some matter requested by the student
     - $5.00
   - (e) A statement certifying enrolment at Swinburne at date of certificate
     - No charge

**Reports**

- A detailed report of (final) examination
  - $30.00

Access to examination scripts and marks for each question is available on request and without fee.

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

**Students nearing completion of their courses**

Students nearing completion of their courses may obtain a statement indicating all results to date and those subjects required to complete their courses. Fee $10.00.

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

**Awards**

**Applications for degree and diploma**

Students eligible to be admitted to a degree or to be awarded a diploma, graduate diploma or certificate are required to apply for the award on the form prescribed. Forms are available from and must be lodged at, the Student Administration Office, Administration Building.

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

**Enrolment regulations**

**Definitions**

In this section:

- Enrolment includes ‘re-enrolment’.
- Enrolment form includes ‘re-enrolment form’.

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

**Awarding department** means the department or, where courses are organised on a faculty basis (Applied Science, Arts and Business) the faculty responsible for the particular course; ‘head of awarding department’ has a similar meaning and includes the dean of the faculty where appropriate and the nominee of the head of the awarding department or dean.

Deferred entry means an intending first-year student defers enrolment for up to one year on receipt of an offer of a place. Leave of absence means the suspension of enrolment during a course for a specified period at the discretion of the appropriate faculty board on the basis that the enrolment will be resumed at the end of the period.

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

Abandonment means discontinuation of enrolment without formal notification. Abandon 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 in a course is based, being accurate;
- the approval of the head of the awarding department (or his nominee) of the subject 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 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.

Students studying 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 1989 will be at the rate of $70 per weekly contact hour, plus a General Service Fee of approximately $25. In some subjects the fee may be higher.

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. As a guide those for 1988 were:

- Full-time students: $112.00
- Part-time students: $49.00
- Students studying in the co-operative mode: $62.00

For all Institute purposes a part-time student is one enrolled for contact hours involved in his or her course to more 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
- Applied Science diploma: Environmental Health
- Art (Graphic Design) degree: 3rd year
- Civil, Electrical and Electronic, Manufacturing and Mechanical Engineering degrees: 3rd and 4th years

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 $10.00 (where re-enrolment is completed before the commencement of the following semester's teaching), or $20.00 (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 Administration Charge
In 1987 and 1988 all students who enrolled in Swinburne Institute of Technology were required to pay a Higher Education Administration Charge (HEAC). In 1987 the amount of the charge was $250; in 1988 $263.

At the time of printing it was not clear whether or not the HEAC will be retained in 1989. Further details will be provided to students on enrolment or earlier if possible. If such a charge is payable in 1989 it will, generally speaking, not be refundable. See below under Refund of fees.

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 1989.

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 1989.

No refunds of fees will be made where a student withdraws from study after 31 March 1989.

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 Friday 14 April 1989, or
- (b) for subjects concluding at the end of the second semester Friday 1 September 1989.

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 1989.
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 14 April 1989 (for subjects concluding at the end of the first semester), or 1 September 1989 (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 $5.00 per subject will be charged. Students not enrolled in a subject during examination period must seek approval of the faculty concerned. A fee of $20.00 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 1989 general service fee only if their application is received prior to 31 March 1989. Students must also attach copy of their enrolment receipt with their application. Generally speaking, the Higher Education Administration Charge is not refundable (see note under Refund of fees above).

Amendments to personal details
A student who changes his or her name, address or place of employment should complete an Amendment to Personal Details form which is available from the Student Administration Office. Students recording a change of name will be required to produce legal documentary evidence (e.g. marriage certificate, statutory declaration, deed poll certificate) in addition to completing an Amendment to Personal Details form.

Identity cards
When on campus, all enrolled students are required to carry, and to produce on request of a member of staff, the photographic identity card issued to them. The card, which has a maximum life of four years, must be presented for update/validation for the forthcoming year on re-enrolment.

The card includes the authorisation for borrowing from the Swinburne Library. A student who loses an identity card should notify the library as soon as the loss is detected. Cardholders are, under library rules, responsible for any transaction made on the card up to the time of notification of the loss. A replacement card will be issued for a fee of $5.00.

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

Scholarships and awards
There are a number of scholarships and awards for which students from Swinburne Institute of Technology might be eligible. Details of these awards are printed annually in the first issue for August of the Victorian Education Gazette and Teachers' Aid. This publication may be consulted in the library.

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 all results.

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

Chief Examiner
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 person responsible for making recommendations to the Swinburne Council for the grant of a particular award.

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.
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 2.1 above are of even greater importance in the educational 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, where such faculty or department is not also the teaching faculty or department, may nominate one person to be a member of a panel for courses for which he or she is responsible.

4.5 The panel shall, subject to these regulations:

4.5.1 After consultation with the head of the teaching department:
4.5.1.1 determine, prior to the issue of the first test or assignment or test for the subject of the year, the form or forms of assessment to be used;
4.5.1.2 determine the assessment categories to be used for the particular year;
4.5.2 Ensure that each panel member and each person teaching the subject is familiar with the content and objectives of the subject;
4.5.3 Determine the minimum standards which a student must reach or specific work which a student must complete in order to be notified to a faculty board as a passing candidate in the subject;
4.5.4 Ensure that all students enrolled in the subject are informed of the procedures for assessment including minimum attendance requirements and allocation of marks for the subject, prior to the issue of the first assignment or test for the subject for the year.

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 by the board 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 or Technology which is responsible for the teaching of a particular subject.

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 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.
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 the subject panel.

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.

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

5.5 Students requiring extra time

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

6. Examination

6.1 Examination period

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

6.2 Timetables

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

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

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

6.3 Conduct of examinations

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

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

(b) candidates for afternoon examinations will begin writing at 1.45pm. A period of reading time prior to 1.45pm may be allowed. The examination timetable will show the period of reading time.
In (a) and (b) above the examination will be deemed to have commenced at the time candidates began writing.

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

Electronic calculators may not be used during reading time.

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

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

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 appropriate teaching and awarding 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 the Appeals Committee, which 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 — (WWD) late withdrawal
- Not pass — (NA) no attempt

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)

7.1.3 The following notations are applicable in special circumstances:

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

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

- Pass (P) where all individual subjects have been passed;
- Faculty pass (FP) where one or more subjects have been failed but the student is permitted to proceed to the next stage without being required to repeat the subject or subjects failed;
- Not pass (N) where one or more subjects have been failed and the student is required to repeat all or some of the subjects undertaken in the stage for which the faculty result of 'Not pass' was obtained.
7.2 Processing results

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

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

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

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

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

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

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

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

7.3 Deferred results

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

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

7.3.3 Any extension of the period of deferment must have the prior approval of the dean of the awarding faculty who shall fix an alternative date by which the student must have completed the requirements of the subject. Details of the extension granted and the reasons for it shall be notified to the next meeting of the faculty board.

7.3.4 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 para 7.5.6 hereof, 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-designated place on the Institute campus on the date or dates announced by the Registrar for the release of that particular semester’s or year’s results.

7.5.4 No results will be given over the telephone.

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

7.5.6 No certification of current or past academic results will be produced or made available to any student or previously enrolled student or to any other person on behalf of a student or previously enrolled student of the 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.
7.6 Reports
Any student may, on application to the Student Administration Office within 30 days of the publication of the result of assessment for a subject, and after payment of the fee prescribed, obtain a detailed report by the examiner on any material formally assessed.
Fees for such reports shall be determined from time to time by the Director.

(Access to examination scripts and marks for each question will be available on request and without fee.
Enquiries regarding marks or access to scripts should be made directly to the appropriate department or faculty office.)

7.7 Alteration to results
Any alteration to an examination result (whether finalising a deferred result or altering a published result) which is submitted within two months of publication of the original result, may be approved by the dean of the awarding faculty board for the subject in question.
An alteration to final results shall then be forwarded, via the faculty secretary, to the Student Administration Office. The faculty 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.

Where an alteration to final examination results, other than finalising a result for which an extension of time to complete has been granted under section 7.3.3 or 9.4, 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.

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

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

8.1.2 Where a student has obtained a pass category in all subjects except one for an undergraduate qualification and has presented for and failed in the subject in the final semester, or where a student has failed, in his penultimate semester, a subject which was not again available in the final semester.
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 publication of the results of the subject in the final semester.

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

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

8.4 Any extension of that period must have the prior approval of the dean of the awarding faculty who shall fix an alternative date by which the special examination must be finalised. Details of the extension shall be notified to the next meeting of the faculty board.

8.5 The subject convener must submit the result of the special examination to the head of department in time for it to be approved by the dean of the awarding faculty before the due date. The dean shall notify the result to the Student Administration Office and the faculty board.

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

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

10. Special consideration
A student whose work during the academic year or whose performance in an examination or other assessment has been affected by illness or other serious cause may 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. Where no examination is held, application must be made before the end of the first week of the examination period.
No application will be considered after the publication of results.

11. Appeal
Any student or group of students has the right of appeal to the head of the appropriate teaching department about any aspect of the assessment procedure in any subject.
Such appeal shall be lodged within sixty days of publication of the results in that subject, unless otherwise agreed by the Chief Examiner.
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 author-
   ised 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 respon-
   sible 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 MAppSc
   Master of Arts MA
   Master of Business MAppSc
   Master of Engineering MEng

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

4. Admission to candidature
   4.1 Entry requirements
      A person wishing to be admitted to candidature shall have:
      4.1.1 qualified, at a sufficiently meritorious standard, for a degree of the Institute (in a field relevant to
      the work proposed) or such other degree as the Committee may deem equivalent for this purpose;
      4.1.2 qualified for an award judged by the Committee to be of relevant character and appropriate
      standard; and have experience which the Com-
      mittee 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, or; 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, inves-
   tigation 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 pro-
   gram (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 condi-
   tions 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 desig-
   nated 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 respon-
   sibility 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 (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 assess-
   ment 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 can-
   didature should not be terminated.
   Failure on the part of the candidate to demonstrate
   satisfactory progress may result in the Committee termin-
   ating 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 11½ 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 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

It is the Committee’s view that in general the public should have access to the material contained in a masters thesis once the degree has been awarded. However, the Committee recognises that where a program of research is carried out in or in conjunction with a 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 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 his 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 publica-
          tions.
   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 examina-
          tion;
      (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 counter-
   signed by the joint author(s) and supervisor (where ap-
   plicable), 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 qualifica-
    tion.

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 publications submitted shall be in English; if the original
    publication is in a language other than English, a transla-
    tion must be supplied.

13. If the publication is deemed worthy the Committee shall
    instigate the examination of the submission. The publica-
    tion 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 demonstrates:
       (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, or
       (b) fail.
    Publications which have been deemed to have failed may
    not be re-submitted.

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
   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 author-
   ised 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 re-
   sponsible for studies in the particular discipline.

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

3. Admission to candidature
   3.1 Entry requirements
      A person wishing to be admitted to candidature shall
      have:
      3.1.1 qualified for the award of the degree of Master
           of the Institute (in a field relevant to the work
           proposed) or for the award of such other degree
           as the Committee may deem equivalent for this
           purpose; and shall have demonstrated to the
           Committee's satisfaction a capacity for research
           and investigational work in the area of study
           proposed; or
      3.1.2 qualified for an award judged by the Committee
           to be of relevant character and appropriate
           standard; and have experience which fulfils the
           requirements set out in 3.1.1;
   3.2 A candidate who is enrolled for the degree of Doctor
       in the Institute may be permitted to transfer his/her
       candidature to the degree of Doctor of Philosophy
       after the completion of not less than twelve months (or
       its equivalent) of full-time research/coursework.
3.3 Application
No application for admission to candidature may be approved by the Committee except with the support of the faculty board.

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:
   4.3.1 a department of the Institute, or
   4.3.2 an industrial, commercial, governmental, educational or research organisation approved by the Committee, or
   4.3.3 a combination of 4.3.1 and 4.3.2.

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

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

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

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

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

5.5 Where an applicant has been accepted as a doctoral candidate the applicant shall enrol in the 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 determines, one or two supervisors, one of whom shall be a full-time member of the academic staff of the Institute.

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.

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.

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

9.2 The thesis must be typed 1 and a half 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 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.

In the case where the Committee, after considering the reports of the examiners, decides that the candidate may elect to continue under the statute which was in effect at the time his candidature began.

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 candidate's thesis, or is the invention 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 thesis once the degree has been awarded. Where a program of research is carried out in or in conjunction with the type of organization referred to in 4.3.2 above, the candidate, in order to pursue such a program, may be given access by that organization to restricted information which the candidate or the organization does not wish to disclose freely. In such cases the Committee must receive, in writing, from the organization, 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 his candidature began.

Swinburne Centres

Centre for Applied Colloid Science
Co-ordinator
Dr 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 for subscriber companies or organisations to make use of sophisticated equipment and other resources for the investigation of problems in this field.

The Centre promotes the teaching of applied colloid science at both undergraduate and postgraduate levels and through short courses. It also operates as a contact point for visiting members of staff from other academic institutions, companies or government authorities, both local and overseas.

Visitors frequently give lectures and discuss research activities, which proves most advantageous to students at undergraduate and 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.
Swinburne Centre for Applied Neurosciences
Director
Dr R.B. Silberstein, 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.
- Provide a data base of information on the vendors and users of productivity tools, identifying opportunities for Australian software houses to distribute and/or build products where gaps exist.
- Provide and maintain an environment to evaluate and demonstrate productivity tools and techniques.
- Conduct ongoing research into use and misuse of these methods and tools.
- Provide on-campus and in-house courses to raise awareness and facilitate the correct use of the productivity methods and tools.
- Provide consulting in the selection, installation and use of productivity tools.

Centre for Computer Integrated Manufacturing
Chair
W. Thompson, Department of Manufacturing Engineering, 819 8459/819 8372
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 for its Centre 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 academic from other institutes. The Centre has a group of staff available to assist in industrial development projects in CIM. Industrial prototyping can also be done.

Centre for Marketing Strategy
Director
L. Zimmerman, Department of Administration and Law, 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 amend the already well patronised short courses in Marketing and Strategic Planning and intends to increase its portfolio of short courses in the marketing area in the near future.

Science Education Centre
Chair
J.G. McLean, Dean, Faculty of Applied Science
Co-ordinator
Nita Manning, 819 8503
The Science Education Centre operates as part of the Faculty of Applied Science to promote interest in science, technology and mathematics among school students. The major activities of the Science Education Centre are:
- Operation of the Swinburne Travelling Science Show which is designed to stimulate interest in science and technology.
- Providing technical information to secondary school staff.
- Giving secondary students the opportunity to participate in experimental work at Swinburne, using equipment not readily available in schools.
The Taxation Research and Advisory Centre

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 was established in 1988 as a joint initiative of Swinburne with the Commission for the Future. It is seen as a pilot which will lay the foundations for other such centres throughout Australia.

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.

A range of conferences, seminars and short courses are organised, designed to promote communication between scientists and the community.

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. There is a Management Committee composed of staff from the departments of Sociology, Psychology, Mathematics, Civil Engineering and Economics.

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 was established in 1984 and 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 (e.g., feminist theory, women and literature). 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.

A range of conferences, seminars and short courses are organised, designed to promote communication between scientists and the community.
Academic staff .................................................. AS2
Courses offered ................................................ AS3
Higher degrees — Master of Applied Science .... AS3
Professional recognition ................................ AS3
Career potential ............................................... AS3
Entrance requirements ..................................... AS4
Assessment .................................................... AS6
Cooperative education ..................................... AS7
Prizes ........................................................... AS7

Undergraduate courses
Degree of Bachelor of Applied Science
--- Double major in Applied Chemistry .................. AS8
--- Biochemistry/Chemistry ................................ AS8
--- Biophysics/Instrumental Science .................... AS9
--- Computer Science/Instrumental Science .......... AS9
--- Mathematics/Computer Science ................. AS10
--- Environmental Health ............................... AS10
Bachelor of Information Technology ................. AS11

Postgraduate courses
Graduate Diploma in Applied Science ................. AS11
--- Biomedical Instrumentation Option ............... AS11
--- Computer Science .................................... AS12
--- Computer Simulation ................................ AS12
--- Scientific Instrumentation Option ............... AS12
Graduate Diploma in Applied Colloid Science .... AS12
Graduate Diploma in Industrial Microbiology ...... AS13
Master of Applied Science
--- Applied Colloid Science (by coursework) ........ AS13
--- By research ............................................. AS13

Subject details ............................................... AS14
General information ....................................... G1
Swinburne Institute information ....................... IT1
**Faculty of Applied Science**

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

Assistant Registrar (Applied Science)  
J.S. Ure, BSc(Aberd), DTA(ICA)

Administrative Officers  
M.M. Hickey, BSc(Deak)  
J. McNamara, BA(Hons)(Mon)  
M.V. Weir, BA(Mon), GradDipSecStud(CIT)

**Department of Applied Chemistry**

Head  
C. Weerakoon, MSc(Kent), DipEd(Melb)

Principal Lecturers  
J.K. Jones, PhD, BAppSc(SIT), DipEd(Melb)

Lecturers  
R.L. Laslett, MSc(Adel), DipEd(Melb), FRACI  
I.G. McWilliam, AC, DSci(Mon), CCChem, FRACI, MASIA  
D.E. Mainwaring, PhD, BSc(Hons), DIC(Lon), FIEAust

Senior Lecturers  
W.L. Baker, BSc(Hons)(W.Aust), PhD(Syd), ARACI, TTTT  
I.C. Bowater, PhD(Mon), BSc(Hons), DipEd(Melb), ARACI  
R.F. Cross, PhD, BSc(Hons)(Melb), DipEd(Mon), ARACI

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

P.J. Havlicek, MSc(Syd), TTTT, ARACI

T.H. Randle, PhD(Salford), MSc(Lat), BSc, BEd(Melb), ARACI, MSc, MACA, MAMF

Lecturers  
D. Atkinson, PhD, BSc(Hons)(N.Z.), ARACI  
P. Barton, PhD(Adel), BSc(Hons), DipEd

R. Crawford, MAppSc(SIT)

J.V. Fecondo, MSc(Melb), BSc(Hons), ARACI

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

M.J. Honeychurch, BAppSc(SIT)

G. Lonergan, BSc(Hons)(W.Aust)

R.G. Morris, DipPh(RMIT), MA(Hons)

M. Natarajan, PhD(Mon), MSc(Madrid)

J. O'Connor, MSc(Wat), MBzD(Mon), ARMIT, ARACI

A. Panow, BAppSci(SIT)

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

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

M.J. Scarlett, PhD, BSc, DipEd(Melb), ARACI

Co-ordinator of Environmental Health Programs  
J.W. Davis, DipPH(RMIT), GradDipHealthEd(Lincoln), FAIHS

**Department of Computer Science**

Head  
(R to be appointed)

Principal Lecturer  
G.A.K. Hunt, BA(Melb), DipAppChem(SIT), MBioSc, MACS, MACM

Senior Lecturers  
G.P. Martin, PhD(Melb), MSc, BSc(Hons), MIEE, MACS, MACM

L.M. Smith, BSc(Hons), DipEd(Melb), MACS, MACM

Lecturers  
W.J. Cosshall, GradDipEng(SIT), BSc(Deak), MACM, MIEE  
M.J. Creek, PhD(Melb), BSc(Hons)(Melb), DipEd(Melb), BAppSci(SIT)

B. Donaldson, BAppSci(SIT)

R. Jagielski, PhD(Kiev)

A.B. Öppenheimer BSc(Melb), MACS  
L.J.H. Pannan, BSc(Melb), GradDipEd(Hawthorn), GradDipComp(Leu)

P.J. Robb, MSc(Leu), BA(Adel), TSTC(MCACE), MACS

C. Weerakoon, MSc(Stirling), BSc(Eng)(Ceylon), MICE, MIFireEng, MIE

**Department of Mathematics**

Head  
R. Kavanagh, MA(Dub), MSc(Gal), MASOR, MORS

Principal Lecturers  
A.K. Easton, PhD, MSc(Edin), DipEd(Edin), FIMA

P.A. Evans, MSc, DipEd(Melb), MASOR  
J.R. Iacono, MSc, BA(Mon), TPTC

Senior Lecturers  
S.R. Clarke, MA(Lanc), BSc(Hons), DipEd(Melb), MASOR, MORS

N. Gamharn, MSc(Kent), DipEd(Melb)

P.H. Green, BA(Melb)

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

W. O'Dell, BA, DipEd(Melb), MASOR, MORS

B.R. Phillips, MSc(SocSci)(Stirling), BSc, BEd(Melb)

S.E. Weal, MA(Lanc), BAppSci(RMIT), MASOR, MORS

Lecturers  
C.R. Barling, MSc(Salford), DipEd(Haw)

G.T. Clarke, PhD, BA(Hons)(Mon)

H.J. Gielewski, MSc(Melb), PGDip(Edin)(Strath), BSc(Hons)(Melb)

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

E.P. Haulster, MSc(Oxon), DipEd, TTTT

J.C. Herzel, PhD, BA(Melb), MAPS

M.N. Hunter, MSc(Melb)

C.L. Morley, MA(Melb), BA(Hons)(Melb), DipEd(Melb)

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

J. Sampson, BSc(Mon), GradDipEd(GIT), DipSurv(RMIT), TTTT

M. Singh, PhD(Edin), DipED(Mon), MAS

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

D. Trueman, PhD, BA(Hons)(Mon), AMusA(AMEB)

H.P. Yuen, MSc, BSc(Hons)(Melb)

**Department of Physics**

Head  
R.B. Silverstein, PhD(Melb), BSc(Hons)(Mon), MAIP, MIBME, MACPSM

Principal Lecturer  
R.C. Hendle, PhD(Ma Cheryl), BSc(Hons), MSc(Otago), MNZEI, MAIP, FIICA

Senior Lecturers  
E.D. McKenzie, MSc(Melb), CertEd(ATTI), MAIP, MARPS

D. Ward-Smith, PhD, BSc(Hons), DipEd(Melb), MAIP, MACE

A.W. Wood, PhD(London), BSc(Hons)(Bristol), MSc(E Anglia), MAIP, MACPSM

Lecturers  
A. Bartel, BSc(Hons)(Melb)

P.J. Cadusch, PhD, BSc(Hons)(Melb)

J. Ciociare, BAppSci(SIT)

P.D. Cieszkowski, BAppSci(SIT)

J. Hennessy, BSc(Melb), DipMet(CBM), MAIP, TCert(Dept)LNS

D. Lambie, BSc(Hons)(Lat), DipEd(Melb), MAIP

A. Mazzoleni, PhD, BAppSci(Melb), MAIP

R.G.D. Roberts, MSc, DipEd(Ade), DipT(Edin)

M. Schier, BAppSci(SIT), MSc(Mon)

J.M. Venema, BSc, BA(Melb), DipEd(GIT), TTTT(Haw), MAIP

A.M. Williams, MEngSc(Melb), MIBME
Applied Science courses

Degree of Bachelor of Applied Science

The full-time degree courses are programs of cooperative education which extend over eight semesters (four years) and include two semesters of work experience. They comprise either two major studies chosen from applied chemistry, biochemistry, biophysics, chemistry, computer science, instrumental science and mathematics or the group of subjects which constitutes the environmental health course. Students spend a total of twelve months gaining professional experience in industry, business, clinics, government or research laboratories depending on their area of study. The degree courses can also be studied on a part-time basis. Classes are offered in the evening for part-time study if student numbers are sufficient.

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.

The course is part of a National Pilot Program in information Systems in which Swinburne awards a scholarship of $8,000 per year to each student admitted to the course.

Graduate Diploma courses

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

*Subject to approval.

These courses are available for part-time (evening) study only and are designed to be completed over a two-year period.

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 four semesters (two years).

A part-time program leading to the award of Master of Applied Science in Information Technology will be commenced in 1990.

Individual applications for candidature for the degree of Master of Applied Science by research may be made through the Faculty of Applied Science. Intending candidates 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 applied chemistry or biochemistry are recognised by the Royal Australian Chemical Institute.

The courses leading to a degree and including the major in computer science 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 course leading to a degree and including majors in biophysics and instrumental science 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 (environmental health) are recognised by the Health Department of Victoria and the Australian Institute of Health Surveyors.

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:

Applied Chemistry

Applied chemistry is the study of chemical principles and their application to industrial problems. Graduates may find industrial careers in production, quality control, sales, technical services, research and development, and administration.

Employment opportunities exist in the manufacture of industrial and agricultural chemicals, fertilisers, explosives, detergents, plastics, dyes, textiles, paints and cosmetics and in the processing of food, coal, oil, gas and minerals.

Opportunities also exist in government and semi-government organisations such as those concerned with health, environment or power generation.

Biochemistry

Biochemistry is the study of the chemistry of living matter and is based on the principles of organic and physical chemistry. Biochemists study the chemical composition of living organisms and the physical and chemical processes of the living cell.

Applied biochemistry encompasses the chemistry of fermentation, nutrition, agriculture and medicine.

Graduates are employed in industry particularly in the manufacture of drugs and pharmaceuticals, in the food industry, in milk, butter and cheese production, and in the stock-feed industry.

They are also employed in medical clinics, hospitals, pharmaceutical and veterinary laboratories, and in medical research.

Biophysics

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 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.

Computer Science

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

Faculty of Applied Science
Graduates will be employed in various areas depending on the combination of major studies chosen. For example, a student who had majored in computer science/instrumental science 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 mathematics/computer science graduate would be well trained to tackle the solution of the usually intractable problems found in applied mathematics.

**Instrumental Science**

The study of instrumental science provides students with a sound basis in measurement and instrumentation principles and their use in the development of instrumentation for the various industries. 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 biophysics, chemistry, computer science or mathematics.

**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 management research. Mathematical problems have become a significant reality 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.

**Health Surveying**

This course is the only recognised training for health surveyors in Victoria.

The majority of health surveyors 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.

Health surveyors 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 health surveyors assist with quality control work and in complying with health and pollution laws. The number of these opportunities is increasing.

**Information Technology**

The degree course in information technology commenced in 1988 as part of a three year National Pilot Program in Information Systems.

The course equips graduates to meet the shortage of professionals in the application of information technology within business and industry and with an appropriate grounding in management education 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.

**Applied Chemistry, Biochemistry**

**Year 12**

Prerequisite Group 1 subjects: Chemistry and a branch of Mathematics. Recommended additional Group 1 subject: Physics.

**Victorian Certificate of Education (Tertiary Orientation Program)**

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

Swinburne College of TAFE students who satisfactorily complete the Science/Engineering VCE (TOP) are guaranteed entry to the first year.

**Biophysics/Instrumental Science**

**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.

**Computer Science/Instrumental Science**

**Year 12**

Prerequisite Group 1 subjects: A branch of Mathematics and Physics. 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.

**Mathematics/Computer Science**

**Year 12**

Prerequisite Group 1 subject: A branch of Mathematics. Recommended Group 1 subjects: Mathematics A, Mathematics B.

**Victorian Certificate of Education (Tertiary Orientation Program)**

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

**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**

Recommended Group 1 subjects: Mathematics A, Chemistry and Physics.
Science Engineering in appropriate biological sciences, scientists of the equivalent (Computer granted for work wish (Information who or applied and this a Diplomate degree may Iml study and will course. Entrance will be advanced standing. in practical or laboratory work in order to gain a pass. Each who have completed the Graduate Diploma course in Applied Master of Applied Science (Applied Colloid Technology) may be accepted with other qualifications or with less than the usual distinction level, or obtained HI or H2A honours in an undergraduate course. Applicants 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. for admission to the degree courses. Such applications are 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 conversion courses
Holders of recent chemistry and biochemistry diplomas who wish to study for degrees in applied science (applied chemistry and biochemistry) may apply, preferably before 1 November, for admission to the degree courses. Such applications are considered individually by the Head of the Department of Applied Chemistry in consultation with the Faculty Board. Conversion course students are required to pass appropriate subjects from the degree course.

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 reappraisal should consult the lecturer in charge of the subject.

**Mentor scheme**

Each first-year undergraduate student, whether part-time or full-time, is allocated to a particular member of staff who is known as the student’s mentor. These mentors are responsible for guidance on student difficulties, courses, exemptions and re-enrolments.

**Re-enrolment**

Re-enrolling students who require advice about their courses should consult their mentors. If an old syllabus is being followed, changes may be necessary either to complete the old syllabus or to effect the change to 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.

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 enrolls for a Faculty Result and is assessed on the whole of the semester’s (or year’s) work and this assessment is issued as a Faculty Result in one of the following categories:

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

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

   1.3 **The Faculty Pass formula**

   1.3.1 **Assessment categories**

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

   **Assessment category** | **Aggregate score**
   --- | ---
   HD | >85
   D | 75–84
   C | 65–74
   P | 60–64
   P* | 50–59
   N* | 40–49
   N | <40

   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:

   \[ \sum (n_i x_i - 55 n_i) \geq 0 \]

   Where \( n_i \) is the number of hours per week in the \( i \)th subject, and \( x_i \) is the aggregate score in the \( i \)th subject.

   1.3.3 **Deliberative Faculty Pass**

   The Board may award a Faculty Pass to a student whose subject assessment contains not more than two N results and which satisfies the formula in clause 1.3.2, but this is done only in exceptional circumstances, and then only if the progression of the student through the course can be facilitated without adversely affecting academic standards.

   1.3.4 **Exceptions**

   Notwithstanding clause 1.3.2, a student whose academic record in the course contains a previous Faculty Pass shall not be awarded an automatic Faculty Pass.

   1.4 **Supplementary assessment**

   At the discretion of the Board a scheme of restricted supplementary assessment operates for students who have failed to satisfy the examiners in one or two subjects. In these cases consideration of a student’s Faculty Result is deferred until the results of the supplementary assessments are available.

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.

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

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

3. 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. 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. There are also financial benefits in that students are paid a salary during the work experience semesters.

Employers of cooperative students benefit by obtaining a reliable and continuing source of manpower 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 University of Surrey, England and with the University of Victoria, Canada, have been of particular value to chemistry students.

Faculty of Applied Science

Prizes and Scholarships

Eric Bode Prize
A bronze plaque and a prize of $50, 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.

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
Reference books to the value of $100 donated by the Australian Institute of Health Surveyors (Victorian Division) are awarded by the Applied Science Faculty Board to the best student in the final year of the degree course in environmental health.

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. The Faculty will provide information on academic institutions capable of providing supervision there.
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 applied chemistry
2. biochemistry combined with chemistry
3. biophysics combined with instrumental science
4. computer science combined with instrumental science
5. mathematics combined with computer science
6. environmental health

The structures of courses 1 to 6 are described below. Courses combining the single major chemistry with instrumental science, computer science or mathematics are also offered on an individual basis, subject in each case to the approval of the Faculty Board.

Part-time courses

These courses are also 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.

The availability of evening classes depends on student demand. 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. Z051 Double major in Applied Chemistry

This course provides a thorough basis for a career as a professional, industrial or research chemist. It features a range of industrial topics which support and extend the main themes of chemistry while amplifying the students’ industrial experience.

Full-time course

(1986 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC105</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>SC106</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>SK104</td>
<td>6</td>
<td>90</td>
</tr>
<tr>
<td>SM108</td>
<td>6</td>
<td>90</td>
</tr>
<tr>
<td>SP106</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>Semester 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC254</td>
<td>12</td>
<td>180</td>
</tr>
<tr>
<td>SC208</td>
<td>6</td>
<td>90</td>
</tr>
<tr>
<td>SK206</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP206</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SM214</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>Semester 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB215</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>BC156</td>
<td>7</td>
<td>105</td>
</tr>
<tr>
<td>SC355</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>SC356</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SC358</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SC392</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SP356</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>Semester 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC413</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SC454</td>
<td>7</td>
<td>105</td>
</tr>
<tr>
<td>SC455</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>SC456</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SC458</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SC492</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SP456</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>Semester 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA209</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>Semester 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA309</td>
<td>2</td>
<td>30</td>
</tr>
</tbody>
</table>

2. Z052 Biochemistry/Chemistry

This course involves the study of the structure and function of the chemical systems of living organisms and the application of this knowledge in the areas of clinical chemistry, pharmaceutical chemistry, the food industry, and other fields. The course also provides a sound background in the theory and application of analytical and preparative techniques in the practice of biochemistry, reinforced by the inclusion of industrial experience.

Full-time course

(1986 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC104</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>SC106</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>SC108</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>SK104</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>SM108</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>SP106</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>Semester 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC254</td>
<td>12</td>
<td>180</td>
</tr>
<tr>
<td>SC208</td>
<td>6</td>
<td>90</td>
</tr>
<tr>
<td>SK206</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP206</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SM214</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>Semester 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB215</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>BC156</td>
<td>7</td>
<td>105</td>
</tr>
<tr>
<td>SC355</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>SC356</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SC358</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SC392</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SP356</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>Semester 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC413</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SC454</td>
<td>7</td>
<td>105</td>
</tr>
<tr>
<td>SC455</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>SC456</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SC458</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SC492</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SP456</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>Semester 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA209</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>Semester 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA309</td>
<td>2</td>
<td>30</td>
</tr>
</tbody>
</table>

Semester 7

| AB619 Communication Studies | 1 | 15 |
| AB601 Chemical Data Processing | 3 | 45 |
| SC554 Chemistry | 5 | 75 |
| SC555 Practical Chemistry | 3 | 45 |
| SC556 Applied Chemistry | 4 | 60 |
| SC564 Industrial Chemistry | 4 | 60 |
| SC592 Applied Chemistry Practical | 4 | 60 |

Semester 8

| BS515 Business Studies | 4 | 60 |
| BS64 Chemistry | 4 | 60 |
| SC655 Practical Chemistry | 3 | 45 |
| SC656 Applied Chemistry | 5 | 75 |
| SC664 Industrial Chemistry | 4 | 60 |
| SC692 Applied Chemistry Practical | 4 | 60 |
3. 2054 Biophysics/Instrumental Science

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 instrumental and life sciences. The biophysics has a clinical orientation and consists of two parallel streams, human physiology and biophysical instrumentation.

The instrumental science provides a sound foundation in instrumentation principles and considers the design and use of both single instruments and multi-instrument systems.

Full-time course

(1986 syllabus)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC154</td>
<td>5</td>
<td>SC154</td>
<td>75</td>
</tr>
<tr>
<td>SC105</td>
<td>4</td>
<td>SC105</td>
<td>60</td>
</tr>
<tr>
<td>SC654</td>
<td>4</td>
<td>SC654</td>
<td>60</td>
</tr>
<tr>
<td>SC655</td>
<td>3</td>
<td>SC655</td>
<td>45</td>
</tr>
<tr>
<td>SC626</td>
<td>4</td>
<td>SC626</td>
<td>60</td>
</tr>
<tr>
<td>SC698</td>
<td>2</td>
<td>SC698</td>
<td>30</td>
</tr>
<tr>
<td>SC699</td>
<td>2</td>
<td>SC699</td>
<td>30</td>
</tr>
</tbody>
</table>

4. 2056 Computer Science/Instrumental Science

The computer science 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 logic, programming techniques and systems science.

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

Full-time course

(1986 syllabus)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK104</td>
<td>5</td>
<td>SK104</td>
<td>75</td>
</tr>
<tr>
<td>SM108</td>
<td>5</td>
<td>SM108</td>
<td>75</td>
</tr>
<tr>
<td>SP106</td>
<td>5</td>
<td>SP106</td>
<td>75</td>
</tr>
<tr>
<td>SP210</td>
<td>8</td>
<td>SP210</td>
<td>120</td>
</tr>
<tr>
<td>SP310</td>
<td>4</td>
<td>SP310</td>
<td>60</td>
</tr>
<tr>
<td>SP330</td>
<td>4</td>
<td>SP330</td>
<td>60</td>
</tr>
<tr>
<td>SK204</td>
<td>8</td>
<td>SK204</td>
<td>120</td>
</tr>
<tr>
<td>SP409</td>
<td>4</td>
<td>SP409</td>
<td>60</td>
</tr>
<tr>
<td>SM419</td>
<td>3</td>
<td>SM419</td>
<td>45</td>
</tr>
<tr>
<td>SP411</td>
<td>4</td>
<td>SP411</td>
<td>60</td>
</tr>
<tr>
<td>SP430</td>
<td>4</td>
<td>SP430</td>
<td>60</td>
</tr>
<tr>
<td>SK404</td>
<td>9</td>
<td>SK404</td>
<td>135</td>
</tr>
<tr>
<td>SA209</td>
<td>Work Experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA309</td>
<td>Work Experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA309</td>
<td>Work Experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SK601</td>
<td>8</td>
<td>SK601</td>
<td>120</td>
</tr>
<tr>
<td>SP601</td>
<td>4</td>
<td>SP601</td>
<td>60</td>
</tr>
<tr>
<td>SP610</td>
<td>4</td>
<td>SP610</td>
<td>60</td>
</tr>
<tr>
<td>SP630</td>
<td>4</td>
<td>SP630</td>
<td>60</td>
</tr>
<tr>
<td>SK604</td>
<td>4</td>
<td>SK604</td>
<td>60</td>
</tr>
<tr>
<td>SB601</td>
<td>2</td>
<td>SB601</td>
<td>30</td>
</tr>
<tr>
<td>SB617</td>
<td>2</td>
<td>SB617</td>
<td>30</td>
</tr>
<tr>
<td>BS618</td>
<td>2</td>
<td>BS618</td>
<td>30</td>
</tr>
</tbody>
</table>
5. Z059 Mathematics/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 and resource planning or allocation. Since many operations research and statistical studies result in, or use, computer-based systems, this course is complemented by the computer science major.

The computer science 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 logic, programming techniques and systems science.

Full-time course
(1986 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS611 Business Studies</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>SA102 Physical Science</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>SK104 Computer Science</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>SM127 Mathematics 1</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>One of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC154 Chemistry</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>SC108 Biology</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>SP106 Physics</td>
<td>5</td>
<td>75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS612 Business Studies</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>SA202 Physical Science</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>SK204 Computer Science 2</td>
<td>8</td>
<td>120</td>
</tr>
<tr>
<td>SM225 Operations Research 2</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SM226 Applied Statistics 2</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SM227 Mathematics 2</td>
<td>3</td>
<td>45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB313 Complementary Studies</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SK304 Computer Science 3</td>
<td>8</td>
<td>120</td>
</tr>
<tr>
<td>SM304 Industrial Case Studies</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SM325 Operations Research 3</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SM326 Applied Statistics 3</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SM327 Mathematics 3</td>
<td>3</td>
<td>45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 4</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA309 Work Experience</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 5</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA309 Work Experience</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 6</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK404 Computer Science 4</td>
<td>9</td>
<td>135</td>
</tr>
<tr>
<td>SM404 Project Management A</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SM425 Operations Research 4</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SM426 Applied Statistics 4</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SM427 Mathematics 4</td>
<td>3</td>
<td>45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 7</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS517 Business Studies</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SK504 Computer Science 5</td>
<td>9</td>
<td>135</td>
</tr>
<tr>
<td>SM504 Project Management B</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SM525 Operations Research 5</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>SM526 Applied Statistics 5</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SM527 Mathematics 5</td>
<td>2</td>
<td>30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 8</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA609 Special Project</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>SM625 Computer Science 6</td>
<td>8</td>
<td>120</td>
</tr>
<tr>
<td>SM626 Operations Research 6</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>SM627 Applied Statistics 6</td>
<td>3</td>
<td>45</td>
</tr>
</tbody>
</table>

Complementary Studies
2 subjects chosen from:
| AB611 Science and Society | 2 | 30 |
| AB612 Science and Ethics | 2 | 30 |
| BS617 Computers and the Law | 2 | 30 |
| BS618 Management of Human Resources | 2 | 30 |

6. H050 Environmental Health

This course is the statutory qualifying course for health surveyors 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
(1986 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS141 Introductory Law</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>MP107 Engineering Drawing and Sketching</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>SC100 Environmental Health (1)</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>SC109 Biology</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>SC150 Chemistry</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>SM110 Mathematical Methods</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>SP119 Physics</td>
<td></td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours</th>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB210 Applied Psychology</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>MF207 Engineering Drawing and Sketching</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>SK210 Applied Computing Methods</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>SC205 Biology</td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>SC520 Chemistry</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>SM210 Mathematical Methods</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>SP219 Physics</td>
<td></td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Hours</th>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB310 Behavioural Studies</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>BS253 Law: Environmental Protection, Health &amp; Food Laws</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>CE236 Health Engineering</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>ME249 Environmental Engineering</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>SA311 Building Construction (1)</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>SC340 Applied Food Science</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>SC349 Microbiology</td>
<td></td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 4</th>
<th>Hours</th>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS254 Law: Procedure and Evidence</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>SA411 Building Construction (2)</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>SC400 Environmental Health (2)</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>SC410 Environmental Health Field Practice (1)</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>SC440 Applied Food Science</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>SC449 Microbiology</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>SC452 Epidemiology</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>SP419 Occupational Health and Safety</td>
<td></td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 5</th>
<th>Hours</th>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA508 Work Experience</td>
<td></td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 6</th>
<th>Hours</th>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA309 Work Experience</td>
<td></td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 7</th>
<th>Hours</th>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB510 Communication Skills</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>BS439 Administrative Law</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>CE436 Health Engineering</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>SC500 Environmental Health (3)</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>SC510 Practical Food Inspection</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>SC540 Applied Food Science</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>SC550 Environmental Chemistry</td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>SC552 Epidemiology</td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 8</th>
<th>Hours</th>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS439 Administration and Management</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>BS448 Law, Science, Technology and Social Change</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>CE423 Town and Country Planning</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>II-441 Occupational Engineering</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>NF517 Industrial Processes and Pollution Control</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>SC600 Environmental Health (4)</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>SC609 Health Education</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>SC610 Environmental Health Field Practice (2)</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>SC649 Microbiology</td>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>
1050 Bachelor of Information Technology

The course equips graduates to meet the shortage of professionals in the application of information technology within business and industry and with an appropriate grounding in management education to prepare them for future roles in management. The course is offered as part of a Commonwealth pilot scheme and is conducted as a full-time course 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 of $8000 per annum to each student admitted to the course.

Segment 1
IT101 Computer Fundamentals
IT102 Introduction to Programming
IT103 Business Applications I
IT104 Management and Communications

Segment 2
IT201 Decision Analysis
IT202 COBOL programming
IT203 Business Applications and Systems 2
IT204 Accounting 1

Segment 3 (Summer Term)
IT301 Systems Software 1
IT302 Organisation Behaviour
IT303 Database Management Systems 1

Segment 4
IT401 Industry Based Learning

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
IT502 Systems and Information Analysis 2
IT503 Data Base Management Systems 2
IT504 Data Communications 1
IT505 Software Engineering 1

Specialist Unit
At least two of these must be taken from the subjects marked with an asterisk.
IT506 Systems Software 2
IT508 Expert Systems*
IT509 Computer Graphics and Imaging 1
IT511 Systems Software 3
IT516 Telecommunications
IT517 Systems and Information Analysis 2
IT520 Systems Software 3
IT522 Expert Systems*
IT523 Data Base Management Systems 3
IT524 Data Communications 2*
IT525 Artificial Intelligence*
IT526 Computer Graphics and Imaging 2*
IT527 Software Engineering 2* Manufacturing Systems*

Segment 7
IT701 Systems Software 4
IT702 Signal Processing
IT703 Expert Systems*
IT704 Database Management Systems 3
IT705 Signal Processing
IT706 Artificial Intelligence*
IT707 Software Engineering 2*
IT708 Computer Graphics and Imaging 2*
IT709 Manufacturing Systems*

Segment 8 (Summer Term)
IT801 Project
IT802 Seminars and Project Management and Control

Postgraduate courses

Graduate Diploma in 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, Computer Simulation and Scientific Instrumentation. Subject to accreditation programs will also be introduced in 1989 in Industrial Chemistry, Operations Research and Social Statistics.

All of these options are designed as two-year part-time courses offered only in the evening and extending over four fifteen-week semesters. 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 Option

(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, a candidate must complete eight of the subjects listed below, at least six of which must be at the advanced level, including the project and at least two biomedical subjects.

Each subject comprises sixty 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.

List of subjects

<table>
<thead>
<tr>
<th>Biomedical subjects</th>
<th>Hours/week</th>
<th>Hours/semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introductory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP555</td>
<td>Introduction to Biophysical Systems</td>
<td>4</td>
</tr>
<tr>
<td>Advanced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP531</td>
<td>Biophysical Systems and Techniques*</td>
<td>4</td>
</tr>
<tr>
<td>SP532</td>
<td>Clinical Monitoring Techniques</td>
<td>4</td>
</tr>
<tr>
<td>SP533</td>
<td>Aspects of Metabolic Measurements</td>
<td>4</td>
</tr>
<tr>
<td>SP534</td>
<td>Neurophysiological Techniques</td>
<td>4</td>
</tr>
<tr>
<td>SP537</td>
<td>Medical Imaging (subject to approval)</td>
<td></td>
</tr>
<tr>
<td>Instrumentation subjects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introductory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP551</td>
<td>Instrumentation Principles and Techniques</td>
<td>4</td>
</tr>
<tr>
<td>SP552</td>
<td>Introduction to Scientific Instrumentation</td>
<td>4</td>
</tr>
<tr>
<td>SP553</td>
<td>Introduction to Instrumentation Electronics</td>
<td>4</td>
</tr>
<tr>
<td>EE554</td>
<td>Electronic Systems</td>
<td>4</td>
</tr>
<tr>
<td>Advanced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP541</td>
<td>Signal Processing</td>
<td>4</td>
</tr>
<tr>
<td>SP542</td>
<td>Optical Instrumentation</td>
<td>4</td>
</tr>
<tr>
<td>SP543</td>
<td>Vacuum Systems</td>
<td>4</td>
</tr>
<tr>
<td>SP544</td>
<td>Nuclear Instrumentation</td>
<td>4</td>
</tr>
<tr>
<td>SP545</td>
<td>Instrument Programming and Interfacing</td>
<td>4</td>
</tr>
<tr>
<td>SP546</td>
<td>Instrumentation Systems</td>
<td>4</td>
</tr>
<tr>
<td>SC551</td>
<td>Chemical Instrumentation</td>
<td>4</td>
</tr>
<tr>
<td>SK551</td>
<td>Computer Programming Techniques</td>
<td>4</td>
</tr>
<tr>
<td>SK553</td>
<td>Computer Simulation</td>
<td>4</td>
</tr>
<tr>
<td>EE541</td>
<td>Control Theory Applications</td>
<td>4</td>
</tr>
<tr>
<td>EE542</td>
<td>Applications of Computer Devices</td>
<td>4</td>
</tr>
<tr>
<td>EE543</td>
<td>Data Transmission Instrumentation</td>
<td>4</td>
</tr>
<tr>
<td>Project unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP555</td>
<td>Project (Biomedical)</td>
<td>4</td>
</tr>
</tbody>
</table>
2088  Computer Science  
(1988 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.

To qualify a student must complete the eight subjects listed below. These form a two year part-time (evening) program normally requiring attendance for eight hours (two evenings) per week for four semesters.

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK701</td>
<td>Computer Programming and Logic</td>
</tr>
<tr>
<td>SK702</td>
<td>Selections from Computer Science</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK703</td>
</tr>
<tr>
<td>SK704</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK705</td>
</tr>
<tr>
<td>SK706</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK711</td>
</tr>
<tr>
<td>SK712</td>
</tr>
</tbody>
</table>

Students who complete this course at an acceptable level may be admitted to the third year of the part-time Masters Degree Course in Information Technology.

2089  Computer Simulation  
(1988 syllabus)

This option is for graduates who have a professional interest in the use of computers for the modelling of systems. It provides a specialised and practical training enabling graduates to follow professional occupations in the fields of computer simulation.

To qualify a student must complete the eight subjects listed below. These form a two year part-time (evening) program normally requiring attendance for eight hours (two evenings) per week for four semesters.

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK701</td>
<td>Computer Programming and Logic</td>
</tr>
<tr>
<td>SK721</td>
<td>Simulation Methods and Tools II</td>
</tr>
</tbody>
</table>

| SK722      | Methodology of Simulation | 4 |
| SM701      | Mathematical Techniques of Simulation | 4 |

<table>
<thead>
<tr>
<th>Semester 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK723</td>
</tr>
<tr>
<td>SM702</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK711</td>
</tr>
<tr>
<td>SK712</td>
</tr>
</tbody>
</table>

2083  Scientific Instrumentation Option  
(1984 syllabus)

This option is designed to serve the needs of graduates in scientific and engineering disciplines who require a detailed knowledge of the design, construction and operation of modern laboratory instrumentations.

To qualify, a student must complete eight of the subjects listed below, at least six of which must be at the advanced level including the project.

Each subject comprises sixty 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.

2081  Graduate Diploma in Applied Colloid Science  
(1980 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 fifteen-week semesters.

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours/week</th>
<th>Hours semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC530</td>
<td>Properties of Colloids</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC531</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective Subject</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective subject</td>
</tr>
</tbody>
</table>

* The elective subjects are chosen from the following list:

- SC532  Emulsion Technology
- SC533  Polymer Flocculation
- SC534  Mineral Processing/Chemistry
- SC535  Detergency
- SC536  Surface Coatings
- SC537  Corrosion and Protection of Metals

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.
Z082  **Graduate Diploma in Industrial Microbiology**  
(1979 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 activities require a practical knowledge of industrial microbiology.

The course provides theoretical knowledge and applied practical skills in all areas of microbiology, with particular emphasis on applied microbiology, including such areas as fermentation technology, growth kinetics, biotechnology, genetic engineering and the identification and control of microbes.

The areas of study are suitable for personnel engaged in production, sales, services and management in industrial and other fields. Special provision is made early in the course for those students whose knowledge of biochemistry is minimal or out-of-date.

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

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>week</td>
<td>semester</td>
</tr>
<tr>
<td>SC541</td>
<td>Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>SC542</td>
<td>Practical Work</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC543</td>
<td>Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>SC544</td>
<td>Practical Work</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC545</td>
<td>Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>SC546</td>
<td>Practical Work</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC547</td>
<td>Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>SC548</td>
<td>Practical Work</td>
<td>4</td>
</tr>
</tbody>
</table>

Z091  **Master of Applied Science (Applied Colloid Science) by coursework**  
(1985 syllabus)

The aims of this course are to provide students with an understanding of modern colloid science at an advanced level, to develop research capabilities and to introduce the latest technology to industry. The course builds on the Graduate Diploma in Applied Colloid Science by providing a program of lectures at an advanced level. Students are also required to 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 the equivalent of five hours per week. Research may be undertaken at the place of employment, with the Swinburne Colloid Laboratory or similar institution.

A feature of this course is the contribution to the lecturing program 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.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>week</td>
<td>semester</td>
</tr>
<tr>
<td>SC710</td>
<td>Dispersion Forces and Thin Films</td>
<td>2</td>
</tr>
<tr>
<td>SC714</td>
<td>Colloid Research Project</td>
<td>5</td>
</tr>
</tbody>
</table>

2090  **Master of Applied Science by research**

in areas of applied chemistry, biochemistry, biophysics, instrumental science, computer science and mathematics

Graduates at Bachelor's degree level who have shown a high standard of academic achievement may be admitted to candidature for the degree of Master of Applied Science.

To be assessed for this degree, a candidate must present a major thesis based on original research, investigation or development work carried out either at Swinburne or externally. External work may be carried out at any approved industrial, governmental, educational or research organisation.

Copies of the Statute for the degree of Master and application forms are available from the Registrar's Office.
Applied Science subject details
This section contains a brief description of the subjects which comprise the Applied Science courses.

Reading guides
Because of the frequency with which individual publications become out-dated, and are superseded, no textbooks and references are listed in the subject details.
In most subjects a detailed reading guide will be issued during the first week of classes and students are advised not to purchase textbooks or reference books until the classes commence unless they have previously consulted the lecturer in charge of the subject.
Students wishing to carry out preliminary reading in a subject should consult the lecturer in charge of that subject for guidance.

Subject details
Subject codes are listed in numerical order within the following groups:

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA</td>
<td>Applied Science</td>
</tr>
<tr>
<td>SC</td>
<td>Chemistry</td>
</tr>
<tr>
<td>SK</td>
<td>Computer Studies</td>
</tr>
<tr>
<td>SM</td>
<td>Mathematics</td>
</tr>
<tr>
<td>SP</td>
<td>Physics</td>
</tr>
<tr>
<td>AB</td>
<td>Liberal Studies</td>
</tr>
<tr>
<td>BS</td>
<td>Business</td>
</tr>
<tr>
<td>CE</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>EA</td>
<td>Chemical Engineering</td>
</tr>
<tr>
<td>EE</td>
<td>Electrical and Electronic Engineering</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>ME</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>MP</td>
<td>Manufacturing Engineering</td>
</tr>
</tbody>
</table>

SA102 Physical Science
Five hours per week for one semester
Assessment by practical work, assignments and examination

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

Methodology
This series of lectures introduces students to the role of science in modern society and will include discussion on areas such as genetic engineering, science and public policy, science and the environment, etc.

Physics (45 hours)
Lecture/demonstrations and discussion groups will cover the following topics:
- Natural philosophy
- Dimensional analysis
- Celestial mechanics
- Jet propulsion
- Wave model for electromagnetic radiation
- Energy transformation
- Relativity

SA202 Physical Science
Four hours per week for one semester
Assessment by practical work, assignments and examination

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

Methodology
Lectures will include a discussion on the nature of scientific method.

The role of analogies and models, acquisitions of theories — heuristic and inductive uses of theories. Criticism and acceptance of theories.

Chemistry (45 hours)
The following topics will be discussed and illustrated where appropriate by practical experiments:
- Chemical reactions and equations
- Stoichiometry
- Analysis
- Organic chemistry
- Radioactivity

SA208 Work Experience
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. Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor.

SA308 Work Experience
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. Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor.

SA309 Work Experience
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. Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor.

SA311 Building Construction (1)
Thirty hours for one semester
Assessment based on test and assignments

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. This includes an examination of foundations, footings, internal and external claddings, framing and roof structures.

This section will cover the various forms of construction in conjunction with the relevant provisions of the Victorian Building Regulations and the Timber Framing Code. It will also be concerned with construction practices related to concrete, steel, timber, and masonry.

SA411 Building Construction (2)
Thirty hours for one semester
Assessment by tests and/or assignments

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

Introduction to waste disposal theory with reference to the following systems — vented, vented modified, single stack, single stack modified. Introduction to waste disposal fittings — including standards of installation, applications, and methods of inspection.

SA601 Chemical Data Processing
Two hours per week for one semester
Assessment by assignments and examination

A fourth-year subject of the degree course in applied chemistry and biochemistry.

Chemometrics. The use of computers and mathematics to process chemical data. Topics will change according to current practice and will include some of the following: computer systems, interfacing computers with chemical instruments, data acquisition methods, data transformation methods (e.g., Savitzky-Golay, Fourier transformation), data interpretation (e.g., comparison with reference spectra), some commercial systems (e.g., Infrared Data Station), laboratory automation and data banks.
SA609 Special Project
Four hours per week for one semester
Assessment by written and oral presentation
A four-year subject of the degree courses in computer science.

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.


Administration: the structure and role of Federal, State and Local Government agencies involved in environmental health, pollution control and occupational health and safety.

A brief overview of appropriate legislation that the health surveyor is required to administer.

SC108 Biology
Four hours per week for one semester
A first-year subject of the degree courses.

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.


Digestive system: the arrangement and functions of the digestive system.


Muscular system: types of muscle and their roles. Mechanism of contraction, Conduction in the heart.

Immune system: reticuloendothelial system. Inflammation, phagocytosis; lymphocytes, cell-mediated immunity, antibody-mediated immunity.

Nervous system: nerves and excitability; transmission, the synapse; simple reflex arc. Overview of functions and structures in the central nervous system.

Endocrine system: functions. Major glands, their products and functions.

Reproductive system: anatomy, gametogenesis, contraception, pregnancy.

Regulation of body systems: responses to stresses such as exercise, shock.

During teaching of the above topics safety measures will be emphasised.

Practical work in the course includes use of the microscope in the examination of cells and tissues, the testing of body parameters and such specialized equipment as spirometers and electrocardiographs. Microcomputers are used by students in exercises that simulate certain body functions.

SC109 Biology
Four hours per week for one semester
A first-year subject of the degree course in environmental health.

For details, see SC108 Biology.

SC150 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.


Practical Work: Chemical reactions, filtrations, pH measurement, inorganic techniques.

SC154 Chemistry
Five hours per week for one semester
A first-year subject of the degree courses in applied science, except environmental health.

Quantitative aspects of chemical reactions.

Properties of chemical reactions: extent and equilibria; gaseous equilibria; solution; equilibria; kinetics; applications.

Energy from chemical reactions: heat energy, chemical potential; 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 course in applied chemistry and biochemistry.

Chemical basis of nutrition: an introduction to the molecules and compounds which are commonly found in the normal diet. In this unit an outline will be given of the fate of ingested glucose, protein and fat, the role of vitamins and trace elements, and the energy and caloric content of food. An attempt will be made to relate certain disease processes to nutritional states and indicate some problems associated with food toxicity.

Basic microbiology: an introduction to the microbial world to include the history, nature and scope of microbiology. Elements of the microbial world to range from viruses, rickettsia, chlamydia, bacteria, algae and blue-green algae. Methods of handling micro-organisms, methods of isolation and methods of growth. Relationships between micro-organisms and pathogenicity.


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.

SC250 Chemistry
Five hours per week for one semester
A first-year subject of the degree course in environmental health.

Rates of chemical reactions: factors affecting rates of reaction; mathematical expressions and rate laws; first order rate and radioactive decay.

Organic chemistry: structure, nomenclature, reactions and uses of the main classes of organic compounds.

Spectroscopy: infrared, UV-visible and atomic absorption methods of analysis. Water Chemistry and air pollution.

Practical work: inorganic reactions, kinetics, organic experiments, water analysis and stream pollution survey.
SC254 Chemistry
Twelve hours per week for one semester
A first-year subject of the degree course in applied chemistry and biochemistry.

- Structure of atoms and molecules: spectra; energy levels; electronic configuration of elements; periodic table; shapes of molecules; arrays.
- Chemical bonding: covalent; polar; metallic; hybridization; multiple bonds; resonance.
- Organic chemistry: alkenes and alkenes; benzene and other aromatic compounds; alcohols; ethers; nitriles and amides; aldehydes and ketones; carboxylic acids and their derivatives.
- Inorganic chemistry: ionic bonding; intermolecular bonding.
- Analytical chemistry: precipitation equilibria; complex ion equilibria.
- Physical chemistry: thermodynamics; First and Second Law; thermochromy; free energy and equilibria.
- Practical chemistry: bonding; inorganic and analytical; organic; physical.

SC255 Chemistry
Four hours per week for one semester
A first-year subject of the degree course in biophysics.

- Chemical bonding: ionic, covalent, metallic bonds; hydrogen bonds; van der Waals’ bonding.
- Thermodynamics: entropy, free energy; relation to chemical equilibrium.
- Organic chemistry: alkanes, alkenes, alkydes; benzene and derivatives; alcohols, aldehydes, carboxylic acids; esters; ethers; amines; amides; IUPAC nomenclature; polymers.
- Chemistry of living cells: 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; Kreb’s cycle; fatty acid oxidation; electron transport; oxidative phosphorylation.

SC340 Applied Food Science
Four hours per week for one semester
A second-year subject of the degree course in environmental health.

- Food processing: introduction to processes used in the food industries for the preparation and processing of foods. Problems or potential problems associated with these 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.). Palatability and digestibility of foods, chemical stability of foods. Chemical 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 and 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.

SC349 Microbiology
Four hours per week for one semester
A second-year subject of the degree course in environmental health.

- 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 chloride which are suitable for extensive waterways.
- Immunology: basic tenets of immunology to include the mechanism of production of antibodies in response to antigens. Vaccination and immunisation.

SC354 Chemistry
Seven hours per week for one semester
A second-year subject of the degree course in applied chemistry and biochemistry.

- Chromatography: mechanisms of retention and general principles. Column chromatography, theory and practice. Sample introduction, mobile phases, column types and detectors in GC and HPLC. Plane chromatography.
- Analytical sampling. Sample size reduction. Factors in selection of qualitative analytical techniques. Advantages and limitations of gravimetry, titrimetry, spectrophotometry (UV/visible and AA), selected electrochemical techniques (electro-deposition, polarography, stripping analysis and ion-sensitive electrodes), quantitative separation-based methods (GC and HPLC) and thermal quantitative methods. Treatment of analytical data: errors, statistics, etc.
- Spectroscopy: definitions and principles. Basic instrumentation and variables that affect the spectrum. Theory, experimental practice and analysis of infra-red spectra, atomic spectra and UV/visible spectra. Descriptive chemistry: chemistry of the elements. Thermodynamics of selected inorganic compounds. The chemistry of halides, oxides and hydrides, transition elements and their compounds and lanthanides and their compounds.

SC355 Practical Chemistry
Four hours per week for one semester
A second-year subject of the degree course in applied chemistry and biochemistry.


SC356 Applied Chemistry
Three hours per week for one semester
A second-year subject of the degree course in applied chemistry.

- Physical experiments: thermodynamics and phase equilibria. Inorganic experiment: chemistry of the elements.

SC356 Applied Chemistry
Three hours per week for one semester
A second-year subject of the degree course in applied chemistry.

- Energy sources: coal, oil, natural gas, nuclear. A study of production of polyvinyl chloride through all stages from basic raw materials to used to introduce principles for handling separations and chemical modifications and the blend of scientific and empirical methods used in industrial technology. Some emphasis is given to developing practical skills such as library research, technical calculations and flow-charting.

SC356 Applied Chemistry
Three hours per week for one semester
A second-year subject of the degree course in applied chemistry.

- Energy sources: coal, oil, natural gas, nuclear. A study of production of polyvinyl chloride through all stages from basic raw materials to used to introduce principles for handling separations and chemical modifications and the blend of scientific and empirical methods used in industrial technology. Some emphasis is given to developing practical skills such as library research, technical calculations and flow-charting.
Analytical techniques (extension of SC355): further volumetric analysis, gravimetric analysis, electrodeposition and a project in quantitative AA analysis.

SC393 Practical Biochemistry
Four hours per week for one semester
A second-year subject in the degree course in biochemistry.
A series of experiments designed to introduce the students to basic biochemical techniques including: handling of biochemicals, tissue extraction techniques; use of colorimetry and spectrophotometry for biochemical analyses; qualitative and quantitative methods for the analysis of amino acids, proteins, carbohydrates, lipids and nucleic acids. Enzymes: different types, their properties and determination of the kinetic parameters of an enzyme. Computer simulation of enzyme kinetics; an introduction to separation techniques including paper chromatography, thin-layer chromatography and gel filtration. Purification and characterisation of glycogen. A strong emphasis will be placed upon matters of safety and good laboratory technique in this subject.

SC394 Microbiology
Four hours per week for one semester
A second-year subject of the degree course in biochemistry.
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.

SC395 Biochemistry
Three hours per week for one semester
A second-year subject of the degree course in biochemistry.
Chemistry of biological compounds: structures and properties of mono-, di- and poly-saccharides; fatty acids, triacylglycerols, phospholipids, other lipids, amino acids, polypeptides, proteins, nucleic acids, nucleotides, enzymes and coenzymes.
Metabolism: Basic concepts of metabolism. Pathways of carbohydrate metabolism, including the pathways of glycolysis, gluconeogenesis, Krebs cycle, pentose phosphate pathway, gluconeogenesis, Cori cycle, futile cycles, glycolysis. Pathways of lipid metabolism, including lipolysis, $\beta$-oxidation of fatty acids, fatty acid biosynthesis, synthesis of triacylglycerols and phospholipids.
Oxidative phosphorylation: structure of the mitochondrion, components and assembly of the electron transport chain. Theories of oxidative phosphorylation. Experimental studies of the process, including use of inhibitors.
Integration of metabolism, integration of all pathways considered in these lectures.

SC400 Environmental Health (2)
Two hours per week for one semester
A second-year subject of 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 conservation methods. Transpiration, filtration and soil absorption.
Food establishment legislation and inspection methodology: for example, food premises, eating houses, food factories and markets. Licensed premises. Reports.
Food hygiene: vending and transport.

SC410 Environmental Health Field Practice (1)
Three hours per week for one semester
A second-year subject of the degree course in environmental health.
This subject complements Environmental Health and is used to give students inspection, evaluation and report writing experience in vocational topics taught in that subject as preparation for work experience.
1. Visits are made to septic tank installations and small sewerage plants during construction and testing for compliance. Public buildings are visited, as are apartment houses, boarding houses, motels and food establishments.
Arrangements are made with the Metropolitan Fire Brigade (Fire Prevention Department) for practical demonstrations and instruction in fire engineering procedures in buildings of interest to the health surveyor.
2. (a) Business communications (e.g., memos, letter-writing, preparing for interviews).
(b) What to expect in the workplace — the people, the environment, the communications needs.
(c) Simulated interviews using video; feedback and evaluation.

SC413 Case Studies
Two hours per week for one semester
A second-year subject of the degree course in applied chemistry and biochemistry.

SC440 Applied Food Science
Four hours per week for one semester
A second-year subject of the degree course in environmental health.
Food hygiene (This unit complements SC449 Microbiology). Microbiological factors — microorganisms involved in food spoilage (especially in relation to the dairy, meat, wine, canning and bottling industries). Conditions that promote or inhibit food spoilage. Pathogenic microorganisms commonly transmitted via foods. Methods used to minimise unwanted microbial growth.
Food entomology — insect pests associated with food. Life cycles, taxonomy, control. Importance of the cleaning and sanitising of plant and equipment. Cleaning and sanitising techniques. Important types of cleaning and sanitising chemicals and applications. Evaluation of sanitation of plant and equipment (e.g., swabbing). Importance of water chlorination, with particular reference to canal cooling water. Methods of chlorination. Testing of chlorinated water.

SC449 Microbiology
Three hours per week for one semester
A second-year subject of the degree course in environmental health.
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 the pathogenic characteristics might be associated with ingestion of food (e.g., causative agents of botulism or scarlet fever).
SC452 Epidemiology

Two hours per week for one semester

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

SC454 Chemistry

Seven hours per week for one semester

A second-year subject of the degree course in applied chemistry and biochemistry.
Coordination chemistry: coordination compounds, uses, occurrence, structure, stability, nomenclature and properties. Electrochemistry: emf, dy f electrochemical libra, lon-sensitived electro Operational cells, lectrode kinetics (Butler-Volmir equation and limiting cases), electrode analysis, mechanisms of mass transport, limiting currents, ionic resistance, overall cell potentials and variation with current; examples include fuel cells and batteries. Liquid surfaces: surface chemistry, surface thermodynamics, surface activity and orientation at interfaces, the Gibbs equation, spreading of liquids, the nature of insoluble monolayers, contact angles and wetting, adsorption from solution, detergents, foams and emulsions. Organic chemistry: Acrity and basicity, electronic effects. Aromatic compounds, the concept, evidence, nomenclature and reactions. Carbons, formations, reactions and application to synthesis.

SC455 Practical Chemistry

Four hours per week for one semester

A second-year subject of the degree course in applied chemistry and biochemistry.
Organic techniques: volumetric analysis for saponification and unsaturation equivalent, steam distillation, recrystallisation, identification and characterisation using chemical tests, physical measurements, gas chromatograph, infra-red spectrometer and polarimeter. Selected techniques in electrochemistry and surface chemistry. Inorganic experiment: coordination chemistry.

SC456 Applied Chemistry

Two hours per week for one semester

A second-year subject of the degree course in applied chemistry.
Polymer chemistry: classification of polymers, introduction to polymerisation reactions. Characteristic properties of polymers and their measurement.

SC457 Industrial Chemistry

Two hours per week for one semester

A second-year subject of the degree course in applied chemistry.
An introduction to chemical business operations including capital investment planning, marketing, research and development and selected 5p* product studies.

SC458 Applied Chemistry Practical

Three hours per week for one semester

A second-year subject of the degree course in applied chemistry.
Organic techniques (extension of SC455), preparation, recrystallisation, extraction, separation by column chromatography, identification and characterisation using chemical tests, physical measurement, gas chromatograph, infra-red spectrometer, and NMR spectrometer. Selected techniques in electrochemistry and surface chemistry (extension of SC455).

SC459 Practical Biochemistry

Four hours per week for one semester

A second-year subject of the degree course in biochemistry.
Students perform a series of experiments involving extraction, purification and characterisation of a protein, sequencing of a peptide. Preparation of intact mitochondria and subsequent studies using an oxygen-sensitive electrode, some routine clinical biochemistry tests: induction of a bacterial enzyme.
A strong emphasis will be placed upon matters of safety and good laboratory technique in this subject.

SC454 Microbiology

Three hours per week for one semester

A second-year subject of the degree course in 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., Staphylococci, Salmonella) or whose pathogenic characteristics might be associated with ingestion of food (e.g., causative agents of botulism or scarlet fever). Bacterial toxins. Nature, structure and pathogenicity of major exotoxins and enterotoxins produced by bacteria. Identification of species and their relationship to food poisoning. Bacterial food poisoning outbreaks. Food handling techniques. Methods of examination of food, milk and water for the presence of pathogenic bacteria in food. Preservation of food against microbial spoilage. The status of Victorian standards in food analyses and maintenance of food quality.

SC456 Analytical Biochemistry

Four hours per week for one semester

A second-year subject of the degree course in biochemistry.


SC457 Biochemistry

Two hours per week for one semester

A second-year subject of the degree course in biochemistry.


SC458 Environmental Health (3)

Two 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 Health & Medical Research Council and appropriate sub-committees (e.g., Food Standards committee, Food Legislation Committee), a study of the Victorian Food & Drug Standards, other relevant food legislation and the role of the health surveyor in food inspection, seizure and sampling procedures. Public buildings: health and safety, emergency lighting, fire prevention, emergency exits. Accommodation standards: apartment, boarding houses, motels. Fire engineering: architectural and building considerations and health surveyors' responsibilities.

SC510 Practical Food Inspection

Three hours per week for one semester

A fourth-year subject of the degree course in environmental health.
This subject complements Applied Food Science. Visits will be arranged each week to the food industry being studied theoretically in Applied Food Science. These include: Milk pasteurisation and other dairy food plants, Abattoirs, small goods establishments, Fish wholesalers, Poultry processing works, Frozen food manufacturers, drying and canning plants, Fruit juice manufacturers, Breweries.
Faculty of Applied Science

SC530 Properties of Colloids
One hundred and twenty hours in one semester
A core subject of the graduate diploma course in applied colloid science

Principles

Applications
Throughout this compulsory section, particularly during tutorials, strong emphasis is upon applying the basic theory to practical examples.

Practical work
The basic practical skills and techniques of colloid science are taught here and are drawn from the following areas.
Cleaning techniques and surface preparation; the measurement of surface and interfacial tension of pure liquids and liquid mixtures; adsorption at the liquid-air interface — determination of adsorption isotherms, measurement of surface area; the properties of insoluble monolayers; inorganic sols — preparation, critical flocculation concentration, protective action, heteroflocculation; the properties and behaviour of macromolecules in aqueous solution.

SC531 Colloid Experimental Techniques
One hundred and twenty hours in one semester
A core subject of the graduate diploma course in applied colloid science

Principles
Determination of surface area. Particle size techniques. Surface and interfacial tension measurements. Electrokinetic behaviour. Colloid stability and flocculation rate. The use of potentiometric and conductimetric titrations; adsorption at the solid-liquid interface — determination of adsorption isotherms, measurement of surface area; the properties of insoluble monolayers; inorganic sols — preparation, critical flocculation concentration, protective action, heteroflocculation; the properties and behaviour of macromolecules in aqueous solution.

Applications
Selected practical problems are dealt with in order to demonstrate the relevance of the various techniques.

Practical work
Electrokinetic techniques — streaming potential, microelectrophoresis; potentiometric and conductimetric techniques; measurement of flocculation; selected case studies; minor project work.

SC532 Emulsion Technology
One hundred and twenty hours in one semester
An elective subject in the graduate diploma course in applied colloid science

Principles
Basic properties and characteristics of emulsions. The theory of emulsion stability — surface chemical factors, applicability of the DLVO theory, the role of macromolecules as emulsion stabilisers, stabilisation by finely divided solids, the properties of thin films. Methods of making and breaking emulsions. The HLB and PIT systems of emulsifier selection. The behaviour of surfactants and polymeric stabilisers. The design of steric and electrostatic stabilisers. Micro-emulsions. The properties, stability and rupture of foams.

Applications
Selected case studies are dealt with from the area of cosmetic emulsions, food emulsions, bitumen emulsions, wax emulsions, etc.

Practical work
Basic methods of emulsion preparation; the identification of emulsion type; particle size and viscosity of emulsions; assessment of stability; the effect of emulsion 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 anti-foaming agents; minor project work.

SC533 Polymer Flocculation
One hundred and twenty hours in one semester
An elective subject in the graduate diploma course in applied colloid science

Principles
Types of flocculants — natural, synthetic, metal ions. Flocculants in solution. Adsorption behaviour — bridging model, floc formation, floc structure. Flocculation and electrical double layer theory. Steric stabilisation; Selective flocculation; Zeta stabilisation, protective action.

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

Practical work
Assessment of stability; methods for screening flocculants; effect of flocculant dosage, type and molecular weight on floc formation; the cooperative effect of metal ions and polyelectrolytes; effect of pH on flocculation; floc building; flocculation and filtrability; analytical methods for determining low concentrations of flocculants; minor project work.

SC534 Mineral Processing Chemistry
One hundred and twenty hours in one semester
An elective subject in the graduate diploma course in applied colloid science

Principles
Mineral analysis — XRD, XRF, electron microprobe. Particle liberation — crushing, grinding, classifying (brief coverage of these areas). Mineral flotation — wetting, hydrophobicity. Activators, frothers, collectors and depressants — solution properties; behaviour. Floation of sulphides — semiconductor properties of the mineral; action of collectors and metal ions. Coal flotation. Flotation of silicates, oxides, etc.

Chemistry of mineral slurries. Flocculation of minerals — selective flocculation, 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, Eh and metal ion concentration in flotation; selective flocculation; selected case studies; minor project work.

SC535 Detergency
One hundred and twenty hours 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, wettability and contact angles. Solution properties of detergents — micelle formation, phase diagram, 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 action — ultrasonics, instrumental analysis; experiments on selected problems are performed (e.g. removal of lanolin from wool, formulation of hair shampoos, etc.); minor project work.

SC536 Surface Coatings
One hundred and twenty hours 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

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

Principles
1. Equilibrium electrochemistry (brief treatment). Elementary aspects: redox reactions; electrochemical cells; Nernst equation; conventions. Thermodynamic effects: relationship between E° and equilibrium constant; effects of inert electrolytes, competing reactions and pH; Pourbaix diagrams; limitations in the use of the Nernst 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 steam condensers; cathodic protection, sacrificial protection; metallic coatings; oxide protection; inorganic and organic protective coatings; dopant formation of brass; materials of construction in a chemical plant; economic aspects; combating corrosion; minor project work.

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

SC540  Applied Food Science

Two 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.
- Fruit juices.
- Fermented products.

SC541  Microbiology

Three hours of theory per week for one semester

A subject of semester one of the graduate diploma course in industrial microbiology.

Introduction to microbiology: Eukaryotic and prokaryotic microbes; algae, protozoa, fungi, bacteria, cyanobacteria.

The viruses.

Microbial anatomy – introductory biochemistry of microbes.

Methods of microbiology.

Microbial growth and control of microbial growth, including sterilisation and disinfection.

SC542  Practical Work

Four hours of practical work per week for one semester

A subject of semester one of the graduate diploma course in industrial microbiology.

The practical work complements the theory and develops the skills of students in the handling of micro-organisms.

SC543  Microbiology

Three hours of theory per week for one semester

A subject of semester two of the graduate diploma course in industrial microbiology.

Identification of industrially important microorganisms; microbial metabolism; fermentation technology; computer control of fermentations; waste treatment.

SC544  Practical Work

Four hours of practical work per week for one semester

A subject of semester two of the graduate diploma course in industrial microbiology.

The practical work complements the theory and develops the students' skills further in the techniques used by microbiologists.

SC545  Microbiology

Three hours of theory per week for one semester

A subject of semester three of the graduate diploma course in industrial microbiology.

Microbial genetics; molecular biology; basic immunology and methods of immunology; downstream processes and biotechnology.

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 the students' skills further in the techniques used by microbiologists.

SC550  Environmental Chemistry

Seven hours per week for one semester

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

Chemical pollutants in the environment: sources of pollutants in air, water and soils; toxic wastes.

Methods of analysis: sampling and sample preparation; analytical methods and their sensitivity and applicability in analysis – covers volumetric, spectrophotometric, electrometric and chromatographic methods. Analyses of pollutants in air, water and soil.

Evaluation of water quality: application of water tests to assess water quality.

Chemical hazards: composition of household substances and hazards; chemicals and exposure.

Biological aspects: biological indicators of pollution; nitrogen; phosphorus, carbon and sulphur cycles; vector control; integrated pest management; use of biological, ecological and chemical methods of control.

SC551  Chemical Instrumentation

Four hours of theory and practical work per one semester

A subject of the graduate diploma courses in biomedical or scientific instrumentation.

Topics to be covered will include:

- Atomic absorption, infra-red and ultra-violet spectrophotometry; electrochemistry; gas and liquid chromatography; mass spectrometry; NMR and ESR spectroscopy; X-ray techniques and associated equipment.

SC552  Epidemiology

Two hours per week for one semester

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

Skin contact diseases – Pediculosis and Scabies. Legionnaires disease.

Exotic diseases including Cholera, Marburg Virus Disease, Ebola Virus Disease. Lassa Fever, Malaria and Plague. Hepatitis A, B and non-AB.

Control of such infections. Mycobacterial infections – Tuberculosis and Leprosy. Immunotable diseases to include Diphtheria, Tetanus, Measles, Rubella, Polio-
yelitis, Whooping Cough. Arbovirus including their control and partic-
ularly with reference to Australia. Epidemiological screening and the impact of refugees. Sexually transmitted diseases – Gonorrhea, Syphilis, Chlamydial infec-
tions, Herpes T2, AIDS. Encephalitis – mosquito control.

SC554 Chemistry
Five hours per week for one semester
A fourth-year subject of the degree course in applied chemistry and biochemistry. Ion exchange and solvent extraction: principles and applications in industrial, laboratory and biochemical situations. Nuclear magnetic resonance. Mass spectroscopy. X-ray methods: diffraction, fluorescence and absorption. Instrumental techniques: qualitative and quantitative analysis of an unknown liquid mixture using distillation, chemical tests, physical measurements, infra-red spectrometer, NMR spectrometer, gas chromatograph and mass spectrometer.

SC556 Applied Chemistry
Four hours per week for one semester
A fourth-year subject of the degree course in applied chemistry. Colloid chemistry: origin of the electrical double layer, potentials at interfaces, potential determining ions and ionic adsorption, description of the electrical double layer, electrophoretic phenomena, colloid stability. Electrochemistry: electroads – extension of the Butler-Volmer equation to multistep electrode reactions; experimental methods — potentiostatic and galvanostatic electrolysis; mass transport control of electrode reactions – steady state and transient techniques, convective mass transport; design of industrial electrochemicals. Organic synthesis: general principles, Reagents, Planning and design of synthesis, Practical aspects of synthetic techniques, Industrial versus academic synthesis, Enzymes and lignins and significant natural products.

SC564 Industrial Chemistry
Four hours per week for one semester
A fourth-year subject of the degree course in applied chemistry. Catalysis and corrosion. Control and treatment of industrial waste. The Environmental Protection Act and its administration. Other legislation. Types, source and effect of pollution of air, water and land will be discussed in relation to natural ecosystems and human health. Disposal of domestic and industrial wastes; sewage treatment systems including microbiological bases; physico-chemical and other methods. Hazardous and intractable wastes. Process analysers: their use for process control. Free energy relationships applied to metal extraction: thermodynamic basis of free energy relationships. Pyrometallurgical processes for the extraction of metals from their ores, explanation of various aspects of these processes in terms of free energy relationships.

SC592 Applied Chemistry Practical
Four hours per week for one semester
A fourth-year subject of the degree course in applied chemistry. Organic techniques: volumetric analysis, preparation. Electrochemical experiments: polarography and electokinetics.

Selected techniques in colloid chemistry. Instrumental techniques: extension of analysis of liquid mixture using UV/visible spectrometer and double resonance, broad-line NMR experiment.

SC593 Practical Biochemistry
Four hours per week for one semester
A fourth-year subject of the degree course in biochemistry. A series of more advanced experiments including chain length and sequence determination of a peptide, amino acid analysis using HPLC, methods for sulphhydril group and disulphide bond analysis in proteins, conformational analysis of proteins using circular dichroism and fluorescence spectroscopy. Separation and characterisation of isoenzymes: purification, fragmentation and separation of bacterial DNA. DNA sequencing. These experiments will involve the use of more sophisticated techniques including fluorescence spectroscopy, affinity chromatography, hypohi-

SC594 Industrial Biochemistry
Four hours per week for one semester

SC595 Biochemistry
Two hours per week for one semester
A fourth-year subject in the degree course in biochemistry. Control mechanisms in living cells. Mechanisms operating at the DNA level — activation of genes, gene-repression. Mechanisms of gene repression. Other factors influencing the rate of enzyme synthesis. Mechanisms operating at the enzyme level — factors affecting the activity of enzymes. The role of coenzymes in increasing or decreasing the activities of enzymes, and in regulating pathways. The integration of metabolism in mammals — the effects of over-eating, starvation, exercise.
SC596 Analytical Biochemistry
Two hours per week for one semester
A fourth-year subject of the degree course in biochemistry

SC600 Environmental Health (4)
Two hours per week for one semester
A fourth-year subject of the degree course in environmental health.

SC601 Chemical Instrumentation
Two hours per week for one semester
A fourth-year subject of the degree course in biophysics and instrumental science. Practical experiments involving a selection from infra-red and ultra-violet spectrometers, potentiometric, control-potential and control-current techniques, e.g. polarography and ion-selective electrodes, gas and liquid chromatography techniques; mass, NMR, and atomic absorption spectrometers.

SC609 Health Education
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:
(i) Social, cultural and psychological factors involved in health promotion and disease prevention behaviours. The Health-Belief Model.
(ii) Health education, opportunities and responsibilities for health surveys.
(iii) Health education strategies and techniques for health promotion.
(iv) Instructional techniques. 11 Communication skills to education.
(v) Health education program design: needs, objectives, curricula, evaluation.
(vi) Ethical issues in health education: responsibility, individual freedom, licensing, working with other professionals.

SC610 Environmental Health Field Practice
Three hours per week for one semester
A fourth-year subject of the degree course in environmental health.
Visits to all establishments that are studied in Environmental Health for practical demonstrations, experience and evaluation. Hairdressers, tattooists, acupuncturists, waste disposal sites, offensive trades, swimming pools and spas, camping areas and camps are visited and inspected. Applied pest control is observed in the field. The subject is flexible in its approach so that current environmental and public health crises that arise from time to time can be, at short notice, visited and evaluated.

SC649 Microbiology
Three hours per week for one semester
A fourth-year subject of the degree course in environmental health
Virology — methods of studying viruses. Characteristics, identification, infectivity and human responses to the common DNA and RNA viruses. Immunisation and methods of treatment and control of viral diseases. Rickettsia and Chlamydia — characteristics of both groups of organisms. The major diseases caused by these agents with reference to both Australia (Trachoma and O. levem) and internationally (Typhus). Parasitology — characteristics, life cycles, methods of transmission, treatment and control of a wide range of protozoal and helminth infections of man and animals. In this unit particular attention will be given to the habitat and life cycle (if important and not treated earlier), of specific vectors or agents of transmission such as flea, rat, cockroach, tick, louse or snail. In addition, methods will be described for detecting parasitic infections of food and also for detecting abnormalities and malpractices. Mycology — a broad outline of systemic and fungal infections in man and methods of transmission of such infections (e.g. Barrens). Fungal and yeast contamination of food with reference to myco toxins, particularly Aspergillus flavus and aflatoxins.

SC654 Chemistry
Four hours per week for one semester
A fourth-year subject of the degree course in applied chemistry and biochemistry.
The basic analyser: detector, amplifier, time constant and frequency response, signal-to-noise ratio and digital systems. Heterocyclic chemistry: the principles of heterocyclic chemistry with particular emphasis given to compounds of medical and biological importance. Macromolecular chemistry: basics; addition and condensation reactions; copolymers. Current and advanced topics, e.g. current developments in applied organic chemistry.

SC655 Chemistry Practical
Three hours per week for one semester
A fourth-year subject of the degree course in applied chemistry and biochemistry.
Organic techniques: preparation, practical test. Instrumental techniques: analysis of an unknown solid using X-ray diffractometer, analysis of a food sample using an atomic absorption spectrometer with electrothermal atomisation, experiments using an auto analyser and a laboratory computer.

SC656 Applied Chemistry
Five hours per week for one semester
A fourth-year subject of the degree course in applied chemistry and biochemistry.
Chemistry of natural products: saccharides; steroids and terpenes and their uses in industry. Photochemistry: free radical; colour sensitation and quenching; optical pumping; photochemical reactions. photochemistry in industry. Current topics: a selection of current areas will be made; topics selected may vary from year to year.

SC664 Industrial Chemistry
Four hours per week for one semester
A fourth-year subject of the degree course in applied chemistry and biochemistry.
Surface coatings: applications of protective organic surface coatings; non-convertible and convertible surface coatings, their chemistry and properties. Selected chemical processes — this course is divided into two parts: the first section deals with the catalysts used in the large-scale industrial production of organic chemicals. The concepts of organometallic chemistry to a level sufficient to allow an understanding of the design, preparation and mechanisms of such catalysts is also presented. In the second half, the students select a topic of interest to them, divide it into individual topics of responsibility and prepare a written report on their area. This is combined with a suitable industrial visit.
SC692  Applied Chemistry Practical
Four hours per week for one semester
A fourth-year subject of the degree course in applied chemistry.
Instrumental techniques: analysis of the products of an organic synthesis using chemical tests, physical measurements, an infra-red spectrometer, an NMR spectrometer and gas chromatograph, thin-layer chromatography, and analysis of the unknown solid (in SC655), experimenting an infra-red data station (dedicated computer) and a high performance liquid chromatograph.

SC693  Practical Biochemistry
Four hours per week for one semester
A fourth-year subject of the degree course in biochemistry.
This practical subject has 2 components:
(a) A series of set experiments designed to introduce the student to immunochemical methods including quantitative radial immunodiffusion, radioimmunoassay, counting procedures and radiation autoradiography.
(b) Research project: each student will complete a minor research project under the direct supervision of a member of staff. Project results will be presented in a class seminar at the end of the semester.

SC696  Mammalian Biochemistry
Two hours per week for one semester

SC697  Current Topics
Two hours per week for one semester
A fourth-year subject of the degree course in biochemistry. Instrumental techniques: a selection of the experiments in SC692.

SC698  Industrial Biochemistry
Three hours per week for one semester
A fourth-year subject of the degree course in biochemistry. Industrial fermentation in the production of chemicals: fermentations involving Saccharomyces cerevisiae in the production of alcohol, wines and beers. Dispersions to include processing of starting material, methods of fermentation, biochemical reactions and enzymes. Variation in patterns and metabolism of enzymes in aerobic and anaerobic fermentations. The Pasteur effect and catabolite repression. Penicillin and cephalosporin production as examples of secondary metabolism in Penicillium chrysogenum and Cephalosporium acromennum. Industrial enzymes: sources, methods of production and industrial uses of a range of selected enzymes. Examples of analytical uses of special enzymes such as glucose oxidase and peroxidase in glucose assays or alcohol dehydrogenase and NAD+ for estimation of alcohol. Principles of enzyme assays. Penicillin acylase (amidase) and the production of semi-synthetic penicillins through deacylation of benzylpenicillin to 6-APA. Types of penicillin acylases and microbial sources. Immobilised enzymes: criteria for immobilisation of enzymes, Methods of immobilisation of enzymes. Typical supports. Prediction of affinity. Functional groups of proteins suitable for covalent bonding, e.g. —NH2, —OH, COO⁻, and —SH. Chemicals used for immobilisation. Spacer groups. Practical applications of immobilised enzymes — recycling, steroid and drug conversions, micro-encapsulation, liposomes and drug targeting, affinity chromatography, whole cell immobilisation. Scale-up problems: 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 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.

SC699  Analytical Biochemistry
Two hours per week for one semester

SC710  Dispersion Forces and Thin Films
Two hours per week for one semester
A subject of the masters course in applied colloid science. Dispersion forces. Interactions between atoms, leading to an overall generalisation for macroscopic interactions; deficiencies of the classical microscopic approach. Interaction energies calculated from dielectric and spectral data; the triple film calculations, adsorbed layers. Applications of van der Waals’ theory to contact angles, wetting, spreading and adhesion. Thin films. Significance of thin films. Stability — concept of disjoining pressure; calculation of electrostatics, van der Waals’, and steric components of — evidence pertaining to short range hydration and hydrophobic forces, based on experimental studies and statistical mechanical treatments of fluids at interfaces. Instability and rupture of thin films. Application to flotation, emulsions and the stability of froths and foams.

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

SC712  Association and Colloid Rheology
Two hours per week for one semester
A subject of the masters course in applied colloid science.
Rheology of colloidal systems
Stress and strain, simple sensor representation of three-dimensional systems; thermodynamic and rheological properties of colloid media, temperature, strain rate, effects on viscoelastic behavior, modeling of viscoelastic systems, flow, and relaxation times.

SC713 Colloid Interaction Theory
Two hours per week for one semester
A subject of the masters course in applied colloid science.

Introduction theory
Calculation of free energy of interaction for the cases of: constant charge, constant potential, constant charge and hetero-coagulation; various geometries will be discussed. Experimental evidence dealing with the dynamics of interacting double layers. Kinetics of coagulation and stability ratio.

Concentrated dispersions
Fundamental considerations: radial distribution function, $g(r)$; relationship between $g(r)$ and $S(Q)$; potential of mean force and link to $g(r)$; measurement of $g(r)$ through the scattering of radiation and its angular variation; determination of $S(Q)$ using theoretical models, link between $S(Q)$ and osmotic compressibility; calculation of equilibrium thermodynamic properties.

Scattering of electromagnetic radiation
Extension of the classical time average theories of light scattering to photon correlation spectroscopy, small angle neutron scattering and low angle X-ray diffraction. Concepts of scattering density parameter, particle form factor $P(Q)$ and structure factor $S(Q)$. Application to concentrated colloidal systems, e.g., microemulsions, latexes and pigment dispersions. ($Q$ 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. This will be assessed by examiners external to the project and will comprise 50% of the overall assessment for the course. Selection of the project topic will follow detailed discussion between each candidate and supervisor. The project will run for the duration of the course.

SK104 Computer Science 1
Five hours per week for one semester
A first-year subject of the degree courses in applied science except environmental health.

Introductory programming using a modern block structured language such as Pascal or Modula-2. Basic syntactic constructs and their use to describe simple block structured programs. The techniques of programming with pointers, records, sets and files also considered.

Data Structures: Simple data structures and algorithms for searching, sorting, stacks and queues.Reusable tools for filtering, pattern matching and editing.

Logic: Methods, techniques and symbolism of modern mathematical logic. An introduction to first order logic covering propositional calculus and quantification theory. Selections from Computer Science: An introduction to theory of algorithms, computer architecture, software engineering, operating systems and artificial intelligence.

SK204 Computer Science 2
Eight hours per week for one semester
Prerequisite: SK104
A first-year subject of the degree courses for students majoring in computer science.

Advanced Programming: This unit uses a modern block structured language, such as Modula-2, to examine the concepts of writing modular programs. The techniques of programming with pointers, records, sets and files also considered.

Logic: Methods, techniques and symbolism of modern mathematical logic. An introduction to first order logic covering propositional calculus and quantification theory. Selections from Computer Science: An introduction to theory of algorithms, computer architecture, software engineering, operating systems and artificial intelligence.

SK206 Computer Science
Two hours per week for one semester
An optional first-year subject of the degree courses for students majoring in applied chemistry and biochemistry.

The course covers two aspects of the laboratory environment:
(a) programming in BASIC, and
(b) an introduction to simulation.

Programming in BASIC
A comprehensive study of a reasonably advanced version of BASIC (example PDP-11, RSTSIE, BASIC) including array and file handling.

An introduction to simulation
An introduction to the concepts of simulation — programming simple discrete and continuous simulation systems using appropriate languages.

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 encountered by environmental health specialists — job command languages, editors, wordprocessors, spreadsheets, etc.

Programming: an introduction to fundamental programming concepts required to support the study of software tools. BASIC, or a similar language, will be used for this section of the course.

Packages: an introduction to the use of suitable packages by way of simple case studies. Illustrations of statistical packages such as MINITAB and SAS for tabulation and data analysis.

Computer hardware: an introduction to micro/multi computer hardware and software, peripheral devices, communications subsystems and current technology (OS systems: graphics, OCR).

SK304 Computer Science 3
Eight hours per week for one semester
Prerequisite: SK204
A second-year subject of the degree course for students majoring in computer science.

Students elect one of the following three streams:

1. Software Technology
   File Organisation: The CDBOL programming language and/or a 4th generation language used to make a comparative study of different file organisations from text files, binary files, random files, indexed files.
   Ada/AdapSE: This unit studies the Ada/AdapSE programming system as a vehicle for understanding the concepts of software engineering such as data abstraction, modularity, top-down design, object-oriented design methodology, and as well as studying the features of an important new language in the context of its application area of embedded systems.
   Operating Systems: An introduction to operating system principles is made in this unit including process management, scheduling and virtual memory systems.

   Abstract Data Structures: This unit pursues the goals of good programming: correctness, flexibility, adaptability, portability, utility and clarity through the concepts of modularity and abstract data types. Examples used include list representation and manipulation, tree traversal, graphs, and sparse data structures.

2. Computer Systems Technology
   Computer Architecture: The aspects of computer architecture covered are basic CPU structure, memory architecture, I/O systems, bus structures, microprogrammed CPUs, non Von Neumann architectures.
   Operating Systems: An introduction to operating system principles is made in this unit including process management, scheduling and virtual memory systems.
   Assembly Language: This unit provides an introduction to assembly language programming techniques. It includes the use of an appropriate assembler language, macros and the discussion of the effects of machine architecture on the programming level.
   Introduction to Artificial Intelligence: This unit introduces the students of the Computer Systems Technology stream to the contemporary concepts of the field of artificial intelligence such as Lisp/Prolog, expert systems, knowledge representation, language understanding, planning, and learning systems.
3. Information Technology

File Organization: The COBOL programming language and/or a 4th generation language is used to make a comparative study of different file organisations from text files, binary files, random files, index files. Database 1: This unit consists of an introduction to database methods, the design of simple relational systems, and the use of database packages on microcomputers.

Functional Languages: Elements of the general theory of functional programming are covered as well as the details of the programming language LISP.

Abstract Data Structures: This unit seeks the goals of good programming (correctness, flexibility, adaptability, flexibility, portability, utility and clarity) through the concept of modularity and abstract data types. Examples used include list representation and manipulation, tree traversal, graphs and sparse data structures

SK404 Computer Science 4
Nine hours per week for one semester
Prerequisite, SK304

A second or third year subject of the degree course for students majoring in computer science.

Students continue to study one of the following three streams, corresponding to the one studied in SK304.

1. Software Technology

Information Systems: This unit comprises a review of techniques used to store and retrieve information, such as those found in database technology, expert systems, and artificial intelligence.

Software Engineering 1: A study of the software life cycle; software development environments, system and program design.

Communication 1: An introduction to the terms and techniques used for computer-to-computer communication. Data link controls, physical aspects, and terminal based networks are covered.

Simulation: An introduction to computer modelling of simple systems is made in this unit. Techniques include continuous modelling techniques; discrete modeling techniques, simulation of probabilistic behaviour, and the analysis and interpretation of model output.

2. Computer Systems Technology

Communications: An introduction to the terms and techniques used for computer-to-computer communication. Data link controls, physical aspects and terminal based networks are covered.

Computer Architecture 2: This unit covers methods of computer design used to increase performance, such as cache memory systems; bus organisation and various CPU implementation methods. It includes an examination of basic computer components available in the market.

Computer Organisation: An integrated study is made of the software and hardware structures of computer systems. Analyses of computer systems are performed on several levels, such as microprogramming, conventional machine level, operating system level, and higher levels.

Simulation: An introduction to computer modelling of complex systems is made in this unit. Techniques include continuous modelling techniques; discrete modeling techniques; simulation of probabilistic behaviour, and the analysis and interpretation of model output.

3. Information Technology

Logic Programming: The unit is based on the Prolog programming environment. Topics covered include the language itself, programming techniques, applications and the difficulties and limitations of Prolog.

Software Engineering 1: A study of the software life cycle; software development environments, system and program design.

Communications: An introduction to the terms and techniques used for computer-to-computer communication. Data link controls, physical aspects, and terminal based networks are covered.

Formal Systems: An introduction to formal systems and their application to computer science; the concept of an axiomatic system, proof procedures, model theory, soundness and completeness.

SK504 Computer Science 5
Nine hours per week for one semester
Prerequisite, SK404

A fourth-year subject of the degree course for students majoring in computer science.

Students continue to study one of the following three streams, corresponding to the one studied in SK404.

1. Software Technology

Translator Engineering 1: An introduction to translation. Introduction to formal language theory, finite automata, lexical analysis, and the parsing problem.

Software Engineering 2: Further study of the software life cycle centering on project management, formal specifications and design techniques, maintenance and quality control techniques.

Computer Graphics 1: An introduction to computer graphics is given in this unit, including graphics devices, data structures for graphics, algorithms for manipulating two-dimensional graphics images, and interactive computer graphics program design.

Operating Systems 2: This unit comprises 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.

2. Computer Systems Technology

Performance Evaluation: This unit comprises a study of the techniques available to predict the performance characteristics of computer systems, communication networks and related systems.

Computer Architecture 3: 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.

Operating Systems 2: 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.

Computer Graphics 1: An introduction to computer graphics is given in this unit, including graphics devices, data structures for graphics, algorithms for manipulating two-dimensional graphics images, and interactive computer graphics program design.

3. Information Technology

Database 2: This unit comprises a study of advanced database techniques, non-relational systems, and mainframe database products.

Expert Systems 1: This unit covers the programming aspects of expert systems, such as shell design and implementation, control strategies, statistics in expert systems, user communication with expert systems and automatic knowledge acquisition.

Artificial Intelligence 1: A selection from the topics which form the bases of contemporary artificial intelligence, such as knowledge representation, reasoning, systems, search in AI, memory organisation and indexing, vision systems, and language understanding.

Ada/ASPE: A study of the Ada/ASPE programming system as a vehicle for understanding the concepts of software engineering such as data abstraction, modularity, top-down design, object-oriented design methodology, as well as studying the features of an important new language in the context of its application area of embedded systems.

SK531 Computer Programming Techniques
Sixty hours per one semester
Prerequisite, the student is expected to be competent in the use of some programming language to implement solutions to simple numeric and non-numeric problems.

A subject of the biomedical instrumentation and scientific instrumentation options of the graduate diploma of applied science.

This subject involves the study of:

1. modern concepts of program design using a language such as Pascal;
2. the implementation of programs using FORTRAN at an advanced level;
3. the characteristics of the software required to support Instrumentation interfaces.

One half of the time is allocated to lectures or tutorials, the other half is devoted to practical work, which is an integral part of the course.

SK601 Trends in Computing
Thirty hours per one semester
Assessment is by tests and assignments

A fourth-year subject of the degree course for students majoring in computer science 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 communication and data encryption, software tools supporting electronic circuit design such as silicon compilers, graphical schematic data capture, circuit simulation, the programming of programable logic arrays and of parallel computers.
SK604 Computer Science 6
Eight hours per week for one week
Prerequisite: SK504
A four-year subject of the degree course for students majoring in computer science. Students continue to study one of the following three streams, corresponding to the one studied in SK504.

1. Software Technology
Translator Engineering: 2. This unit considers the practical aspects of compiler writing: the use of compiler-compilers (such as LEX and YACC), Symbol tables, Code generation and optimisation.

Theory of Computation: Two broad areas of theoretical computer science are covered in this unit, namely, the classical topics of computability and complexity theory, and the modern branch of the Theory of Computation concerning on the verification of program correctness.

Computer Graphics 2: This unit covers graphics techniques for the display of three dimensional objects. Topics include ray-tracing, lighting effects and transparency of objects.

Systems Programming: This unit examines the software appropriate to systems programming as distinguished from applications software such as operating systems, compilers, file managers, compilers, file managers, 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.

2. Computer Systems Technology
Real Time Systems: A study of the techniques and structure of real time systems as made in this unit. Examples of real time systems include transaction processing systems, operating systems and the real-time control and monitoring of processes.

Computer Architecture 4: In this unit a discussion is made of advanced computer architectures such as data flow, array processors, etc. The unit also covers factors in the design of computer hardware systems additional to those covered in Computer Architecture 3.

Database Technology: A broad study of database systems is made in this unit, including relational, hierarchical and network models, data definition, manipulation and retrieval methods, and the use of a commercial DBMS product.

Communications 2: This unit builds on the communications 1 unit, specifically studying computer networks and international standards developed by Industry for communications purposes.

3. Information Technology
Expert Systems: 2: The unit covers the techniques and issues of knowledge acquisition, generally referred to as knowledge engineering. A significant practical project is undertaken as an integral part of this unit.

Theory of Computation: Two broad areas of theoretical computer science are covered in this unit. The classical topics of computability and complexity theory and the modern branch of the Theory of Computation concerning on the verification of program correctness.

Artificial Intelligence 2: This unit examines at an advanced level some of the contemporary AI topics such as Plan generation, language comprehension and learning. Student projects are related to these topics.

Knowledge and Science: This unit is concerned with current theories of knowledge and their philosophical and psychological concepts and methods and their applications to computer science. Topics include the philosophy of language, epistemology, meaning, memory and perception.

SK701 Computer Programming
Fifty six hours in one semester
Assessment is by tests and assignments
A subject of semester one of the graduate diploma of Applied Science (Computer Science).

A study of one or more programming languages and their related software engineering practices. This, or a similar unit may be used as a bridging unit for entrants who lack a computer science background or can be used by others to widen their skill areas. The selection of languages will include Pascal, Modula-2, Ada, Fortran 77, PL/I or other suitable languages. The operation of personal computers and mainframe machines will be covered together with structured programming methods. Students will also receive instruction in the use of software tools such as word processors, which will be of general use to them during the course.

SK702 Selections in Computer Science
Fifty six hours in one semester
Assessment is by tests and assignments
A subject of semester one of the graduate diploma of Applied Science (Computer Science).

The unit introduces students to modern directions in computer science. It is designed both as a bridging unit and as a foundation unit to allow more experienced students to explore areas of computer science which were not covered in their undergraduate courses. Topics will be selected from the following list.

1. Predictive logic, functional or relational programming
2. Artificial Intelligence
3. Computer Communications
4. Security and Data Exchange

SK703 Data Base Technology
Fifty six hours in one semester
Assessment is by tests and assignments
A subject of semester two of the graduate diploma of Applied Science (Computer Science).

A study of data base design methods, advanced data structures, internal storage management, mapping from the conceptual to the internal domain and query languages. A detailed study of a number of current data base management systems for small and large scale applications will be included.

SK704 Software Engineering
Fifty six hours in one semester
Assessment is by tests and assignments
A subject of semester two 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, and the software tools and techniques which can be deployed to assist in their solution.

Topics will be chosen from the following list:

1. The software development route and its application to software management.
2. Using the Unix toolkit for software systems development.
3. The Ada/PSX approach to system development.
4. Common data structures, their algorithms and applications.

SK705 Systems Programming
Fifty six hours in one semester
Assessment is by tests and assignments
A subject of semester three of the graduate diploma of Applied Science (Computer Science).

A comparative study of some major operating systems such as MVS, VM and Unix emphasising their functionality, architecture, maintainability, size, cost and performance. Studies of the techniques of system performance techniques and tuning.

Aspects of the design of low level functions of operating systems such as device drivers, interfaces, etc.

SK706 A.I. Programming Techniques
Fifty six hours in one semester
Assessment is by tests and assignments
A subject of semester three of the graduate diploma of Applied Science (Computer Science).

An advanced course in Prolog or Lisp programming and their applications to expert systems and shells. An introductory study of some other A.I. topics such as natural language processing, visual recognition systems, VLSI design and other areas of current interest.

SK711 Case Studies and Project 1
SK712 Project 2
One hundred and twelve hours in one semester
Subjects of semester four of the graduate diploma of Applied Science (Computer Science).

Case studies including invited guest lecturers and visits to industrial sites. A model project will be undertaken by the lecturer with students participating as a team. 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 major project will be completed in Semester 4 and presented to the class and the assessment panel.
SM108 Mathematical Methods

Five hours per week for one semester
Assessment by tests/examination and assignments

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

SM110 Mathematical Methods

Three hours per week for one semester
Assessment by tests/examination and assignments

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

SM127 Mathematics 1

Five hours per week for one semester
Assessment by tests/examination and assignments

A first-year subject of the degree course in 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 iterative methods.

Plane analytic geometry
Coordinate geometry in Cartesian coordinates; 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; optimization; differentials and approximations; Taylor polynomials; L'Hôpital's rule. Integration: definite and indefinite integrals and their interpretations; integrals of standard functions; integration by substitution and by parts; improper integrals; systematic integration of rational functions and of products of trigonometric functions. Numerical integration.

SM210 Mathematical Methods

Three hours per week for one semester
Assessment by tests/examination and assignments

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

SM214 Mathematical Methods

Four hours per week for one semester
Prerequisite: SM108
Assessment by tests/examination and assignments

A first-year subject of the degree course in applied chemistry and 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 MINTAB computer package is used in the statistical studies.

Probability
Probability and probability distributions such as binomial, Poisson and normal.

Inferential statistics
Hypothesis tests and confidence intervals for means, proportions and variances using the t, chi-square and F distributions.

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

SM215 Mathematical Methods

Four hours per week for one semester
Prerequisite: SM108
Assessment by tests/examination and assignments

A first-year subject of the degree course in biophysics and instrumental science.

2D polar coordinates
Definitions; graphs of equations; transformation to and from Cartesian coordinates.

Complex numbers
Definition and arithmetic; polar form; de Moivre's theorem and exponential notation.

Boolean algebra
Introduction to algebra of Boolean functions; Canonical forms; Karnaugh maps and minimal forms.

Ordinary differential equations

Functions of many variables
Partial differentiation and applications; differentials and approximations; optimisation and applications (including least squares) with first and second derivative tests.

Data presentation and analysis
Frequency distributions; tabulation; graphical presentation; measures of central tendency and of dispersion; measures of association.

Probability
Definitions and concepts of probability; calculation using addition and product rules; conditional probability and independence. Probability distributions: discrete variables, including binomial, Poisson and hyper-geometric 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.
SM219 Mathematical Methods
Four hours per week for one semester
Prerequisite: SM127
Assessment by examination and assignments
A first-year subject of the degree course in mathematics and computer science
2D polar coordinates
Definitions; graphs of equations; transformation to and from Cartesian coordinates
Complex numbers
Definition and arithmetic of polar form; de Moivre’s theorem and exponential notation
Boolean algebra
Introduction to algebra of Boolean functions; Canonical forms: Karnaugh maps and minimal forms.

Ordinary differential equations

Functions of many variables
Partial differentiation and applications, differentials and approximations; optimisation and applications (including least squares) with first and second derivative tests.

Data presentation and analysis
Frequency distributions; tabulation; graphical presentation; measures of central tendency and 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.

SM225 Operations Research 2
Two hours per week for one semester
Prerequisite: SM217
Assessment by examination and assignments
A first-year subject of the degree course in management science
Methodology
Development of Operations Research, interdisciplinary teams: in-house OR teams; consultancy teams; methodology of techniques; application problems; problem formulation; model building; testing; validating; design and data presentation; implementation; related areas.

Introduction to linear programming
Formulation of linear programming problems, graphical solution of two variable problems; sensitivity analysis; assignment problems; use of computer packages such as SAS/OR.

Inventory control
Inventory systems: economic order quantity; 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
Three hours per week for one semester
Prerequisite: SM127
Assessment by examination and assignments
A first-year subject of the degree course in mathematics and computer science.

Exploratory data analysis
Numerical and graphical methods for summarising and presenting data using such things as frequency tables, stem and leaf diagrams. Measures of location and dispersion. 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. Applications.

Statistical inference
Drawing random samples from finite and infinite populations. The sampling distributions of t and chi-square; their use in hypothesis testing and estimation of means, proportions and variances. Examples of non-parametric hypothesis tests.

The MINITAB computer package will be used extensively in this subject.

SM227 Mathematics 2
Three hours per week for one semester
Prerequisite: SM217
Assessment by examination and assignments
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 coordinates
Definitions; graphs of equations; transformation to and from Cartesian coordinates; curve length and area.

Vectors and geometry
2D vectors; dot product and resolution; parametric equations of 2D curves; vector differentiation.

3D space; Cartesian and polar coordinates, 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.

SM304 Industrial Case Studies
Two hours per week for one semester
Assessment by assignments and oral presentations
A second-year subject of the degree course in mathematics and computer science.

This subject enables the student to appreciate the problems related to industrial practice through case studies (both individual and group), a study of the organisation and structure of a company, relevant literature investigations and seminars by invited speakers from industry. Further, additional introductory lectures are given on other material relevant to work experience (such as accountancy, economics and data processing) by experts within the Institute. Students also gain experience in job applications and job interview techniques.

SM315 Mathematical Methods
Four hours per week for one semester
Prerequisite: SM215
Assessment by examination and assignments
A second-year subject of the degree course in biophysics and instrumental science.

Linear algebra and vectors
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.

2D vectors; dot product and resolution; parametric equations of 2D curves; vector differentiation. 3D vectors; dot and cross-products; parametric equations of 3D curves.
SM326 Applied Statistics 3
Two hours per week for one semester
Prequisite, SM226
Assessment by tests, examination and assignments
A second-year subject of the degree course in mathematics and computer science

SM327 Mathematics 3
Three hours per week for one semester
Prequisite, SM319
Assessment by tests, examination, and assignments
A second-year subject of the degree course in mathematics and computer science.

SM325 Operations Research 3
Two hours per week for one semester
Prequisite, SM225
Assessment by assignment, oral presentation, and examination
A third-year subject of the degree course in mathematics and computer science.

SM404 Project Management A
Three hours per week for one semester
Assessment by tests, assignments, and oral presentations
A third-year subject of the degree course in mathematics and computer science.

Faculty of Applied Science

for urine sampling in hospitals and GP clinics. An oral preliminary report on the progress to their solution is expected. Before the end of the semester both oral and written reports on their proposed solution are presented.
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 diaries, etc. and to provide each staff member with suitable progress reports. In addition, they will be expected to obtain formal approval for the work that they are undertaking from the appropriate staff member. In short, they will be expected to manage the project along the lines of the topics discussed. Oral and written reports will be required at the end of the semester.

SM415 Mathematical Methods
Two hours per week for one semester
Prerequisite: SM315
Assessment by tests/examination and assignments
A second-year subject of the degree course in biophysics and instrumental science.

Complex analysis

Random processes

SM419 Mathematical Methods
Three hours per week for one semester
Prerequisite: SM419
Assessment by tests/examination and assignments
A second-year subject of the degree course in computer science and instrumentation.

Modern algebra with applications

Random processes

Numerical solution of differential equations

SM425 Operations Research 4
Three hours per week for one semester
Prerequisite: SM425
Assessment by assignment and examination
A third-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; parametric programming; decomposition; industrial applications; transportation problems. Use of computer packages such as SASSOR.

Classical optimisation
Some theory of estimation

SM426 Applied Statistics 4
Three hours per week for one semester
Prerequisite: SM336
Assessment by tests/examination and assignments
A third-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

SM427 Mathematics 4
Three hours per week for one semester
Prerequisite: SM427
Assessment by tests/examination and assignments
A third-year subject of the degree course in mathematics and computer science.

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

Linear functions
Matrix form; geometry of linear transformations. Canonical forms, definiteness, 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
Prerequisite: SM454
Assessment by tests, assignments and written and oral project reports
A fourth-year subject of the degree course in mathematics and computer science.

Applied research/project management
Further topics in the theory of project management; decision-making; types of decisions; how to make decisions. Guest speakers from industry may be used.

Project sell
Students, usually working in groups, prepare and present a project proposal.

Work study
Work study: definition and terminology; applications and objectives. Method study: definitions and terminology; the six basic steps; applications and objectives; techniques of recording; critical examination procedures; principles of motion economy. Work measurement: definition and terminology; applications and objectives; techniques used to obtain standard and allowed times; work unit values; applications of allowances. Applications of work study in industry.
SM519 Mathematical Methods
Three hours per week for one semester
Prerequisite: SMA19
Assessment by test/examination and assignments
A fourth-year subject of the degree course in computer science and mathematics.

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

Linear programming
Formulation, graphical solution, matrix solution, simplex algorithm. Optimality and feasibility conditions, artificial variable technique, degeneracy, unbounded solution, dual problem and post optimal analysis, dual simplex. Sensitivity analysis.

SM525 Operations Research 5
Four hours per week for one semester
Prerequisites: SMA25, SM426, SM427
Assessment by examination, oral presentation and project reports
A fourth-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, the problem of dimensionality, solution of mathematical programming, applications.

Use of computer packages such as DYNACODE.

Advanced forecasting
Simple regression and correlation, multiple regression and correlation, the Box-Jenkins method, autocorrelation, Box-Jenkins and Bayesian models; applications using forecasting packages such as SAS/BIAS.

Financial modelling
General financial modelling, consolidation, financial statement summaries, alternative decision trees, capital investment techniques: multivariate statistics, discounted cash flow, linear programming, corporate modelling, computer approach; how models are acquired; broad guidelines of development, cost of development, factors costs depend on; conditions for successful development, case studies.

Use of computer packages such as FORESIGHT, LOTUS.

SM526 Applied Statistics 5
Three hours per week for one semester
Prerequisite: SMA26
Assessment by test/examination and assignments
A fourth-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, interview-based, telephone surveys. A sample survey project will be completed in SM626.

Introduction to multivariate methods
An informal introduction to multivariate analysis for multivariate populations. The variance-covariance matrix, the multivariate normal distribution, multivariate means, Hotelling's T² statistic, the multivariate analysis of variance, Wilk's lambda.

Classification methods: cluster analysis, linear discriminant analysis. Statistical packages such as SAS and SPSSX will be used.

SM527 Mathematics 5
Two hours per week for one semester
Prerequisite: SMA27
Assessment by test/examination and assignments
A fourth-year subject of the degree course in mathematics and computer science.

Introduction to formal mathematics
Proofs and theorems; examples and counterexamples; necessary and sufficient conditions; types of proof.

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.

Functions and function series
Fourier series of common periodic functions, half-range expansions. Fourier transforms. Gamma and Bessel functions, Legendre polynomials.

Partial differential equations
General solution of simple equations by Integration; boundary value problems with common equations using Fourier series.

Calculus of variations
Constrained maxima and minima; Euler-Lagrange equation; Applications: Rayleigh-Ritz approximate method.

Functional analysis
Function space as a linear and topological space; norm and inner products, Banach space.

SM625 Operations Research 6
Five hours per week for one semester
Prerequisites: SM525, SM526
Assessment by assignments, examination, oral presentation and project reports
A fourth-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; MIP approach; computer package COPICS; industrial applications.

Replacement
Relevant cost in replacement models; cost equation; discounted cash flow techniques; replacement of items that fail, mortality curves, conditional probability of failure; replacement process; cost of replacement; minimisation of costs; 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 job-shop problem; applications; working with computer packages such as SAS/OR.

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.

SM627 Industrial project
The students, working in groups and supervised by a staff member who will act as a 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 semester both oral and written reports are given to the clients.

Seminars
Throughout the semester the students will be given the opportunity to present seminars and participate in seminars presented by practitioners from business and industry.

Faculty of Applied Science
Statistics essay
Students write an essay on a statistical topic not covered in lectures. Reference to suitable journal articles or recent texts provided.

SM525 Mathematics 5
Two hours per week for one semester
Prerequisite: SMA27
Assessment by test/examination and assignments
A fourth-year subject of the degree course in mathematics and computer science.

Introduction to formal mathematics
Proofs and theorems; examples and counterexamples; necessary and sufficient conditions; types of proof.

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.

Functions and function series
Fourier series of common periodic functions, half-range expansions. Fourier transforms. Gamma and Bessel functions, Legendre polynomials.

Partial differential equations
General solution of simple equations by Integration; boundary value problems with common equations using Fourier series.

Calculus of variations
Constrained maxima and minima; Euler-Lagrange equation; Applications: Rayleigh-Ritz approximate method.

Functional analysis
Function space as a linear and topological space; norm and inner products, Banach space.

SM625 Operations Research 6
Five hours per week for one semester
Prerequisites: SM525, SM526
Assessment by assignments, examination, oral presentation and project reports
A fourth-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; MIP approach; computer package COPICS; industrial applications.

Replacement
Relevant cost in replacement models; cost equation; discounted cash flow techniques; replacement of items that fail, mortality curves, conditional probability of failure; replacement process; cost of replacement; minimisation of costs; 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 job-shop problem; applications; working with computer packages such as SAS/OR.

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.

SM627 Industrial project
The students, working in groups and supervised by a staff member who will act as a 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 semester both oral and written reports are given to the clients.

Seminars
Throughout the semester the students will be given the opportunity to present seminars and participate in seminars presented by practitioners from business and industry.
SM626 Applied Statistics
Pre requisite, SM526
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. The project commenced in SM526 will be completed.

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 methods, econometric methods and design and analysis of experiments.

SP106 Physics
A first-year subject of the degree courses in applied science except environmental health.
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, retarder plates, optical communications, fibre optics.
Atomic and nuclear physics: photoelectric e ect, photon-electron interactions, De Broglie waves, forces between nucleons, nuclear binding energies, radioactive decay, nuclear reactions.
DC circuits: electrical quantities and circuits, electrical instruments and capacitance.

SP119 Physics 2
A first-year subject of the degree course in environmental health.
Matter

Acoustics
Periodic motion, wave motion, interference, free and forced vibrations, resonance, standing waves, modes of vibration, intensity and loudness, measuring devices, shock waves.

Electricity
Charge potential, capacitance, steady current, Ohm’s law, resistance, varying current, Faraday’s law, inductance, periodically-varying current (resonance radiation), electrical measurements — multimeter, VTFM, CRO frequency counter bridges, AC and DC.

SP206 Instrumental Science
Two hours per week for one semester
An optional first-year subject of the degree course in applied chemistry and biochemistry.
An introduction to the principles of measurement and instrumentation.
An introduction to analogue systems: circuits based on the semiconductor diode and the ideal operational amplifier.

SP209 Physics 2
Six hours per week for one semester
A first-year subject of the degree courses for students majoring in biophysics or instrumental science.
Vibrations and waves: elastic moduli, waves in solids and fluids, standing waves, sound characteristics, intensity of sound, Doppler effect, physics of hearing, acoustics and ultrasonic waves.

Electricity and magnetism: electric fields, Gauss’ law, electric potential, energy density of the electric field, magnetic fields, Biot-Savart Law, Ampere’s Law, inductance, AC circuits, displacement current. Atomic and nuclear physics: alpha particle scattering, Bohr theory, Pauli exclusion principle, alpha, beta and gamma decay, cross sections of reactions, detectors, accelerators.

SP210 Instrumental Science 2
Four hours per week for one semester
Assessment by examination and laboratory/workshop reports
A first-year subject for students majoring in instrumental science.
An introduction to the terms and basic concepts of instrumentation. Basic transducers. The semiconductor diode and applications. The operational amplifier. Design of some elementary instrumentation systems.

SP219 Physics
Four hours per week for one semester
Assessment by practical work and examination
A first-year subject of the degree course in environmental health.
The atom: descriptive treatment of emission and absorption of energy, ionisation spectra, thermionic and photo-electric emission of electrons, X-radiation.
The nucleus: proton and neutron, binding energy, instability and radioactivity, nuclear reactions, tracer technique, monitoring of radioactivity levels.
Electro-magnetic waves: polarization, interference, diffraction. Optics and images: mirrors, lenses, prisms, slits, gratings (function and uses).
Signals and signal processing: transducers for mechanical, thermal, optical sources, amplifiers, filters, gates, noise and interference, recording and interpreting signals, instrument loading, hysteresis, calibration. Lasers: in measurement of flow rate, particle density, etc. Meteorology: preparatory to role of stacks in air pollution.

SP224 Biophysics
Four hours per week for one semester
Assessment by examination and laboratory reports
A first-year subject for students majoring in biophysics.
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, gastrointestinal function.

SP309 Physics 3
Four hours per week for one semester
Assessment by tests and assignments
A second-year subject for students majoring in instrumental science.
Structure and properties of matter.
Classical mechanics: Newton’s laws, the two body problem, orbital mechanics, vibrations, normal modes, resonance, rigid body dynamics, angular momentum, inertial tensor, Euler’s equations, Lagrangian formulation of classical mechanics, introduction to statistical mechanics.
Quantum mechanics: statistical interpretation, Schroedinger’s equation — basic solutions, operators, eigenfunctions and eigenvalues, Uncertainty principle, radiation-selection rules, many body quantum mechanics, Pauli exclusion principle, lasers and holography.

SP310 Instrumental Science 3A
Sixty hours in one semester
Pre requisite, SP210
Assessment by examination, assignments and laboratory reports
A second-year subject for students majoring in instrumental science.

AS32
SP324 Biophysics 3A
Sixty hours in one semester
Prerequisite, SP224 or equivalent
Assessment by examination and laboratory reports
A second-year subject for students majoring in biophysics.
Electrode processes: half cell potentials, charge transfer overpotential, diffusion overpotential, impedance, microelectrodes, recording arrangements.
Membrane phenomena: Nernst’s laws, Donnan equilibrium, osmosis, Goldman equation, Ussing flux ratio equation, ‘po’ hypothesis.
The action potential: the voltage clamp and the Hodgkin Huxley equations, strength-duration curves, neuromuscular transmission.
Synaptic transmission: quantal nature of transmitter release, electrophysiological, electron microscopic and biochemical evidence, calcium activation, acetylcholine receptor, excitation and inhibition in the central nervous system, pre/post synaptic inhibition, second messenger activation, trophic and toxic effects, classes of neurotransmitter, pathologies of synaptic transmission.
Autonomic nervous system: structure and function, sympathetic and parasympathetic divisions, adrenergic and cholinergic synapses, muscarinic, alpha and beta receptors and their blockade, parasympathetic, co-transportation.
Functional anatomy of the CNS: somatosensory, auditory, visual and motor systems.

SP325 Biophysics 3B
Sixty hours in one semester
Prerequisite, SP224 or equivalent
Assessment by examination and laboratory reports
A second-year subject for students majoring in biophysics.
Muscle: length tension relationships, Hill equation, ultrastructure, excitation-contraction coupling, sliding filament theory, metabolic aspects, E-C coupling in smooth muscle, pathophysiology of muscle, electromyography.
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.

SP330 Instrumental Science 3B
Sixty hours in one semester
Prerequisite, SP210
Assessment by examination, assignments and laboratory reports
A second-year subject for students majoring in instrumental science.
An introduction to the hardware elements of a typical microprocessor system. Interfacing a digital signal. An introduction to programmable support interface devices.
An introduction to the use of assembly language for interfacing. Program design, timing, interrupts.

SP356 Physics
Three hours per week for one semester
Assessment by laboratory reports and examination
A second-year subject of the degree course in applied chemistry.
Quantum physics
Black-body radiation, photo electric effect, De Broglie’s hypothesis, Uncertainty principle.
Schrodinger’s equation — expectation values, operators, eigen values and eigen functions. Amplifiers 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
Thirty hours in one semester
Assessment by assignments
A second-year subject for students majoring in biophysics.
Earthing and shielding: reduction of noise and interference.
Electrical safety: Australian Standards for biomedical circuits.
Treatment of biophysical data: statistical tests and data presentation, use of small computers in biomedical practice, utility packages physiological data acquisition and signal processing packages. Applica-tions 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
Assessment by assignments and examination
A second-year subject of the degree course for students majoring in instrumental science.
Nuclear physics
Nuclear models — liquid drop model, Fermi gas model, shell model, collective model. Nuclear decay and nuclear reactions.
Electromagnetism
Maxwell’s equations: continuity equation, scalar and vector potentials, macroscopic fields, polarization, magnetization, 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.
Optics
Solid state physics

SP410 Instrumental Science 4A
Sixty hours in one semester
Prerequisite, SP310
Assessment by examination, assignments and laboratory reports
A second-year subject for students majoring in instrumental science.
An introduction to the field effect transistor. Common source and drain amplifiers. Other semiconductor devices.
Power supplies, stability of feedback circuits. Other semiconductor devices.

SP419 Occupational Health and Safety
Four hours per week for one semester
Assessment by examination and assignments
A second-year subject of the degree course in environmental health.
Environmental hazards
Accident prevention, Work-related injuries including tenosynovitis, back and muscle injuries, Relationship of physical defects to employee safety. Stress in the workplace, measurement and alleviation.
Radiation: ionising and non-ionising (including ultra-violet, visible light, radio frequency and lasers). Identification and bio-effects. Hazard assessment and control.
Toxicology
Toxic substances; mechanisms of action and pathogenic effects (carcinogenesis, mutagenesis, teratogenesis). Use of mammals and submammalian systems; predicting and assessing toxic effects in man.
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, storage and transport of dangerous and toxic chemicals.

SP424 Biophysics 4A
Sixty hours in one semester
Prerequisite, SP324 or SP325
Assessment by examination and laboratory reports
A second-year subject for students majoring in biophysics.
Cardiac monitoring and pathologies.
The ECG, genesis of myocardial field, lead systems, vectorcardiography. ECG changes in disease; effects of heart position, arrhythmias and conduction defects, pacemakers and defibrillators.
Monitoring pressure and flow Swan-Ganz catheters, ultrasonic and electromagnetic flowmeters, non-invasive techniques, cardiac output by dye and thermal dilution, electrical Impedance method, phono- and echo-cardiography.
Neurophysiological monitoring: on-going brain electrical activity, visual, auditory and somatosensory evoked responses; the ERG, EOG.
Intensive care instrumentation; design philosophies, data processing and management, ambulatory monitoring and telemetry, Cardiopulmonary bypass, requirements and design.

SP425 Biophysics 4B
Sixty hours in one semester
Prerequisite, SP324 or SP325
Assessment by examination and laboratory reports
A second-year subject for students majoring in biophysics.
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 mechanics, control of respiration.
Lung function testing and lung diseases, obstruction, restriction; flow/ volume curves, diffusion capacity, compliance, body plethysmography, response to exercise, small airway assessment, ventilation/perfusion ratio.
Renal vasculature: the juxtaglomerular apparatus, kidney function tests, countercurrent multiplication, control of kidney function, renal pathophysiology, the artificial kidney.
Monitoring the birth process: maternal, foetal and neonatal monitoring; uterine activity, foetal heart rate. Apgar scoring; neonatal circulatory and respiratory changes. Anaesthesia: agents and their administration; monitoring; physiological effects of anaesthesia, mathematical modelling.

SP430 Instrumental Science 4B
Sixty hours in one semester
Prerequisite, SP330
Assessment by examination, assignments and laboratory reports
A second-year subject for students majoring in instrumental science
Analogue to digital and digital to analogue conversion. Sample and hold. Serial communications. Interrupts. Direct memory access. An introduction to networking instruments.
Nuclear transducers: radiation safety, radiation detectors, pulse height analysis, spectrometry.

SP456 Physics
Four hours per week for one semester
Assessment by examination and laboratory reports
A second-year subject of the degree course in applied chemistry.

Electromagnetic radiation
Sources, detectors, properties of microwave, infra-red, visible, ultraviolet, and X-radiation, with particular reference to chemical instrumentation applications.

Radiation chemistry
Linear energy transfer, dosimetry, chemical effects resulting from the absorption of radiation, radiation chemical reactions in gases and aqueous systems, radiation chemistry of organic compounds.

Instrumentation
Fundamentals of DC and AC circuits, leading to bridge circuits, strain gauges, LVDTs, concepts of signal transfer and processing via filters, amplifiers, etc. Information storage and display. Behaviour of instrument systems. Performance criteria.

SP501 Signals and Systems
Four hours per week for one semester
Assessment by laboratory reports and examination
A fourth-year subject of the degree course for students majoring in instrumental science.
Signals in time and frequency domains: measurement and interpretation of spectra, applications of Fourier analysis.
Linear systems: time invariance, impulse response, system function, causality, system testing, phase and amplitude responses and time delays, filters.
Digital processing: signal sampling and reconstruction, digital spectral analysis, DFT and FFT, digital filters, linear prediction and bandwidth compression.
Noise: averages, signal estimation and detection.
Image processing: Fourier optics, holography and tomography.
Information theory and codes.

SP509 Physics 5
Two hours per week for one semester
Assessment by practical work, assignments and examinations
A fourth-year subject of the degree course in biophysics and instrumental science.
Solid state physics: tunnel diodes, PN photodiodes, PIN photodiodes, PN diodes to detect protons and alpha particles, PN diodes to detect gamma radiation, superconductivity, superconducting quantum interference devices.

SP510 Instrumental Science 5A
Sixty hours in one semester
Prerequisite, SP410
Assessment by examination, assignments and laboratory reports
A fourth-year subject of the degree courses for students majoring in instrumental science.
An introduction to control theory; control systems, modelling electrical and mechanical systems, transfer functions, open and closed loop systems, negative and positive feedback, root locus techniques, compensation techniques.
A series of open-ended experiments in networking computers and instruments together to achieve instrumentation functions: optical instrumentation and Imagery.

SP524 Biophysics 5A
Sixty hours in one semester
Prerequisites, either SP424 or SP425 and SP324
Assessment by examination and practical work
A fourth-year subject of the degree course for students majoring in biophysics.
Neuro anatomy: spinal cord organisation, histological features, brain stem, pathways, structures, hemispheres, subcortical structures, gross and histological dissection.
Volume conductor theory: application to the EEG.
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 — laminal and anterolateral, thalamic organisation and projections, S1 and S11 somatosensory cortex, dysfunction, testing — SEP, pain, spinal and brainstem pathways, endogenous opiates, gating theory, analgesia — TENS, electrical stimulation, pharmacological interactions.
Psychophysics: scaling, assessment techniques, absolute and difference thresholds, Weber function, Just noticeable difference, Fechner compression, signal detection, ROC curves.
Motor control: peripheral mechanisms, gamma loop, coactivation, stiffness regulation, servo mechanisms, motor cortex, motor potential, control circuits to basal ganglia and cerebellum, spinal pathways, pathology, skilled movement, learning, open and closed loop operation. The chemical senses: smell, receptors, coding, pathways; taste, receptors, chemical interactions, pathways, comparison of olfaction and gustation.

SP532 Biophysics 5B
Sixty hours in one semester
Prerequisites: either SP424 or SP425 and SP426
A fourth-year subject for students majoring in biophysics.
Physiological control systems: control theory, signal flow diagrams, fundamental block representations, open-loop, gain.
Dynamic responses: Bode and Nyquist analysis, transfer function discovery — examples of physiological investigations.
Cardiovascular system, mathematical models of the arterial system.
Respiratory, acid-base and thermal control.
Multicompartmental systems and methods of analysis, models of membrane systems.
Modelling of endocrine systems and introduction to neural net modelling.
Models of brain electrical and magnetic activity.

SP530 Instrumental Science 5B
Sixty hours in one semester
Prerequisite: SP430
Assessment by examination and laboratory reports
A fourth-year subject for students majoring in instrumental science.
Lectures on a series of topical aspects of scientific instrumentation and a series of open-ended experiments on computer-based imaging and on nuclear instrumentation.

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.
Physiological control mechanisms, mathematical models of physiological systems.

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

Faculty of Applied Science

SP533 Aspects of Metabolic Measurement
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.

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.

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 and analogue and digital electronic applications techniques.
The development, construction and commissioning of a biomedical instrumentation system.

SP536 Project
Four hours per week for one semester
A subject of the scientific instrumentation option of the graduate diploma of applied science.
The design, construction and commissioning of a substantial component of an advanced scientific instrumentation system.

SP537 Medical Imaging
Subject to approval
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.
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.
Interpreation of images: image quality and contrast, system MTFs, ROC curves, information theory.

SP541 Signal Processing
Four hours per week for one semester
Assessment by assignments
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, functionals, Volterra and Wiener expansions, system kernels.
(2) Signals, spectra, mean square estimation, orthogonality, principal component analysis, probability, stationary and non-stationary stochastic processes.
(3) Data, smoothing, windows, averages, filters, digital filters, recursive filters, auto-correlation, cross-correlation.
(4) System estimation, spectral analysis, correlation and coherence, white noise methods, system kernel estimation.
(5) Digital processing review of DFT, FFT, Z-transform, Hilbert transform.
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.

SP543 Vacuum Systems

Sixty hours in one semester

A subject of the biomedical instrumentation and scientific instrumentation options of the graduate diploma of applied science.

Gas laws, viscous and molecular flow, Conductions, Pumps, Pressure measurement and gauges. Leak detection, High vacuum pumping techniques. Application of vacuum systems.

SP544 Nuclear Instrumentation

Sixty hours in 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


General purpose instrumentation bus (IEEE 488)

Structure, functioning of talkers, listeners and controllers. Timing, electrical characteristics. Interfacing a controller chip set to an Intelligent microprocessor. Assembler programming, system programming. Example of a programmable instrumentation system.

SP546 Instrumentation Systems

Four hours per week for one semester

Assessment by practical work, reports and examination

A subject of the biomedical instrumentation and scientific instrumentation options of the graduate diploma of applied science.

Data acquisition systems

(a) Analog systems

Transducers, signal conditioning. Scanners, multiplexers, visual display devices, graphic recording. Magnetic tape storage.

(b) Digital systems

Analogue to digital and digital to analogue conversion, digital recorders.

Interference and noise

Thermal and quantum noise, noise power spectrum, equivalent noise power, noise coupling, electric field shielding, magnetic field shielding, grounding, guarding, contact noise, filters and filtering, noise reduction techniques.

Scientific instrument systems

A design study of selected scientific instruments (e.g. IR, UV, spectrophotometers, electron microscope).

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, analogue and digital readout — discussion of the above principles.

Transducers

Precise DC measurement — techniques, measurements, problems. Floating and guarded measurement. Principles of transducer operation. Transducers — AC or DC, active or passive, activator or sensor. A selection from the above groupings to cover the broad range of transducers available.

The interfacing of transducers — signal processing applications, transmitting applications.

Instrumental practice

Theoretical and practical course based on:

(1) Instrument components and mechanisms, e.g. servomotors, stop-permeters, galvanometers, electric components.

(2) Printed circuit board techniques, e.g. artwork, negative, manufacturing, 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.

Detsctors: general survey, including Geiger, scintillation and solid state detectors.

Instrumentation: NIM system, pre-amplifiers, main amplifiers, discriminators, single channel analysers, counters, timers, rate meters, 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, dissociation, conductance, acids and bases, cells, 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 instrument options of the graduate diploma of applied science.

DC circuits


AC circuits

Sine waves, AC power, capacitance, inductance, impedance, RLC circuits, tuned circuits, integrator and differentiator circuits, mutual induc- ance, transformers.
Diodes
Semiconductor materials, the p-n junction, diode specifications, Zener diodes, special types of diodes.

Power supplies
Rectification, voltage and current regulation.

Amplifiers and semiconductor devices
(a) Theory of amplifiers
Sources of electrical signals, voltage amplifiers, current amplifiers, gain impedance relationship, feedback, input and output impedances.

(b) Transistor circuits
Small signal characteristics, gain, input impedance, output impedance, bias current and voltage feedback, darlington pairs, current mirror, differential pairs, AC and DC coupled amplifiers, bias and gain of multiple transistor circuits, power amplifiers.

(c) Field effect transistors
Small signal characteristics, J-Fets, mosfets, bias and gain, fet amplifiers.

(d) Semiconductor devices
Unijunction circuits, SCR and triac circuits.

Digital systems
Numbers in digital systems.
Digital logic.
Digital devices.

SP555 Introduction to Biophysical Systems
Four hours per week for one semester
Assessment by assignments, practical work and examination

An introductory subject of the biomedical instrumentation option of the graduate diploma of applied science, for students with an inadequate background in the biological aspects of biophysics.

Cell physiology, membranes and excitability, nerves and muscles.
Bioenergetics.
Flow and pressure.
Biological control systems.

SP601 Stand Alone Instrumentation
Two hours per week for one semester
Assessment by reports

A final semester subject for students majoring in Computer Science.

Instrumental Science 6A

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

A fourth-year subject for students majoring in biophysics and Instrumental science.

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 biological instrumentation.
Projects are chosen by students, after consultation with staff, from a list developed by staff. Projects are usually associated with departmental research interests, or are proposed by cooperative employers, but can be suggested by students. They are chosen to develop students' technical knowledge, self-educative skills and initiative, and may be limited by available departmental resources.
Each project requires a literature survey, and a theoretical investigation.
Results, conclusions and recommendations are presented in a written report, and an oral report may also be required.
Special lectures are given on the subjects of entrepreneurial skills and technology transfer.

SP609 Physics 6
Two hours per week for one semester
Assessment by practical work, assignments and tests

A fourth-year subject for students majoring in biophysics and Instrumental science.

Selected topics of special interest to students of biophysics and Instrumental science. A selection will be made from the following areas:
Solid state devices; lasers, solar cells, new materials, chemical machining.
Applications of superconductivity: Josephson junctions, particle accelerators.
Nuclear power: developments in fusion and fusion reactors, magnetic and inertial confinement.
Tomography: X-ray, NMR, positron emission.
Fibre optics; sensors, communication.
Electromagnetic interference and shielding.

Ultrasoneics.

SP610 Instrumental Science 6A
Sixty hours in one semester
Prerequisite, SP510
Assessment by examination and laboratory reports

A fourth-year subject for students majoring in Instrumental science.

Student and staff presented seminars.

Major instrumentation project.

SP624 Biophysics 6A
Sixty hours in one semester
Prerequisite, SP524
Assessment by examination and laboratory reports

A fourth-year subject for students majoring in biophysics.

The auditory system and the vestibular apparatus: acoustics of the outer ear, sound transmission within the ear, peripheral organisation of vestibular and auditory neurons, auditory and vestibular function, auditory/vestibular testing techniques, evoked potentials, cerebrospinal fluid pressure, visual, auditory, vestibular, somatosensory and vestibulocerebellar regions.

Biomedical signal processing:
EEG, EMG, EOG, MEG.
Auditory brainstem response, visual evoked response, intracranial pressure, recording, examination, pathology, assessment, adaptation, acuity, spatial frequency.

EEG: origin, recording, interpretation, analysis.

Neurophysiological signal processing:
Basic concepts and methodology.

Neuropharmacology.
Sleep and consciousness.
CNS disorders: epilepsy, dementia.

SP625 Biophysics 6B
Sixty hours in one semester
Prerequisite, SP501
Assessment by examination and laboratory reports

A fourth-year subject for students majoring in biophysics.

Medical imaging: ultrasound, nuclear methods, X-ray, CT scan, NMR (MRI), PET.
Biological effects of radiation.

Physical principles, image reconstruction, image quality.

Microwave imaging.

Physical therapy: TENS, ultrasound therapy, PEMFs, laser therapy.

Biomedical signal processing, implants in orthopaedics and dentistry, neural prostheses, and computer control of devices.

Environmental biophysics, ergonomics, stress in the workplace, teratogenesis and RSI, effects of noise, electromagnetic radiation, etc.

Effects of heat and cold.

Bioeffects of atmospheric pollutants.

SP626 Applied Neurosciences
Thirty hours in one semester
Prerequisite, SP524
Assessment by assignments, examination and practical work
A fourth-year subject for students majoring in biophysics and instrumental science.

Advanced signal processing: EEG, brain magnetic fields.
Neurometric analysis, P300, CNV, coherence analysis.
Neuronal modelling.
Cognitive processes.
Speech: laterality, learning, mechanics, interpretation, injury.
Memory.
Behavioural aspects of sleep and consciousness.
Disorders of higher cortical functions: depression, anxiety, schizophrenia.

**SP630 Instrumental Science 6B**

Sixty hours in one semester
Prerequisite, SP530
Assessment by examination, assignments and laboratory reports

A fourth-year subject for students majoring in instrumental science
Advanced control theory.
Major instrumentation project B

**AB210 Applied Psychology**

Two hours per week for one semester
Assessment is continuous

A first-year subject of the degree course in environmental health
The emphasis in this course will be on interpersonal communication/ skills and stress management. Topics in communication will include: non-verbal and verbal communication, one-to-one communication skills, coping with conflict at an interpersonal level, personality influences in communication and psychological aspects of communication. Topics in stress management will include: principles of behavioural psychology, relaxation, nutrition and mental health.

**AB215 Complementary Studies**

Two hours per week for one semester
Assessment is continuous

A first or second-year subject of the degree courses in applied science, except in environmental health.
The course has two aims.
The first is to develop communication skills Including the preparation of oral and written reports.
The second aim is to expand students’ understanding of the nature of modern science; the social impacts and implications of science and technology, and of social processes with special reference to the Australian social context.

**AB310 Behavioural Studies**

Two hours per week for one semester
Assessment is continuous

A second-year subject of the degree course in environmental health.
The course examines Australian society from the point of view of the self, the primary group, the formal organisation and the institution. It uses 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.

**AB510 Communication Skills**

Two hours per week for one semester
Assessment is continuous

A fourth-year subject of the degree course in environmental health.
The course builds on earlier study of both psychology and communication skills using students’ own experience in industry as a basis. The communication component will focus on aspects of oral presentations and written reports; the psychological component will focus on aspects of behaviour and group dynamics experienced in the workplace.

**AB513 Brain and Behaviour**

Thirty hours in one semester
Assessment by assignment and examination

A fourth-year subject of the degree course in biophysics and instrumental science.
A study of the philosophical and ethical implications of advances in the neurosciences.
Topics will include: biological and environmental determinants of the human and the mind-brain problem in the neurosciences.

**AB611 Science and Society**

Two hours per week for one semester
Assessment is continuous

A fourth-year elective subject of the degree courses for students majoring in computer science.
By examining current issues, case studies and controversies surrounding the social impact of science, this course seeks to develop an understanding of the nature of modern science and its relation to social, economic and political processes. The role of scientists, the social forces that shape science and methodologies appropriate to the social analysis of science will also be explored.

**AB612 Science and Ethics**

Two hours per week for one semester
Assessment is continuous

A fourth-year elective subject of the degree courses for students majoring in computer science.
In this subject, students examine some of the value systems associated with science, including morality, religion and the law. The aim is to develop a critical awareness of the nature and assumptions of ethical arguments which give rise to conflicts of values and moral dilemmas.

**AB619 Communication Studies**

One hour per week for one semester

A fourth-year subject of the degree courses in applied chemistry and biochemistry.
This subject provides training and practice in the presentation of oral reports. Topics include:
1. How communication works — theory, basic model, stages, interference, feedback, etc.
2. Special needs of oral reporting — level of language, face, stance, voice, eye contact, etc.
3. Use of visual aids — advantages, pitfalls, etc.
4. Improvisation and prepared speeches.
5. Research methods, note taking, structuring.
6. Conveying the essence of a subject for varied audiences: making technical information comprehensible.

**BS141 Introductory Law**

Three 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) reviewing through Parliament and the courts.

The Australian court system, court personnel and tribunals with specialised jurisdictions: The civil and criminal trial process.
Judges as a source of law — precedent and legal reasoning Case studies of particular relevance will be examined: negligence (consumer protection); nuisance (environmental controls); and strict liability (hazardous materials).

Judges as a source of law — the main judicial approaches to statutory interpretation (plain meaning or policy), the context of words in a statute, the audience, the purpose. Particular rules: meanings limited to class or association, gaps in a statute, inconsistent provisions, conflict with property rights, penal provisions.

Confronting problems caused by legal concepts: legal personality (prosecuting the corporate defendant — are the criminal sanctions appropriate?); and property (environmental and planning controls). Changing the law (involvement by health surveyors in changes to building controls, role and structure of Local Government, food laws).
Faculty of Applied Science

**BS253 Law: Environment Protection, Health and Food Laws**

- 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, etc. nuisances, sanitary, infectious disease, by-laws.
- Building controls and special dangerous trades to be considered with reference to the Health Act, the Town and Country Planning Act, the Building Control Act and the Environment Protection Act.
- The Food Act — controls on food premises, preparation and sale of food, etc. Warrants, 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.
- Health Commission — in addition to the Health Act and the Food Act, further relevant legislation with respect to drugs and health services will be considered.

**BS254 Law: Procedure and Evidence**

- Four hours per week for one semester
- A second-year subject of the degree course in environmental health.
- The legal process of proceeding with choosing the appropriate court, who may prosecute, the rule against making allegations, what must be specified in the information and summons, rules with respect to service and proof of same. Time limits. Adjournment.
- Trial procedures — pleas, powers of the court.
- Particular problems with respect to the corporate defendant, sampling and entry powers will be considered in the context of the mock trials which will commence from the initial interview of a complainant.
- The rules of evidence, statutes and judicial developments, the burden and standards of proof, hearsay, documents, admissions, improperly obtained evidence, competent and competent witnesses, expert witnesses, judicial notice and other relevant evidentiary issues will be considered.

**BS258 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 used in Local Government. Study of the health surveyor’s role within the structural framework of the Council organisation.
- The dynamic nature of administration and management, and an overview of the practices and procedures necessary to support the occupational framework of health surveyors in the field.

**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 safety committees under Occupational Health and Safety Legislation.
- The role of the Ombudsman and Committees of Enquiry.
- The Administrative Law Act and review by the Courts 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.

**BS448 Law, Science, Technology & Social Change**

- Two hours per week for one semester
- A fourth-year subject of the degree course in environmental health.
- After instruction in undertaking legal research, students will be required to present prepared class papers on particular issues related to various themes. For example:
  1. the impact of science and technology on legislative controls: air pollution, noise control, food (production/additives).
  2. the impact of economic and social change on legislative controls: land use, accommodation, occupational health and safety.
  3. difficulties for enforcing authorities (government/policies and administration); conciliation or prosecution; duplicity of control, jurisdictional boundaries (if appropriate).
  4. the philosophy of punishment (when/when not to prosecute, assessing the impact and effectiveness of prosecutions).

Legislative changes and implications of judicial decisions reported since work experience was undertaken will be considered.

In addition, students must complete a research paper in which they will be required to:
- either (1) critically counterpose Victorian or Australian legal controls with other jurisdictions, or (2) consider different legislative approaches, objectives and administrative controls (e.g. the variety of controls and associated consumer protection and marketing legislation) with respect to food.

Research topics must be approved by the course convenor and may be developed from any aspect of legal study throughout the course.

**BS510 Business Studies**

- Five hours per week for one semester
- A first-year subject of the degree course in computer science and instrumental science.
- **Accounting**
  - The business environment; financial statements (balance sheet and profit/loss), analysis and interpretation; cash management; cash budgeting; cost accounting; financial decisions; taxation.
- **Economics**
  - Markets and efficient resource allocation; demand analysis; production and cost analysis; an introduction to profit and pricing.

**BS511 Business Studies**

- Five hours per week for one semester
- A first-year subject of the degree course in mathematics and computer science.
- **Accounting**
  - The nature of accounting; the accounting cycle; accounting for limited liability companies; taxation implications for business entities, operating financial control; cash flow analysis; operating and financial statements.
- **Economics**
  - Markets and efficient resource allocation; demand analysis; production and cost analysis; profit and pricing.

**BS512 Business Studies**

- Four hours per week for one semester
- A first-year subject of the degree course in mathematics and computer science.
- **Accounting**
  - Cost and management accounting process; product costing methods; standard costing, preparation and use of budgets; capital expenditure analysis and decision-making.
- **Economics**
  - Profit and pricing; industry economics; Australian industries; Australian economy, features and challenges.

**BS515 Business Studies**

- Four hours per week for one semester
- A fourth-year subject of the degree course in applied chemistry and biochemistry.
BS517 Business Studies
Two hours per week for one semester
A fourth-year subject of the degree course in mathematics and computer science.

BS617 Computers and the Law
Two hours per week for one semester
Assessment by examination and assignment. An optional fourth-year subject for students majoring in computer science.
An introduction to the legal system will be followed by a discussion of selected aspects of industrial/intellectual property law, tort, contract and trade practices law relevant to the needs of future computer professionals.

BS618 Management of Human Resources
Two hours per week for one semester
Assessment by tests or some combination of segment tests and assignments. An optional fourth-year subject for students majoring in computer science.
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 and organisational effectiveness; and
(e) understand the role of managers and the impact of alternative managerial style on organisational effectiveness.

CE236 Health Engineering
Four hours per week for one semester
A second-year subject of the degree course in environmental health.

Hydraulics
Physical properties and units. Hydrostatics, pressure density, height relationships, pressures and forces on immersed surfaces, buoyancy; Bernoulli's equation and application to simple examples; chutes, orifices, weirs. Concepts of total energy line, hydraulic grade line.

Hydrology

Urban stormwater drainage

Sewerage
Composition and volumes, domestic plumbing, sewer location, grades, sizes, materials, appurtenances. Sewerage treatment, the decay cycle. Primary, secondary and tertiary processes. Septic tanks, small sewerage treatment plants, lagoons.

CE423 Town & Country Planning
Two hours per week for one semester
Assessment by examination and assignment. A fourth-year subject of the degree course in environmental health.

CE436 Health Engineering
Two hours per week for one semester
A four-year subject of the degree course in environmental health.

Water supply
Water quality standards: storage and distribution; treatment processes; pollution and health risks.

Stream pollution
Sources and nature of polluting substances, effect on bodies of natural water, oxygen balance, eutrophication.

Soil mechanics
Introductory geology including roc: classification, weathering processes, soil formation. Physical and index properties of soil. Soil classification systems including laboratory and field identification and classification. Soil permeability and groundwater flow.

Solid waste disposal
Composition of domestic waste. Operation of sanitary landfills, transfer stations, recycling depots, and incinerators.

Surveying
Introduction to levelling and reductions, measuring and setting out. Basic computation techniques. Contour properties and plotting. Land identification. Practical classes showing application of instruments.

EE541 Control Systems
Four hours per week for one semester
A subject of the biomedical instrumentation and scientific instrumentation options of the graduate diploma of applied science.
Review of linear feedback. Control theory. Introduction to non-linear system analysis. Analogue computer simulation of systems. Introduction to the state variable approach to system simulation and state space analysis. Discrete data systems and sampling theory. Introduction to digital control techniques.

EE542 Applications of Computer Devices
Four hours per week for one semester
A subject of the biomedical instrumentation and scientific instrumentation options of the graduate diploma of applied science.
The aim of this subject is to introduce students to small computer equipment and techniques used in real-time monitoring, control, acquisition and transmission applications. The emphasis is on small computer systems.
Introduction: the philosophy and architecture of stored program computers.
Single board computer: Introduction to MCS88 architecture and applications. Instruction set and peripheral chip functions.
Data transmission methods: CCITT V.24, RS232, IEEE 488 general purpose Interface bus.
Computer peripherals: graphic output techniques, intelligent peripherals, bulk storage.

PDP11 minicomputer: PDP11 architecture and instruction set. PDP11 data acquisition example: A/D conversion, real-time sampling, multiplexing, interrupts, effects of word length and sampling rate. Commercially available data acquisition modules.
Review: comparison of features and limitations of other microcomputers and minicomputers.

EE543 Data Transmission for 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.
Modems, modulation methods, interfacing, line-conditioning, multi-plexers and concentrators, switched and leased lines, Datel, CCITT standards.

Protocols, bit- and byte-oriented protocols, BSC, HDLC, SNA, ISO Model.

Public data networks, Datel AUSTPAC, DDN.

Local area networks, topology, access methods, examples, e.g., Ethernet.

Analogue data transmission, process control examples.

Electrical isolation, noise and interference reduction, optical fibres transmission methods, error control and data security.

**EE554 Electronic Systems**

Four hours per week for one semester

A subject of the biomedical instrumentation and scientific instrumentation options of the graduate diploma of applied science.

Analogue electronics: operational amplifier analysis and design. Linear and non-linear amplifiers.

Digital electronics, sequential circuit design, algorithmic state machines and microprocessor hardware.

Software techniques and interfacing circuits.

**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**

History of computing early computing devices, dawn of the modern computer, generations of computers.

Introduction to computer architecture: CPU architectures, main storage, machine language. Secondary storage: Principles of operation of magnetic tapes, disks, mass storage devices, bubble memory, optical disks.

Input/Output devices. Introduction to data communication.

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, translators, 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 proven programming styles and techniques by the use of the programming language, PL/1. 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 with also study the environment of programming, i.e., program specification, testing and documentation.

**Syllabus**

Program Structure: sequence, selection, iteration.

Demonstration Program: program execution and simple modification.

Data Types: declaration, characters, strings, decimal, binary.

Flow of Control: DOWHILE, IF, SELECT, DO UNTIL, LEAVE, REPEAT, GO TO and labels.

Basic Input/Output: stream I/O, list directed I/O, ON ENDFILE, SKIP, LINE, PAGE.

String Processing: character strings, string operators, concatenation, INDEX, SUBSTR.

Arrays: declaration and reference, operations; searching, modifying, sorting, modifying, merging, multi-dimensional arrays.

Procedures: declaration/call, argument passing, procedures and structured programming, local/global variables, scope.

Structures: declaration, assignment, values, structure I/O.

Files: stream/record file, file types, serial, index sequential, direct, File Processing Techniques: serial processing; reporting, selection reporting, control break, file update. Index sequential processing: selection reporting.

**IT103 Business Applications & Systems 1**

Five hours per week for fifteen weeks

A first-year subject of the Bachelor of Information Technology course.

**Objectives**

The aims of this unit are to:

- Introduce students to the component parts of common business systems such as inventory, Accounts Receivable and Accounts Payable.

- Give students skills in using personal computers particularly in productivity tools such as word processing, spreadsheets and graphics.

- Examine the use of computers in accounting information systems, other transaction processing systems and management information systems.

**Syllabus**


Accounting Systems: Integrity Accounting package, inventory, accounts receivable, accounts payable.


Microcomputer systems: Introduction to business support systems; and software.


Case study presentations.

**IT104 Management and Communications**

Five hours per week for fifteen weeks

A first-year subject of the Bachelor of Information Technology course.

**Objectives**

To provide students with:

(a) an understanding of the nature and importance of communication, interpersonal skills and group development to organisational management;

(b) to develop students’ interpersonal skills and skills as team members;

(c) to allow students to experiment with various techniques, theories and approaches to communications and management through the use of experiential teaching techniques;

(d) to prepare students to appreciate the context of work and their own roles as organisation members;

(e) to provide a foundation for subsequent studies.

**Syllabus**

Communication, Perception, Transactional Analysis.

Interviewing skills.

Organisation culture: The Nature of groups, communicating in groups, understanding groups, group presentations, group effectiveness, and organisation research.

Oral presentations; report writing.

Assessiveness skills; negotiation skills.

Group project.

**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. SAS, Harvard Presentation Graphics etc. is emphasised.

Faculty of Applied Science
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 and introduction to simulation.

Statistical applications through the use of packages such as data collection and manipulation with packages such as SPSS, SAS.

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 emphasized.

IT202 COBOL programming

Five hours per week for fifteen weeks

Prerequisite: IT 102 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 the 1985ANSI 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: IFELSE, nested IFs, sign & class tests, range & limit tests, compound statements, 88 levels.

Control group reporting: DOWHILE E 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 v ISAM, random v sequential access, Environment of file division entries, verbs.

Data Base: Definition, access, processing.

Tables: REDEFINES, review table concepts, 1-dimension tables, PERFORM VARYING, binary search, SEARCH, SEARCH ALL.

Multi file processing: Merges, merge/replace, master file update, master file maintenance update.

String processing: TRANSFORM, INSPECT, STRING, UNSTRING.

Sorts: Sort, merge, work file, key fields. SORT verb, input procedure, output procedure.

Sub-programs: Program design & development, modular design, cohesion, coupling.

COBOL85: New features, structure, conversion.

IT203 Business Applications & Systems 2

Five hours per week for fifteen weeks

Prerequisite: IT 103 Business Applications and Systems I

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 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 tool (DBase II +)


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 a 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: Operations and Purpose.

Accounts Receivable.

Introduction to Cash Book Recording.

Bank Reconciliation Statement.

Final figures and balance sheet adjustments.

IT301 Systems Software 1

Twenty seven hours per week for three weeks

Prerequisite: successful completion of the segments one and two.

A first year 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 subject of the Bachelor of Information Technology course.

Objectives

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.

To give students a better understanding of themselves, their impact on other people, and the way other people influence their own behaviour.

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 other theories.

To give students practice in interpreting and explaining complex organisational behavioural situations in terms of current theories and concepts.

To prepare students to interpret and understand the behavioural environment of their employing organisation and of their own role within it.

Syllabus

The emphasis in class is on experiential exercises designed to bridge the gap between theory and reality. These will take the form of group activities (on applying theory to case studies).
IT303 Data Base Management Systems 1  
Twelve hours per week for three weeks  
Prerequisites: IT203 COBOL Programming, IT202 Business Applications and  
IT300 Business Applications and Analysis

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 database, the need for the database, Data Dictionaries, Logical 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.

IT401 Industry Based Learning  
Twenty weeks full-time project work in industry  
Prerequisite: satisfactory completion of the subjects of the first three segments

A second year segment of the Bachelor of Information Technology 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 professional activities of sponsors data processing and information technology environments are supervised 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.

IT501 Systems and Information Analysis 1  
Five hours per week for fifteen weeks  
Prerequisites: 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 requirements and hence contribute to the preparation of a Strategic Data Model for an organisation.
4. Select the information analysis approach appropriate to a particular situation from a range of modelling techniques and tools.

Syllabus  
Systems and Models.
Data Analysis — user views of data; Data Dictionaries.
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 inter-relationship 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 manipulation, 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/AMS), system generation, system maintenance, recovery and termination management, security.
Computer architecture: CPU and ALU principles of operation, divisions of storage, addressing 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 normalisation enable students to understand developments in the field. Implementation and physical design skills are enhanced by an examination of the factors affecting performance.

Syllabus  
Relational Theory/normalisation.  
Design Methodologies.  
Factors affecting performance.  
Analysis of transactions and transaction volumes.  
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 familiarise 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:
- Explain what expert systems are, how they developed and who is using them.
- Discuss how expert systems differ from conventional software programs, laboratory artificial intelligence programs in particular and human beings who perform tasks expertly.
- Explain the basic concepts of artificial intelligence and knowledge engineering that affect design and implementation.
- Analyse the architectural choices faced in building expert systems, including specific design prescriptions for tasks of different kinds.
- Examine the evolutionary process of knowledge acquisition needed to put expertise into a machine.
- Analyse the relative strengths and weaknesses of existing knowledge engineering tools by using different techniques on an “identical” problem.
- Discuss the pitfalls and opportunities that arise from the important need to evaluate artificial expertise.

Syllabus
Role of artificial intelligence (AI) developments in business computing — what is AI, who uses it and why, what it has produced so far, why the business and industry world is interested in it.
- Knowledge, engineering topics, problems of extracting expert knowledge, iterative development of expert systems.
- Categories of expert systems: evidence gathering, stepwise refinement, stepwise assembly.
- Knowledge representation: rule based, logic or example-based, frame-based representation in reasoning.
- General levels of expert systems: assistant, colleague, expert. Process of building an expert system — task definition, initial design, knowledge extraction, technology transfer, use of expert system shells, evaluation and selection of appropriate shells for specific problem types.
- Expert systems in use in financial services, finance and administration, manufacturing, engineering, sales and marketing, data processing and MIS, field service and education.
- Hardware and data base implications of expert system applications, including 5th generation hardware, management and social issues.

IT506 Expert Systems
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), 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. ISR’s XL);
- develop control strategies, explanations and user interfaces via LISP, PROLOG and ISR’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 not classified as shells. This section also involves evaluation of specialised hardware such as workstation 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.

IT507 Computer Graphics and Imaging 1
Five hours per week for fifteen weeks
Prerequisite, Mathematics Option
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 graphic images.

Syllabus
Introduction, definition of graphics, range of applications.
- Graphics hardware, display devices, hardcopy, input devices.
- Two dimensional graphics primitives. Two dimensional object transformations, matrix representation, composite transformations.
- Windowing and clipping. Object representation, display lists, segmentation.

IT508 Systems Performance
Five hours per week for fifteen weeks
Prerequisite, Mathematics
An optional subject of the second year of the Bachelor of Information Technology course.

Syllabus
This unit addresses the problems associated with achieving effective performance efficiency in large computer systems. The course covers hardware and software monitors, the interpretation of their output, system tuning parameters and system performance models. The practical application of tuning techniques in large scale mainframe systems and networks is emphasised.

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 studies 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 specification, software development, software design, programming practice, testing and debugging, documentation and maintenance and the user interface.

IT511 Digital Electronics and Devices

IT512 Telecommunications

ME249 Environmental Engineering
Four hours per week for one semester
A second year subject of the degree course in environmental health.

Part A: Mechanical engineering plant (30 hours)
Principles and standards to be met by heating, ventilating, lighting, air-conditioning, refrigeration, steam and high pressure hot water plant — tests on boiler plants such as the Ringleman, CO and CO₂ tests. Recognition and analysis of problems, reports and recommendations, maintenance of records.

Part B: Vibration/acoustics (30 hours)
Theory and practice of vibration and noise control applied to equipment and plant including ventilation systems and food processing plant. Introduction to codes of practice for noise emission control.
ME448 Occupational Engineering
Four hours per week for one semester
A fourth-year subject of the degree course in environmental health.
Systems approach to problem-solving.
Work space design: including heat stress, ventilation, noise, lighting, fumes, vibration and acceleration (revision of relevant features of human anatomy).
Job design: including motivation, job enrichment, memory loads, decision-making, interpersonal communication, organisational structure and stress.

MP107 Engineering Drawing & Sketching
Two hours per week for one semester
A first-year subject of the degree course in environmental health.
Drawing exercises to develop and use skills to illustrate typical details of equipment, plant and structures.

MP207 Engineering Drawing & Sketching
Two hours per week for one semester
A first-year subject of the degree course in environmental health.
Topics selected from the following:
Layout drawings involving pipework, drains, exhaust canopies, ductwork, etc.
General arrangement drawings, plant layouts.
Industrial stairways and ladders.
Pipeline identification, coding.
Filters, waste disposal equipment and structures.
Pumps, valves.
Drawing exercises illustrating typical installations and requirements.

MP517 Industrial Processes and Pollution Control
Four hours per week for one semester
A fourth-year subject of the degree course in environmental health.
Use of process flow diagram.
Simple process calculations (stoichiometry, combustion, heat and mass balances).
Disposal and dispersal of effluents, 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, dioxin, dumping of toxic waste).
Faculty of Art

Dean
B.C. Robinson, F DipArt(RMIT), TTTC
Director, Computer Image Program
P.G. Brown, BA(Hons), HDFA(Lond)

Academic staff

Department of Film and Television

Head
J. Sabine, BA(ANU)

Senior Lecturers

J.E. Bird, DipArt(SIT), TTTC
C. McGill
P. Tammer, BA(Meib)

Lecturers

D. Atkinson, DipArt(SIT)
N. Bell
H. Burton, BEd(MSC)
N. Ghazarian, Grad DipArt(AppF&TV)(SIT)
D. Price, BArch(RMIT)

Department of Graphic Design

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

Principal Lecturer
(to be appointed)

Senior Lecturers

B. Edwards, BA(Graphic Design)(SIT), TTTC
B.D. Martin, BA(Graphic Design)(SIT), AIDIA, TTTC

Lecturers

C.J. Austin, BA(Graphic Design)(SIT)
D. Bryans, BA(Graphic Design)(SIT), DipEd
C. Condell, BA(Graphic Design)(SIT)
R. Graham, AsscDipArt(RMIT), TTTC
S. Huxley, BA(Graphic Design)(SIT)
P. J. Jeffs, DipArt(Phillips)
A. Louey, BA(Graphic Design)(SIT)
H. Lueckenhausen, Grad Dip(Industrial Design)(RMIT), DipEd
T. Steel, BA(Graphic Design)(SIT), CATD(London)
W.G. Thomas, DipArt(RMIT), BEd(Lat)

Principal Tutor
P. Gajree, DipEd, FIP

Senior Tutor/Demonstrator
R.A. Newbound, CertPrint

Art courses offered

Full-time courses in the Faculty of Art are offered as follows:

Department of Film and Television
Bachelor of Arts (Film and Television)
Graduate Diploma in Film and Television

Department of Graphic Design
Diploma of Art (Graphic Design)
Degree of Bachelor of Arts (Graphic Design)

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/year of the course. However, the failed 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 Art Faculty 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.

The Art Faculty Board is the final authority for deciding passes or failures in any of the examinations for the Faculty of Art.
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 place emphasis on script writing, production management, directing, sound, lighting/camera and editing studies, leading to specialisation in one or more of these aspects by the final year of the course.

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.
Applications for second and higher years must be made direct to Swinburne.
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.
An interview is required.
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 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 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 overseas applicants, including Australian citizens, must be in Australia to participate in interviews, if required.

Course structure
First year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First semester</td>
<td>RF150 Assigned Projects 1</td>
<td>272</td>
</tr>
<tr>
<td></td>
<td>RF160 History of Cinema 1</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>RF140 Script Writing 1</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>RF170 Result of Studies 1</td>
<td>408</td>
</tr>
<tr>
<td>Second semester</td>
<td>RF150 Assigned Projects 1</td>
<td>272</td>
</tr>
<tr>
<td></td>
<td>RF160 History of Cinema 1</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>RF140 Script Writing 2</td>
<td>68</td>
</tr>
<tr>
<td>Second year</td>
<td>RF170 Result of Studies 1</td>
<td>408</td>
</tr>
</tbody>
</table>

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.
Tests and interviews are conducted from October to December of 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

<table>
<thead>
<tr>
<th>Area</th>
<th>Quota</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video</td>
<td>8</td>
</tr>
<tr>
<td>Film</td>
<td>8</td>
</tr>
<tr>
<td>Animation</td>
<td>24</td>
</tr>
</tbody>
</table>

In the three areas of specialisation offered, it is not possible to transfer from one stream to another.
Diploma of Art (Graphic Design)

G020 First and second years
G040 Third year
3 years full-time

The aim of the diploma course is to train designers to work effectively in areas where information is conveyed by visual means, such as advertising, publishing, publicity, printing, merchandising, education and some research projects. The course is planned to produce imaginative designers, who, with specialisation and experience in industry, should achieve positions commensurate with their individual talents.

The first two years of the course are common to each of the diploma/degree streams but in the final diploma year, a number of special bias studies are offered, including photography, three-dimensional design, audio-visual, publication design and the use of computer-based production techniques.

Entrance requirements
There are no specific prerequisite subjects.
VCE(HSC): recommended Group 1 subjects: English, art and art-related subjects.

Group 2 subjects will be considered.
VCE(TOP): all students who have successfully completed this course will be considered.
No preference is given to either of the above qualifications.
NB. Course Selection Officers have noted an increasing number of applicants are undertaking VCE(TOP) on completion of VCE(HSC). This action may enhance chances of entry into the course, but it should not be considered a necessary prerequisite qualification.

An interview is required.
At interview applicants are required to:
1. Present examples of their art-work.
2. Demonstrate an awareness of the contents and requirements of the course and future employment opportunities.

Interviews are conducted in November/December of each year to qualify for entry. 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 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.

Applications for second year and higher must be made direct to Swinburne and not through VTAC.

All overseas applicants, including Australian citizens, must be able to attend for interview.

Course structure

<table>
<thead>
<tr>
<th>Year</th>
<th>Degree Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>G020</td>
<td>First and second years</td>
</tr>
<tr>
<td>G040</td>
<td>Third year</td>
</tr>
<tr>
<td>G060</td>
<td>Fourth year conversion diploma/degree</td>
</tr>
</tbody>
</table>

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, educational 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 Psychology.

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 credit 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.
Faculty of Art

Course structure

G020 First and second year (common to both diploma and degree)

G050 Third year

GO50 Fourth year (full-time in industry)

RG410 Assigned Projects 4 306
RG400 Design Management 34
RG303 Industrial Year
RG441 *Result of Studies

Subjects to be taken by part-time study.

G060 Fourth year conversion diploma to degree

RG410 Assigned Projects 4 (Professional) 306
RG490 Design Management 34
RG303 Industrial Year
RG441 *Result of Studies

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’).

Explanation of course structure

<table>
<thead>
<tr>
<th>Year</th>
<th>Degree (cooperative)</th>
<th>Degree (conversion)</th>
</tr>
</thead>
<tbody>
<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 (HSC) or equivalent

Full-time study at Swinburne

Experience in industry or professional practice

Scholarships and awards

Foote, Cone and Belding Scholarships

Two scholarships are available for the third year of the Bachelor of Arts, film and television course. Value: $250 each.

Kodak (Australasia) Pty Ltd Scholarships

Two scholarships available for graduating students for the best cinematography and the best animation. Value: $1000 each.

Kodak (A’Asia) Pty Ltd Script Award

Awarded for an outstanding screenplay by a student graduating in film, video or animation. Value: $1000.

Robert Fine Memorial Scholarship

AAV Australia Pty Ltd

Awarded for the best screenplay by a student graduating in a film, video or animation course. Value: $5000.

The APM Awards

Awarded to the most innovative student in Graphic Design. First Year $500, Second Year $500, Third Year $500, Fourth Year $1500.

USP Needham Scholarship

Awarded to an outstanding student proceeding to the second year of the diploma of art, film and television course. Value: $250.

Film House Scholarship

Awarded to the student achieving highest aggregate mark during first and second years of Bachelor of Arts (Film and Television). Value: $1250.

Film Victoria John Harrison Script Award

Awarded for an outstanding screenplay by a student graduating in film, video or animation. Value: $1000.

The Margery Withers and Richard McCann Scholarship

Available for the second year of the diploma of art, graphic design course. Value: $200.

Maurice Cantlon Memorial Drawing Prize

Awarded to top drawing student. Value: $300.

The APM Awards

Awarded to the most innovative student in Graphic Design. First Year $500, Second Year $500, Third Year $500, Fourth Year $1500.

USP Needham Scholarship

Awarded to an outstanding student proceeding to the second year of the diploma of art, film and television course. Value: $250.

Film House Scholarship

Awarded to the student achieving highest aggregate mark during first and second years of Bachelor of Arts (Film and Television). Value: $1250.

Film Victoria John Harrison Script Award

Awarded for an outstanding screenplay by a student graduating in film, video or animation. Value: $1000.

The Margery Withers and Richard McCann Scholarship

Available for the second year of the diploma of art, graphic design course. Value: $200.

Maurice Cantlon Memorial Drawing Prize

Awarded to top drawing student. Value: $300.

Bachelor of Arts (Film and Television) subject details

First year

RF140 Script Writing 1

Four hours per week in first semester

Prerequisites: nil

Assessment is continuous

Through lectures, discussions and the screening and analysis of moving pictures, the students examine the relationship of moving pictures to the broad spectrum of fine and performing arts in order that the inherent advantages and limitations of the moving picture media may be appreciated. The potentialities available to the screenwriter through manipulation of image, movement, time and sound are examined closely as is characterisation, and the function of conflict, plot and genre. A series of short writing exercises are undertaken. These matters occupy the first eight classes.

Also commencing in week four and continuing for the balance of the first semester, each student undertakes the writing of a script suitable for production in the second semester. Progress is monitored at tutorials.

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.
RF150  Assigned Projects 1
Sixteen hours per week in 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 a production undertaken on location. Working in crews and rotating roles, each student experiences the responsibilities of script writing, directing, production management, sound recording and post-production, camera operation, lighting, art direction, continuity, videotape operation and editing.

In the second semester each student directs and edits a short video production that they have scripted in the first semester. The students form crews for these productions.

The aim throughout is to facilitate the production of student programs of a high artistic and technical standard.

RF160  History of Cinema 1
Four hours per week in first semester
Prerequisites, nil
Assessment is continuous

History of Cinema 1 is an introductory course on the development of narrative codes, conventions and structures from the silent era to contemporary cinema. The films selected cover a broad and diverse range of cinematic approaches and styles, and include examples of films that adopt an approach to narrative which deliberately undermines or alters the conventional strategies of the cinema. The course will introduce notions such as realism, the construction of ideology and the relationship between viewer and film, through a detailed account of cinematic technique. The course aims to provide students with a cultural and critical overview of the cinema to complement their work in film and television production.

Second year

RF240  Script Writing 2
Four hours per week in first semester
Prerequisite, AR170 Result of Studies 1
Assessment is continuous

Lectures cover the basic principles of dramatic structure and deal with the theme, the story, plot, conflict, character design, dynamic action, context and business, imagery, movement, time and sequence, climax and resolution. The aim then is for each student at the end of a ten-week period to have written an innovative script which will be the blueprint for the major film component of Assigned Projects. The screenplay should be lucid, engaging, incorporate distinctive characters, action and setting, have a strong narrative based in conflict and be fresh in form and content.

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, neg 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 first semester each student will have finished the production phase of their major project.

For six weeks during the second semester, second-year students crew for third-year graduating students and gain experience working on relatively ambitious projects for which large crews are sometimes required.

In addition, post-production of the major project is undertaken. This includes editing, track laying and post-dubbing. The remaining weeks of the semester are devoted to sound mixing and titling, resulting in the completion of the major project. It is expected that the major projects show significant advancement in technical and artistic competence in comparison with the first semester exercises.

RF260  History of Cinema 2
Four hours per week in first semester
Prerequisite, AR170 Result of Studies 1
Assessment is continuous

History of Cinema 2 is designed to elaborate on the issues raised in first year through a study of the documentary form and questions of genre, complementing the production work undertaken by students.

The course will examine documentary film, its history and its present status. It will explore the relationship between fiction and non-fiction, the problem of truth and authenticity, and the relationship between form and technological change. This will lead into a discussion of genre. The investigative thriller and the horror film will form the basis for this study. Underpinning both strands of the course will be an examination of the impact of contemporary culture, in particular, feminism and structuralism, and the impact of women's filmmaking on both the documentary and the way we perceive contemporary genres and their representation of sexuality, violence and the cultural and social milieu.

Third year

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. Subsequently they each refine 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 technical and conceptual program production skills are broadened and deepened through lectures, discussions, tutorials, demonstrations, excursions and moving pictures viewing and analysis. Guest lecturers from the film and television industry participate in this process.

Concurrently each student undertakes the script writing for a program of not more than twenty minutes duration, suitable for production in the second semester. Students attend script writing lectures and tutorials. Actual writing takes place outside of class time. Scripts that demonstrate a high level of creativity and narrative power, as judged by a panel of staff, are put into production. The second semester is devoted entirely to program production with the students crewing for one another. Specialisation in directing, camera/lighting, sound, production management and editing is encouraged.

RF360  History of Cinema 3
Four hours per week in first semester
Prerequisite, AR270 Result of Studies 2
Assessment is continuous

History of Cinema 3 aims to provide students with a wide-ranging account of the development of the Australian cinema over the past 15-20 years. By examining the films themselves, institutional and political structures such as the Australian Film Commission and the taxation incentive scheme, modes of production (from commercial mainstream cinema to low-budget and the avant-garde) and distribution and exhibition practices in this country, students will gain an overview of a film culture. It should, therefore, provide basic information and a perspective on the work and environment into which students themselves will enter on completion of their course, and are already, to some extent, engaged in. The course also attempts to place Australian cinema within a broader context with reference to other European cinemas, art cinema and American structures.
**Film and Television graduate diploma subject details**

**RF450** Assigned Projects
Twelve four-hour periods for two semesters
Prerequisite, nil
Assessment is continuous

Students admitted to the Graduate Diploma in Applied Film and Television undertake animation, film or video, program production studies. 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
Eighteen two-hour tutorials

All students attend eight lectures dealing with the advantages and limitations of script writing. Themes covered include the dramatic potential of image, movement, time and sound, the principles of characterization, the benefits of conflict to a narrative, dramatic form, specialist tools of script writing. Students undertake media theory workshop, 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 the students. In film and video students, respectively.

**Semester 2**

**Production**
Twenty-four hours per week for seventeen weeks

During second semester students work on their major productions. This involves a considerable amount of work outside of the scheduled twenty-four hours per week, including evenings and weekends.

**Graphic Design diploma/degree subject details**

**First year**

**AB121** Applied Writing
Two hours per week for one semester
Assessment is continuous, based on class participation and practical work.

A first-year subject for all graphic design students. The course is designed to develop formal and creative writing skills appropriate to graphic design. Attention is given to the analysis and interpretation of visual material, clarity and accuracy in the presentation of ideas, and writing techniques employed in applied areas, such as copy writing, design briefs, and publications.

**AB221** Media
Two hours per week for two semesters
Prerequisite, first year – nil, second year – continuing subject
Assessment is continuous

This subject is taken in the second semester of the first year and continued in the first semester of the second year.

In this subject, the aim is to expand graphic artists’ range of communication media relevant to their profession. It includes examination and discussion on techniques of present-day media: film, TV and video, radio, theatre, newspapers, publishing and other print media.

Speculative design, media ownership, news reporting and current affairs interviews, children’s TV and cross-media coverage of world events.

The course provides opportunities for creative media expression and ‘hands-on’ practice with media tools.

Both written and practical assignments are required throughout the year. There is also a major assignment involving consistent monitoring of current media programs.

**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 most likely to ensure acceptance and successful implementation. Group assignments also allow students to develop a broader understanding and appreciation of other students’ particular abilities.

A sequential program of applied design and communication projects is directed at developing a general awareness of visual aspects of the students’ environment and facility for critical objective analysis.

Specific study areas include:

**Design**
The object is to equip students with a ‘design vocabulary’ to allow creative expression in areas of two and three dimensions. As the year progresses, design projects increasingly interact with drawing, photography and design for print. In this way students develop an appreciation and competence over a broad range of communication problems.

**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, photojournalism, photo-reproduction techniques (e.g., developing and printing), pictorial editing, various colour processes and costing.

**Design for print**
Introduction to a comprehensive study over the three years of the course, which includes reproduction of lettering, typographic and symbol design, illustration, and all aspects of production with particular emphasis on experimental work in offset lithography and screen printing.

**Drawing**
Expanding vision through assignments which develop control of drawing as a discipline for research and invention. Subject matter includes the figure, perspective, object drawing and natural forms.

**Textbooks**
Students are advised not to purchase textbooks or references until classes commence.

**RG111** History of Arts 1
Two hours per week for two semesters
Prerequisite, nil
Assessment is continuous

A course of study planned to create an awareness and appreciation of a variety of art forms in selected periods and to provide a background for communication arts.

**TS194** Typewriter and Computer Keyboard Techniques
Three hours per week for one semester
Assessment is continuous, based on a series of test exercises

A course of one semester duration, designed specifically for basic and accurate keyboard familiarity to facilitate organized written assignment work, and later conversion to the word processing and computer photo-setting systems used in the second and third years of the course.

**Second year**

**AB222** Psychology
Two hours per week for one semester
Assessment is continuous

A general introductory course in psychology providing a background to applied psychology in the third year.

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, awareness 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**
Avery, G. and Baker, E Psychology at Work. Sydney : Prentice-Hall. 1984
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. Study areas include — design, photography, methods of production, type, history of arts and design, 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

A study of the influences within the arts in contemporary society including aspects of stylistic development within the graphic arts.

Diploma in Graphic Design

Third year

AB322  Applied Psychology
Two hours per week for two semesters
Prerequisite, RG340 Result of Studies 2
Assessment is continuous

A third-year diploma subject which aims to increase personal and social skills through the study of communications. This will include learning models, assertiveness training, stress management and sensory and interpersonal perception.

References
Reading and other resources will be given where appropriate

RG301  Assigned Projects 3
Twenty hours practical per week for two semesters
Prerequisite, RG340 Result of Studies 2
Assessment is continuous

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, three-dimensional design, audio-visual and publication design.

RG322  Print Technology
Two hours per week for one semester
Prerequisite, RG340 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

AB322  Applied Psychology
Two hours per week for two semesters
Prerequisite, RG240 Result of Studies 2
Assessment is continuous

A third-year degree subject, which introduces the student to the study of psychology and those areas relevant to marketing and advertising. It aims to have students demonstrate a knowledge of concepts and research in psychology and to help them understand the application of psychology to the area of marketing. It also aims to have students show an understanding of human needs and motivation by the analysis and creation of effective persuasive material. This is to be achieved by individual research projects on relevant areas of psychology and marketing for the first semester and the psychological analysis of a media material in second semester.

RG303  Industrial Year
Two semesters Industrial experience
Prerequisite, RG340 Result of Studies 2
Assessment is continuous

(See "Y" chart.)

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 electronics, mechanics or chemistry of printing, but rather explore the possibilities for design, production and distribution created by modern reproduction methods. These include type composition, photo-mechanical processes (offset, screen, letterpress and gravure), and studies of paper and other stocks.

This course will include the economics of production and relate to sections of the course in business administration.

Fourth year

RG410  Assigned Projects 4
Eighteen hours per week for two semesters
Prerequisite, RG341 Result of Studies 3
Assessment is continuous

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 are 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.
Undergraduate courses
Bachelor of Arts, Historical and Philosophical Studies AT6
-Korean (subject to accreditation) AT12
-Literature AT13
-Subject details AT10
-Media Studies AT17
-Subject details AT16
-Italian AT10
-Subject details AT10
-Japanese AT11
-Subject details AT11
-Liberal Studies AT14
-Psychology AT15
-Subject details AT15
-Political Studies AT19
-Subject details AT19
-Sociology AT23
-Subject details AT23
Bachelor of Business/Bachelor of Arts (Japanese) AT28

Postgraduate courses
Graduate Diploma in Applied Psychology AT29
-Subject details AT30
Graduate Diploma in Equal Opportunity Administration AT33
Graduate Diploma in Italian (subject to accreditation) AT34
Graduate Diploma in Japanese AT34
-Subject details AT35
Graduate Diploma in Urban Research and Policy AT35
-Subject details AT35
Master of Arts AT36

Subjects offered by other faculties AT25
Combined degree of Bachelor of Business/ Bachelor of Arts (Japanese) AT28
General information G1
Swinburne Institute information IT1
Faculty of Arts

Dean
L.A. Kilmartin, BA(Q'ld), MA(ANU), PhD(LaT), MAPsS

Sub-Deans
P.J. Fleming, MA(Melb)
F.X. Walsh, BA(Melb), BEd(Mon)

Assistant Registrar (Arts)
C. Hoernel, BA(Johns H)

Administrative Officer (Faculty)
M. Simpson

Laboratory Manager
A. Rice

Academic staff

Department of Humanities

Chair
P. Excell, MA(Mon)

Principal Lecturer
B. Warren, MA, DipEd(Melb)

Senior Lecturers
J. Dooley, MA(Mon), DipEd(Melb)
P.J. Fleming, MA(Melb)
N. Fukushima, MA(Mon), DipEd(Tok)
H.J. Kannegiesser, BA(Melb), MEd(Mon)
P.G. Kent, BA(Melb), MEd(Mon)
R.L. Love, BSc(Q'ld), CHPS(Camb), MA(Melb), PhD(Melb)
V. Mackie, MA(Mon)
A. Skoutarides, BA(Hons), PhD(Mon)

Lecturers
C. Bramble, BA, DipEd(Melb)
A. Buzo, BA(Hons)(Syd), M(SEU), DipEd(Syd)
A. Hakeem, MA(Decca and Camb)
L.A. Hougaz, MA(Melb), DipEd
T. Machida, BA(Tok), MEd(LaT)
M.M. Masini, BA(Hons)(Melb), DipEd(LaT)

Department of Liberal Studies

Head
M. Harney, MA(Melb), DipEd(Melb), PhD(ANU), GradDipArt(AppF&T)(SIT)

Senior Lecturer
A.G. Browne, BA(Melb), BEd(LaT), MAPsS

Lecturers
L.H. Instone, BA(Mac), ME/Sc(Sc)(Mon)
P.E. Mitchell, BA(Hons)(Melb), CertEd(Lond)
G.C.J. Morrisen, BA(Mon), DipScStud(Melb), GradDipEd(Haw)
M.C. Van Geloven, Drs(Amst), MAPsS

Department of Psychology

Head
K. Heskin, PhD(Queens)

Senior Lecturers
J.P. McLenann, MA(ANU), GradDipEd(Haw), MAPsS
J.F. Wangeman, MA, BCom, BEd(Melb), MAPsS

Lecturers
R.H. Cook, BSc(Hons)(Melb), MEd(Mon), MAPsS
G.H. Gotts, MSci(Calg), MAPsS
A.M. Holtgate, BA(SIT), GradDipApplied Psychology(SIT)
S. Kelly, BA(Tas), DipEd(Camb), PhD(Melb), MAPsS
A.D. Knowles, BA(Hons)(Melb), PhD(Mon), MEd(Mon), MAPsS
M. McMahon, BA(Hons), LLB(Melb), MAPsS
J.M. Rice, BBSSc(Hons), PhD(LaT), MAPsS

Department of Social and Political Studies

Chair
F.X. Walsh, BA(Melb), BEd(Mon)

Senior Lecturers
T. Barr, BA(Adel), BEd(LaT), MA(SIT)
T.W. Burke, MScSc(Birm), MEd(Mon)
T.G. Castieman, BA(Hons)(IND), PhD(Mon)
D.Y. Mayer, MA(Mon), LLB(Melb), GradDipEd(Haw)
G.G. Nichols, BA(Mon)
J. O'Hara, BA(Hons)(Melb), MA(Mon)

Lecturers
J. Babour, BSc(ElecEng)(SAust)
K. Betts, BA(Hons), PhD(Mon)
S. De Beer, MA(Mon), MACE
L.T. Hancock, BA(Hons), PhD(Mon)
D. Hayward, BA(Swin), GradDipU&B SOC(SIT)
M. Hicks, BSc(Adel)
S. Lakha, BSc(Hons)(Hull), PhD(Mon), GradDipUrbanStudies(Lond)
P.J. Love, MA(LaT)
K. Middleton, BA(Mon), MA(LaT)
J. Mulvany, BA(Hons), DipEd, PhD(Mon)
K.J. Rowley, BA(Hons)(Melb)
T.P. Ryan, BA(Hons)(Melb), BEd(LaT)
J. Schmid, MA(Melb)
Arts courses offered

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO50</td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td>A057</td>
<td>Bachelor of Business/Bachelor of Arts (Japanese)</td>
</tr>
<tr>
<td>NO64</td>
<td>Graduate Diploma in Applied Psychology Administration</td>
</tr>
<tr>
<td>NO66</td>
<td>Graduate Diploma in Equal Opportunity Policy</td>
</tr>
<tr>
<td>NO68</td>
<td>Graduate Diploma in Japanese</td>
</tr>
<tr>
<td>NO62</td>
<td>Graduate Diploma in Urban Research and Policy</td>
</tr>
<tr>
<td>NO90</td>
<td>Master of Arts</td>
</tr>
</tbody>
</table>

Undergraduate courses

NO50 Bachelor of Arts

Full-time

The Bachelor of Arts course requires three years of full-time study, during which time twenty semester subjects or equivalent in full-year subjects must be passed.

Part-time

Many students undertake their courses by part-time study. It would usually take six years, but this time may vary according to the study time available to the student.

Career opportunities

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

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

Eligibility

Applicants in the following categories will be considered for admission to the Bachelor of Arts degree course.

Year 12 (Group 1 subjects)

Grade D or better in four Year 12 subjects, previously accredited by the Victorian Curriculum and Assessment Board (VCAB) including English. (Passes may be accumulated over more than one year.)

Selection of applicants of this type will be determined on the basis of their approved Anderson score. A faculty quota for this type of entry will be applied.

Year 12 (Group 2 subjects)

Applicants will be considered by the Undergraduate Selection Committee which will arrive at a subjective evaluation of each candidate's likelihood of completing the course. The Undergraduate Selection Committee will take into account an applicant's educational background. A faculty quota for this type of entry will be applied.

Victorian Certificate of Education (Tertiary Orientation Program)

Applicants who have completed a VCE(TOP), including a pass in English, will be considered for selection on the basis of a computed Anderson-type score supplemented by any written student reports from the technical college or TAFE college concerned. A faculty quota for this type of entry will be applied.

Mature-age entry

Persons 21 years and over, and who may lack formal educational qualifications may apply. Applications will be considered by the Undergraduate Selection Committee which will arrive at a subjective evaluation of each applicant's likelihood of completing the course. The Undergraduate Selection Committee will take into account an applicant's stated educational background, employment background, together with the written reasons for wishing to undertake the Swinburne BA. A faculty quota for this type of entry will be applied.

Special entry

Persons under 21 years who have completed studies deemed by the 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 together with the written reasons for wishing to undertake the Swinburne BA. A faculty quota for this type of entry will be applied.

Application procedure

Full-time first year — to Victorian Tertiary Admissions Centre (VTAC)
Part-time all years — to Swinburne
Full-time later years — to Swinburne

Full-time study

Applications for a full-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 Admissions Office, or from the Arts Faculty Office. When completing the application form, applicants should:

(i) provide full information and documentary evidence of previous study undertaken,
(ii) outline reasons for wanting to undertake the course,
(iii) indicate the subject areas likely to be of interest at this stage.

The transfer of students from other faculties or from other institutions, shall be at the discretion of the Sub-Dean (Students), and shall be contingent upon the availability of places and upon the applicant having a satisfactory study record.

Single subject study

It is possible to study a subject offered by the Arts Faculty without enrolling in the BA degree.

An application form is required for this and is available from the Arts Faculty Office.

People interested in studying as a single subject student should note that such studies cannot be counted towards a BA degree, and also involve the payment of a substantial tuition fee.

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, the course for up to one year. Applications should be made in writing to the Registrar as soon as the offer of a place is received.
When an application is approved, the student concerned will be notified in writing by the Assistant Registrar.

Deferments will be valid for a maximum period of one year and only for entry to the course for which the offer was made. Deferment is not granted to students who have been offered a place in post graduate studies.

Exemptions

Students with certain recognised tertiary qualifications may be granted exemptions after applying to the Arts Faculty Board. In special cases, exemptions from named full-year and/or semester subjects are allowed, but unspecified exemptions may also be granted which provide for a reduction in the total unit value to be studied.

Students who think they may be eligible should apply for exemptions soon after they first enrol, presenting documentary evidence of prior qualifications. Applications should be made by completing the Exemptions form available from the Faculty of Arts Office (BA915) or the Student Administration Office and lodging it with the Assistant Registrar (Arts).

A reference copy of the current Faculty of Arts exemption policy document is available at the Faculty of Arts Office (BA915).

Teachers in the Victorian Ministry of Education are advised to consult the appropriate body about seeking exemptions from degree and diploma courses on the basis of teacher training qualifications, as the Ministry has previously indicated that such claims would not meet with its approval.

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 preceding by either a full-year or semester subject 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
- Literature
- Media Studies
- Political Studies
- Psychology
- Sociology
- Economics

or

- a double major in either Political Studies or Psychology

or

- a combination, approved by the Arts Faculty Board, of one of the majors listed above, plus one other major drawn from outside the Faculty of Arts.

(b) gain passes:

- in twenty semester subjects or equivalent full-year subjects including a minimum of six semester subjects of 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.

Studies constituting major strands

In Italian, Japanese, 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, historical and philosophical studies, literature, media studies 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 related subject areas to constitute a major. Before students begin a mixed major, they must have the approval of the head or chairman of the relevant department.

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.

(c) A full-time student who wishes to enrol for more than the usual number of subjects in any semester is required to apply to the Sub-Dean (Students), Faculty of Arts, giving reasons for the request.

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 only after discussion with the Progress Review Committee.

A student who has been recommended for exclusion from the course may appeal in writing, within a time specified by the Dean, Faculty of Arts, to the Convenor of the Progress Review Committee for special consideration.

The general criteria for an appeal are as follows:

(a) the student must convince the Committee of genuine grounds for the request;

(b) past academic standard must indicate a capacity to complete the course.

A student who feels aggrieved by the decision of the Progress Review Committee may appeal to the Dean of 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. Application 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). Students are not encouraged to enrol for a subject which has passed its introductory stages and usually admission to a subject three weeks after it has begun is not allowed.
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 14 April 1989. For a subject which concludes at the end of the second semester — not later than 1 September 1989. (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 14 April 1989. For subjects which conclude at the end of second semester — not later than 1 September 1989. Failure to make formal application before the specified date(s) will result in a fail being recorded for those subjects in which the student is enrolled, unless special permission to cancel the enrolment without penalty of fail has been given by the Sub-Dean (Students), Faculty of Arts.

Leave of absence of more than two consecutive semesters will not normally be approved.

A student who feels aggrieved by the decision concerning a request for leave of absence may appeal to the Dean of the Faculty.

**Graduate Diploma**

Usually, leave of absence is granted to graduate diploma students only if one semester of their course has been completed.

**Withdrawal from all study**

Students wishing to withdraw from all study must lodge a completed Amendment to Enrolment form at the Faculty of Arts Office (BA915), or the Student Administration Office, and return their identity cards. (For further details see under the section headed ‘Enrolment regulations’.)

**Concurrent majors at other institutions**

Students who wish to study a major at another institution can obtain further details about application procedures from the Assistant Registrar (Arts).

**Reading guides**

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

Preliminary reading — introductory material which students are expected to read before the subject classes commence.

Textbooks — material essential to the subject, but students are advised not to purchase any textbooks until classes have met.

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

**Subject selection**

The onus is on individual students (assisted by course advisers when enrolling) to have completed by the end of their stage three studies, a course which will entitle them to the award of a degree of Bachelor of Arts.

Faculty of Arts subject details are listed, 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. AJ102 Introduction to Japan — a Cultural Overview.

Subjects taught by departments in other faculties may be taken in addition to the Arts subjects offered and these are listed separately. 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, as enrolment in the subject may depend on the availability of places or on certain prerequisites or both. However, course regulations specify that:

(a) students taking both majors within the Faculty may take subjects taught outside the Faculty up to a maximum unit value of six;

(b) students taking one approved major outside the Faculty may take subjects taught outside the Faculty up to a maximum unit value of ten.

(For the purpose of this regulation the subjects SM278 and SM279, Design and Measurement 2A and 2B are regarded as subjects within the Faculty of Arts.)

When attending to enrol, students are issued with detailed instructions to assist in planning a suitable course. All students are required to complete enrolment forms (indicating their subject selection for both semesters) and once approved, may not amend their enrolment without the approval of the Sub-Dean (Students), Faculty of Arts.

Appointments with course advisers during the semester may be made through the Faculty of Arts Office (BA915).

**Subject corequisites (double major students)**

Corequisites for subjects (both semester subjects and full-year subjects) are indicated in the details for the particular subject. These corequisite subjects must either be completed before students take subjects from stage three, or else studied concurrently with the stage three subject. Any divergence from this requirement must have the approval of the subject convener concerned and the Sub-Dean (Students), Faculty of Arts.

**Subject prerequisites**

Prerequisites for subjects (both semester subjects and full-year subjects) are indicated in the details for the particular subject. These prerequisites must be completed before students may take subjects from stages two and three. Any divergence from this requirement must have the approval of the subject convener 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 four 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, psychology and sociology.

**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
- Centre for Urban and Social Research
- Centre for Women’s Studies

(See pages IT18 & IT19 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.

Departments in the Faculty of Arts
Within the Faculty of Arts there are four departments, each responsible for different subject areas, they are:

Department of Humanities
Historical and philosophical studies .............. page AT6
Italian ...................................................... page AT9
Japanese ............................................... page AT11
Korean .................................................... page AT12
Literature .............................................. page AT13

Department of Liberal Studies
Subjects for students of other faculties only ........ page AT14

Department of Psychology
Psychology .............................................. page AT15

Department of Social and Political Studies
Media ..................................................... page AT17
Political studies ..................................... page AT19
Sociology ............................................. page AT24
Each department has a head or chair and enquiries may be directed to their secretaries.

UNLESS STATED OTHERWISE ALL SUBJECTS ARE SEMESTER SUBJECTS.

DEPARTMENT OF HUMANITIES

Historical and Philosophical Studies
The subjects offered under the heading of historical and philosophical studies draw on the traditional areas of philosophy, history of ideas, and history and philosophy of science. They are designed specifically 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 both areas.

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Stage</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>AH100</td>
<td>Stage 1</td>
<td>Introduction to Philosophy</td>
</tr>
<tr>
<td>AH101</td>
<td>Stage 1</td>
<td>History of Ideas</td>
</tr>
<tr>
<td>AH102</td>
<td>Stage 1</td>
<td>Theories of the Universe</td>
</tr>
<tr>
<td>AH200</td>
<td>Stage 2</td>
<td>Moral and Political Philosophy</td>
</tr>
<tr>
<td>AH201</td>
<td>Stage 2</td>
<td>Mind, Language and Thought</td>
</tr>
<tr>
<td>AH202</td>
<td>Stage 2</td>
<td>Technology and Society</td>
</tr>
<tr>
<td>AH203</td>
<td>Stage 2</td>
<td>Nature and Human Nature</td>
</tr>
<tr>
<td>AH300</td>
<td>Stage 3</td>
<td>Philosophy of Art and Education</td>
</tr>
<tr>
<td>AH301</td>
<td>Stage 3</td>
<td>Rationality</td>
</tr>
<tr>
<td>AH302</td>
<td>Stage 3</td>
<td>Social Studies of Science A</td>
</tr>
<tr>
<td>AH303</td>
<td>Stage 3</td>
<td>Social Studies of Science B</td>
</tr>
<tr>
<td>AH304</td>
<td>Stage 3</td>
<td>Philosophy of Science A</td>
</tr>
<tr>
<td>AH305</td>
<td>Stage 3</td>
<td>Philosophy of Science B</td>
</tr>
<tr>
<td>AH306</td>
<td>Stage 3</td>
<td>Practical Ethics</td>
</tr>
</tbody>
</table>

Subject details

Stage one

AH100 Introduction to Philosophy
Four hours per week daytime
or
Three hours per week evening
Prerequisite, nil
Assessment is continuous and by examination
An introduction to the problems and methods of philosophy. An examination of rationalist and empiricist traditions and the development of modern analytic schools of thought. 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, the existence of God, religious concepts and the problem of evil.

Preliminary reading

Textbooks
Please consult with lecturer before buying textbooks.
References

Perry, J. and Brannen, M. Introduction to Philosophy. N.Y., G.P.U., 1987
Plato. The Republic. 3rd edn, Harmondsworth, Penguin, 1974
Russo, B. The Problems of Philosophy. Lond., Oxford University Press, 1959
Shaffer, J.A. Reality, Knowledge and Values, N.Y., Random House, 1971

AH101 History of Ideas

Four hours per week daytime
or
Three hours per week evening
Prerequisite, nil
Assessment: continuous

This subject serves as an introduction to the history of ideas. Special attention is paid to the evolutionary theme, as an example of the impact of the scientific imagination upon our lives. Darwin's theory of evolution totally transformed our understanding of our origins, our relationships to each other, to society and to the environment. Evolutionary theory has also affected many branches of science, from geology to psychology, giving them an understanding of process and of change through time. The intention is to bring out the relationship of the evolutionary idea to the wider social context; scientific ideas are important not only in their impact on our culture, but are also to be seen as a product of our culture.

Textbooks

Please consult with lecturer before buying textbooks

References

Toumin, S. and Goodfield, J. The Discovery of Time. Chicago, Midway, 1976

AH102 Theories of the Universe

Four hours per week daytime
or
Three hours per week evening
Prerequisite, nil
Assessment: 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, civilization, social change, and science. Major topics include: ancient societies, religion and science; concepts of the universe, theories and hypotheses.

Preliminary Reading


Textbook


References


Stage Two

AH200 Moral and Political Philosophy

Four hours per week daytime
or
Three hours per week evening
Prerequisite, one of AH100, AH101, AH102 or approved equivalent
Assessment: continuous

An examination of some of the traditional theories of the state of political organisation. An analysis and evaluation of assumptions underlying moral and naturalistic theories of the state and the application of these theories to current social and political problems; an examination of notions of freedom, justice, equality, power, unity and the legitimate use of authority; an analysis of concepts of consent, obligation, the common good and social contract.

Some of the more important writers to be considered are: Plato, Aristotle, Locke, Mill, Aquinas, Hobbes and Rousseau.

Textbooks


References

Murray, A.R.M. An Introduction to Political Philosophy. Lond., Cohen and West, 1968

AH201 Mind, Language and Thought

Four hours per week daytime
or
Three hours per week evening
Prerequisite, one of AH100, AH101, AH102 or approved equivalent
Assessment: continuous

A critical examination of some of the major problems in philosophy chosen from:

(a) mind and body; sensations and brain processes; dualism and monism;
(b) free will, determinism and the causal principle;
(c) phenomenalism;
(d) language, thought and knowledge; meaning and truth,
(e) historical development of attempts to formalize logical systems

Preliminary Reading


Textbooks

Please consult with lecturer before buying textbooks.

References

Churchland, P.M. Matter and Consciousness. Cambridge, MIT Press

AH202 Technology and Society

Four hours per week daytime
or
Three hours per week evening
Prerequisite, one of AH100, AH101, AH102 or approved equivalent
Assessment: continuous

Within the general framework of social history this course emphasizes the interaction between technology and social change. ancient societies, Greece, Rome, modern Europe, England, America, Australia. Politics, economics, religion, values, traditions, social structures, education, relations with neighbours, knowledge and skills, are factors which combine to influence the course of technological development. Also considered are the moral dilemmas of the modern technologist and problems of pollution and environment control.
Preliminary reading

Textbook

References

AH203 Nature and Human Nature
Four hours per week daytime
Three hours per week evening
Prerequisite, one of AH100, AH101, AH102 or approved equivalent.
Assessment is continuous.

The purpose of this course is to examine the ways in which biological theories of behaviour and heredity have influenced social thought. The interrelationship between theories of nature and theories of human nature are explored in terms of the birth of the new social sciences of psychology and anthropology at the end of the nineteenth century. Themes to be explored include: the 'unmeasured 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

References

Stage three

AH300 Philosophy of Art and Education
Three and a half hours per week
Prerequisites, AH100 and two of AH200, AH201, AH202 and AH203 with at least one of AH200 and AH201.
Assessment is continuous.

This subject explores the extent to which the education of feelings and emotions and the promotion of the 'esthetic experience' through art appreciation can be justified as part of the educational process. This involves an examination of problems of definition, interpretation and analysis of the language of education and the understanding of linguistic philosophy by introducing a comparative study of analytic approaches to the language of art.

Preliminary reading

Textbooks
Please consult with lecturer before buying textbooks.

References
Peters, R.S. Ethics and Education. Lond., Allen and Unwin, 1968.

AH301 Rationality
Three and a half hours per week
Prerequisites, AH101 and two of AH200, AH201, AH202 and AH203 with at least one of AH300 and AH301.
Assessment is continuous.

This course covers some of the recent work on the nature of human rationality. Topics include: the status of rationality as a theoretical position; the nature of rationality; reason and values; cognitive relativism; the place of reason in social comparison and appraisal.

Textbooks
Please consult with lecturer before buying textbooks.

References

AH302 Social Studies of Science A
Three and a half hours per week
Prerequisites, two of AH200, AH201, AH202, AH203 or an approved equivalent.
Assessment is continuous.

This subject, which may be taken independently of Social Studies of Science B, pertains to the contemporary debate on the social construction of scientific knowledge. The extent to which science reflects the culture in which it is set has been the subject of much recent writing about science. Some authors make the claim that scientific knowledge is autonomous, and the proper objects of sociological inquiry are the various social and institutional relationships which hold within the community of scientists, both in the laboratory setting and in the social and economic framework of which the laboratory is a part. More recently, the claim has been made that social factors contribute a crucial way to the content of science itself, to the type of knowledge that is produced. These claims will be investigated through case studies on the themes from contemporary Australian science, including biotechnology, to Greenhouse effect, radiation technologies and alternative world views.

Textbooks
Please consult with lecturer before buying textbooks.

References

AH303 Social Studies of Science B
Three and a half hours per week
Prerequisites, two of AH200, AH201, AH202, AH203 or an approved equivalent.
Assessment is continuous.

This subject, which may be taken independently of Social Studies of Science A, evaluates the current debate on the social construction of biological and biomedical knowledge. Historical case studies show the relationship between theories of life, medicine, technology, social theory and social action In the nineteenth and twentieth centuries. Topics covered include: Man's Place in Nature and the Woman Question in Victorian social theory, social aspects of medical theory and practice such as changes in public health, the conquest of epidemic disease and the social organisation of insanity; the rise of the birth control movement; the rise of biotechnology; ecological and environmental history; the aboriginal and the colonial experience of the Australian environment compared and contrasted.

Preliminary reading

References
AH304  Philosophy of Science A
Three-and-a-half hours per week
Prerequisites: two of AH200, AH201, AH202, A203 or approved equivalents
Assessment is continuous
An introduction to some of the central topics in current and classical philosophy of science and social science, e.g. 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, Loew, Nagel, Popper, Ravetz, Ziman.

Preliminary Reading
Theobald, D. An Introduction to Philosophy of Science. Lond., Methuen, 1968

Textbooks
Please consult with lecturer before buying textbooks.

References
Rachels, J. The Elements of Moral Philosophy. Rana House, N.Y., 1986
Kuykendall, E. Philosophy in the Age of Crisis. Harper and Row, N.Y., 1970

AH305  Philosophy of Science B
Three-and-a-half 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' or is our knowledge always tentative and open to revision? What effects have values, attitudes, emotions and belief systems on the scientific enterprise, e.g. biotechnology, IVF. What are the consequences for the sciences and social sciences? Among the authors whose works will be considered are Dewey, Smart, Popper, Lakatos, Laudan, Kuhn, Ravetz.

Preliminary Reading
Frank, P. ed. The Validation of Scientific Theories. N.Y., Collier Books, 1961

Textbook

References
Kuhn, T. The Structure of Scientific Revolutions. 2nd edn, Chicago, University of Chicago Press, 1970

AH306  Practical Ethics
Three-and-a-half hours per week
Prerequisites: two of AH200, AH201, AH202, AH203 or approved equivalents
Assessment is continuous
The subject focuses upon questions of ethical concern relating to current controversial human issues. Three areas of discussion are selected:
(i) The sanctity of human life
(ii) Nuclear defence
(iii) Business and professional ethics
To facilitate discussion and the clarification of moral concerns, a brief introductory segment on the language, nature and relevance of moral philosophy is provided. Suggested readings offer a balance of philosophical approaches (both traditional and contemporary), and factual research into relevant empirical data.

Prescribed Text
DEPARTMENT OF HUMANITIES

Italian

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 aim in Italian therefore strongly emphasises language acquisition, and progressively treats those aspects of Italian language, literature, history, geography, economics, sociology, politics and culture as are seen to be appropriate to an understanding of the modern nation and its inhabitants, and especially to an appreciation of the position of Italian immigrants and their families in Australia.

A degree major in Italian consists of AA100 at stage one, followed by AA200 at stage two, then AA300 and AA301 at stage three. Normally, AA300 is completed prior to, or concurrently with, AA301.

The subjects offered in Italian assume no prior knowledge of the language. These subjects may not meet the needs of native speakers of Italian.

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

If a student requests exemption from any part of 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.

Subjects offered

<table>
<thead>
<tr>
<th>Code</th>
<th>Stage</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA100</td>
<td>1</td>
<td>Italian 1</td>
</tr>
<tr>
<td>AA200</td>
<td>2</td>
<td>Italian 2</td>
</tr>
<tr>
<td>AA300</td>
<td>3</td>
<td>Italian 3A</td>
</tr>
<tr>
<td>AA301</td>
<td></td>
<td>Italian 3B</td>
</tr>
</tbody>
</table>

Subject details

Stage one

AA100 Italian 1

Full year subject
Eight hours per week daytime
or
Six hours per week evening
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 civilisation and the Italian way of life, as well as lectures on Italian history.

Textbooks

Lazzarino, G. Prego, An Invitation to Italian. N.Y., Random House, 1984
Lazzarino, G.A. Workbook for Prego, An Invitation to Italian. N.Y., Random House, 1984

References

Appropriate references will be given by the lecturers at the beginning of the year.

Stage two

AA200 Italian 2

Full year subject
Eight hours per week daytime
or
Six hours per week evening
Prerequisite, AA100 or approved equivalent
Assessment is continuous

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

Lazzarino, G. Prego, An Invitation to Italian. N.Y., Random House, 1984
Lazzarino, G. Werkboek voor Prego, An Invitation to Italian. N.Y., Random House, 1984

References

McCormick, C. Basic Italian Grammar. 2nd edn, Melb., Cheshire Publishing Pty Ltd, 1974

Stage three

Note:

In order to complete a major in Italian, students must take both Italian 3A and Italian 3B. The two subjects may be taken concurrently or Italian 3B may be taken after completion of Italian 3A.

AA300 Italian 3A

Full year subject
Six hours per week
Prerequisite, AA200 or approved equivalent
Assessment is continuous

The main objectives of Italian 3A are:

To consolidate the students' language skills and to develop these further through a study of appropriate literature and allied grammar; to develop their oral skills through conversation and discussion in Italian; to develop in the students an understanding of contemporary Italy and of Italian immigrants in Australia through the study of contemporary documents on present day Italy and of appropriate films and other media. Italian-Australian literature is examined, not only as literature, but also as a social document which reflects the thoughts and aspirations of a particular group in a particular period.

Textbooks

A novel to be advised
O'Connor, D. Revision Cards for students of Italian. Melb., Longman Cheshire, 1983 or later edition

AA301 Italian 3B

Full year subject
Two hours per week
Prerequisite, AA300 (Italian 3A if the subject is being studied concurrently with Italian 3A)
Assessment 100% (100%)

Students of Italian are mainly of non-Italian origin, whose contact with the Italian language has been largely through study. Their knowledge of Italian is therefore, at this stage, almost exclusively a knowledge of the official standard language. As student contact with native speakers is expected to increase substantially during the third year of the course, students will quickly become aware that the language used by Italians will not always be that which they have encountered in their studies. The purpose of the course in dialectology is therefore to apprise students of the differences and of the reasons thereof. It is not the intention that students learn to use a dialect or dialects. For students of Italian origin, the course is intended to instil an appreciation of the dialect as a valid and viable means of communication.

Assessment is on the basis of an assignment involving use of a questionnaire administered to a dialect-speaking informant, and a critical appraisal of the material collected.
DEPARTMENT OF HUMANITIES

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, AJ200, AJ300 and AJ301 form a degree major in Japanese. Usually, AJ300 is 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, in the following order:

(i) AJ102 Introduction to Japan — A Cultural Overview which is offered in second semester concurrently with AJ100, Japanese 1;

(ii) AJ202 Communication in Japanese — which is offered in first semester concurrently with AJ200, Japanese 2. AJ102 Introduction to Japan — A Cultural Overview is also available to those not undertaking the full Japanese language course.

AP204, Modern Japan, offered by the Social and Political Studies Department is also highly recommended. The language subjects offered in Japanese have been specifically designed to introduce non-native speakers to the Japanese language. These subjects will not meet the needs of native speakers of Japanese. It is therefore not recommended that such students take these subjects.

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

If a student requests exemption from any part of a Japanese subject no credit will be granted unless the student has previously completed studies which are part of a degree program studied at a recognised institution.

Subjects offered

Subject details

Stage one

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Code</th>
<th>Description</th>
<th>Level</th>
<th>Prerequisite</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>AJ100</td>
<td>Japanese 1</td>
<td>AJ102, Introduction to Japan</td>
<td>A Cultural Overview</td>
<td>Full year</td>
<td>Nil</td>
<td>Continuous</td>
</tr>
<tr>
<td>AJ300</td>
<td>Japanese 3A</td>
<td>AJ301, Japanese 3B</td>
<td></td>
<td></td>
<td></td>
<td>Continuous</td>
</tr>
</tbody>
</table>

Textbooks


Moztani, O. and N. Nihongo Notes. Vols. 1 and 2, Tokyo, Japan Times, 1977


Machida, T. Introduction to Japanese Writing, Melb., Swinburne Press, 1985


AJ102 Introduction to Japan — A Cultural Overview

Four hours per week evening

Prerequisite: nil

Assessment: continuous

This subject introduces historical and cultural topics of direct relevance to the development of Japanese language and society. References in English are used.

References


Stage two

AJ200 Japanese 2

Full year subject
Eight hours per week daytime or
Six hours per week evening
Prerequisite, AJ100 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
Machida, T. and Skoutarides, A. Nihongo, Reading and Writing. Vols. 6-10, Melb., Swinburne Press, 1985

AJ202 Communication in Japanese

Four hours per week evening
Prerequisite, AJ100
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 in the main language stream are introduced to Japanese contacts and are required to write essays based on data collected from interviews with these contacts. The contact scheme is an important component of Swinburne's Japanese course as it provides the student with the opportunity to converse in Japanese and to become familiar with Japanese attitudes and customs.

Textbook
Neustupny, J.V. Communicating with the Japanese. Tokyo, The Japan Times, 1987

Preliminary reading

References
Miura, A. English Loanwords in Japanese. Rutland, Va., Tuttle, 1979
Mizutani, O. & N. How to be Polite in Japanese. Tokyo, Japan Times, 1987

Stage three

AJ300 Japanese 3A

Full year subject
Six hours per week daytime or six hours per week evening
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 variety of contemporary non-fiction material. The aural component is concentrated on simplified radio news broadcasts and excerpts from video programmes. The conversation component extends the range of situational dialogues and allows individualised conversational practice on a wide variety of topics.

Students may choose to study stage three in Japan, in which case they are still required to complete the Swinburne stage three course work. A scholarship scheme and a 'Work-in-Japan' scheme have been established to enable students to undertake this alternative.

Textbooks
Reading material will be provided in the form of handouts.

References
Please consult with lecturers before buying these books.

AJ301 Japanese 3B

Full year subject
Two hours per week evening
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

Korean

Subject to VPSEC accreditation the Faculty of Arts will offer studies of the Korean language and culture in 1989. Further information is available from the Humanities Department.
DEPARTMENT OF HUMANITIES

Literature

Through the study of language and literary forms, structures and genres, traditions and conventions, the literature subjects offered aim to improve the ability of students to understand literature and experiences of many kinds and of many periods, from the Renaissance to the present day. At stage one, texts chosen reflect important currents of ideas of the nineteenth and twentieth centuries. Stage two offers comparison and contrast in studies of sixteenth, seventeenth and eighteenth century writing, including several plays by Shakespeare and his contemporaries. Stage three is focused on American and Australian literature, examining within a wider perspective the experience of these societies, documented in their imaginative writings. Final-year students in particular are encouraged to research the literature and culture of their own communities.

Studying literature should promote both imaginative flexibility in confronting new experiences, and analytical discrimination in assessing what is written, acted and spoken. The development of students’ intellectual and personal capabilities is the chief concern of the literature course. A literature major consists of: one or both of AL100 and AL101 at stage one, followed by both AL200 and AL201 (not necessarily in that sequence) at stage two, and three of AL300, AL301, AL302 and AL303. It is preferable, but not obligatory, that AL300 be taken before AL301, and that AL302 and AL303 bear the same sequential relation to each other.

Subjects offered

Code
Stage 1
AL100 Twentieth Century Literature
AL101 Nineteenth Century Literature
Stage 2
AL200 Elizabethan and Jacobean Literature
AL201 Seventeenth and Eighteenth Century Literature
Stage 3
AL300 Literature of the United States — 19th Century
AL301 Literature of the United States — 20th Century
AL302 Australian Literature — 19th Century
AL303 Australian Literature — 20th Century

Subject details

Stage one

AL100 Twentieth Century Literature
Four hours per week daytime
or
Three hours per week evening
Prerequisite, nil
Assessment is by assignments and examination

This subject introduces students to a selection of twentieth century literature, relating it to recent developments in the other arts and in society. Students are also introduced to some of the varied possibilities inherent in the novel, drama and poetry as literary forms.

Preliminary reading
Dawson, S.W. Drama and the Dramatic. Lond., Methuen, 1970
Deutsch, B. Poetry Handbook. 2nd edn., Lond., Cape, 1965

Stage two

AL200 Elizabethan and Jacobean Literature
Four hours per week daytime
or
Three hours per week evening
Prerequisite, AL100 or AL101 or approved equivalent
Assessment is by assignments and examination

Several Shakespearean plays are studied intensively. There are background lectures on Elizabethan society and the theatre, and the study of some selected works of other dramatists and poets of the age.

Preliminary reading

Stage three

AL300 Literature of the United States — 19th Century
Four hours per week daytime
or
Three hours per week evening
Prerequisites, either AL100 or AL101 or equivalent and both AL200 and AL201 or equivalents
Assessment: essay, class paper and examination; class contribution

A thorough survey of 19th century literature, concentrating on important literary landmarks and seminal authors: Emerson, Whitman, Twain, as well as Melville, Hawthorne, Poe and Dickinson. Particular emphasis on significant connections between literary works and the contemporary intellectual climate and social ethos. Wherever possible, parallels with British and European literary traditions will be stressed.

Preliminary reading
Buell, L. Literary Transcendentalism: Style and Vision in the American Renaissance. USA, Cornell University Press, 1975
DEPARTMENT OF LIBERAL STUDIES

Liberal Studies

The following subjects taught by the Department of Liberal Studies form an integral part of the courses offered by the other faculties: Applied Science, Art, Business and Engineering.

They are specifically included to broaden the scope of students' general education in the areas of communication skills, report writing, the social sciences, and other essential areas.

These subjects are not available to Arts students.

Subjects for Applied Science students

- AB310 Applied Psychology
- AB315 Complementary Studies
- AB310 Behavioural Studies
- AB310 Communication Skills
- AB513 Brain and Behaviour
- AB611 Science and Society
- AB612 Science and Ethics
- AB619 Communication Studies
- AT392 Report Writing
- AT393 Communication Studies
- AT394 Report Writing
- AT493 Brain and Behaviour (1983 syllabus)
- AB651 Risk Psychology
- AB652 Risk Social Science

For individual subject descriptions see the Faculty of Applied Science Handbook.

Subjects for Art students

- AB121 Applied Writing
- AB221 Media
- AB222 Psychology
- AB322 Applied Psychology

For individual subject descriptions see the Faculty of Art Handbook.

Subject for Business students

- AB641 Psychology and Interpersonal Skills

For subject description see the Faculty of Business Handbook.

Subjects for Engineering students

- AB150 Communications 1
- AB151 Communication Skills
- AB250 Behavioural Studies
- AB253 Liberal Studies
- AB350 Communications 2

For individual subject descriptions see the Faculty of Engineering Handbook.

General electives for Engineering students

The electives listed here are available for all civil, electrical and electronic, manufacturing and mechanical engineering students in the second and later years of their courses. The number of electives offered each year is governed by demand and the availability of appropriate staff.

The electives are:

- AB752 Applied Psychology
- AB753 Literature and Media
- AB754 Sociology
- AB755 Law and Society
- AB756 Technology and Society
- AB757 Archaeology
- AB758 Philosophy

Details of these and other possible electives are available from the Department of Liberal Studies.
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 AY100 Psychology 100 and AY101 Psychology 101. Each of these subjects comprises lectures, practical work and statistics.

In stage two, in addition to AY200 Psychology 200 and AY201 Psychology 201, it is required that SM278 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; that is, 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.

It is possible for selected students to take a double major in psychology within their course for the degree of Bachelor of Arts. Students wishing to take this option must apply to the Department of Psychology Secretary in the second semester of the second year of their course. The double major includes AY100, AY101, AY200, AY201, SM278, SM279 and all four of the stage three subjects in psychology which are listed above, plus four additional stage three psychology subjects specially intended for Psychology double-major students: History and Philosophy of Psychology, Applied Social Psychology, Stress and Coping and Advanced Methods of Data Analysis.

Many people take up a career related to psychology after completing 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 (APsS). The minimum academic requirement for associate membership of the APsS is completion of an approved four-year program of psychological study. The Swinburne Bachelor of Arts psychology major has APsS approval as a sequence of three years’ study and, to become eligible for associate membership in the APsS, graduates must then complete an approved fourth-year course. (A list of approved courses is published in each volume of the APsS journal Australian Psychologist.) The Swinburne Graduate Diploma in Applied Psychology is an accredited fourth-year course.

The Department accepts a limited number of suitably qualified applicants for the degree of Master of Arts in Psychology by research and major thesis. Enquiries should be directed to the Head, Psychology Department.

Subjects offered in the BA program

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY100</td>
<td>Psychology 100</td>
</tr>
<tr>
<td>AY101</td>
<td>Psychology 101</td>
</tr>
</tbody>
</table>

Stage 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY200</td>
<td>Developmental Psychology</td>
</tr>
<tr>
<td>AY201</td>
<td>Social Psychology</td>
</tr>
<tr>
<td>SM278</td>
<td>Design and Measurement 2A</td>
</tr>
<tr>
<td>SM279</td>
<td>Design and Measurement 2B</td>
</tr>
<tr>
<td>SP250**</td>
<td>Psychophysiology A</td>
</tr>
<tr>
<td>SP251**</td>
<td>Psychophysiology B</td>
</tr>
</tbody>
</table>

Stage 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY311</td>
<td>Methods and Measures</td>
</tr>
<tr>
<td>AY312</td>
<td>The Psychology of Personality</td>
</tr>
<tr>
<td>AY313</td>
<td>Cognition and Human Performance</td>
</tr>
<tr>
<td>AY314</td>
<td>Counselling and Interviewing</td>
</tr>
<tr>
<td>AY315**</td>
<td>History and Philosophy of Psychology</td>
</tr>
<tr>
<td>AY316**</td>
<td>Applied Social Psychology</td>
</tr>
<tr>
<td>AY317**</td>
<td>Stress and Coping</td>
</tr>
<tr>
<td>AY318**</td>
<td>Advanced Methods of Data Analysis</td>
</tr>
</tbody>
</table>

** Available only for double major students.
***These subjects are optional. For details see under ‘Subjects offered by other faculties’.

Subject details

Stage one

AY100 Psychology 100
Semester one only
Five hours per week daytime
or Four hours per week evening
Prerequisite, nil
Assessment is based on essays, practical exercises and class tests
AY100 and AY101 are designed to provide students with an introduction to the content and method of psychology. Topics covered in this subject include the origins of modern psychology, the biological basis of behaviour, perception, learning and memory, experimental design and analysis.

Preliminary reading
Students wishing to familiarise themselves with concepts in psychology could read any recent introductory psychology text available from most regional libraries.

Textbook
Details will be provided in the first lecture in AY100.

AY101 Psychology 101
Semester two only
Five hours per week daytime
or Four hours per week evening
Prerequisite, AY100
Topics covered in this subject include the development of behaviour, the psychology of personality, problems in living, human abilities, and social applications of psychology. 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)  
Five hours per week daytime  
Prerequisite, AY100 and AY101  
Assessment is based on an essay, practical exercises and class tests  
This is a subject in developmental psychology, which emphasises the earlier periods of life at times when the behaviour of infants and children is undergoing rapid development and maturation. Emphasis is on social, emotional, cognitive and intellectual development with a comprehensive experiential and experimental program supporting the theoretical material. Students are encouraged and expected to interact with children of various ages.  
The teaching program consists of two lectures, a practical session and a tutorial class.  
Reference  

AY201  Psychology 201  
(Social psychology)  
Five hours per week daytime  
Prerequisite, AY100, AY101, SM278  
Assessment is continuous  
This subject involves the scientific study of the personal and situational factors that affect 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  

Stage three  

AY311  Methods and Measures  
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 competently and critically analyse and evaluate research proposals, programmes 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 limitation of the uses of particular psychological tests.  
Approximately the first hour of most of the two hour sessions will be devoted to information input and the latter half to laboratory exercises.  
References  
Aiken, L.R. Psychological Testing and Assessment. 6th edn, Boston, Allyn and Bacon, 1988  
Kline, P. A Handbook on Test Construction. Methuen, 1986

AY312  The Psychology of Personality  
Four hours per week  
Prerequisites, AY200, AY201, SM276, SM279  
Assessment is based on a class test and a research project and report  
This course focusses on the behaviour and experience of the individual as a whole person. Attention is given to contributions from other specialised fields of psychology, especially development, social interaction, learning, cognition, emotion. Theory and research from these fields are considered specifically from the viewpoint of integrating such contributions to increase our understanding of ourselves and others as persons.  
Four major perspectives on personality are examined: psychodynamic, dispositional, cognitive/behavioural, phenomenological. Issues such as methods of personality assessment and research strategies are examined. Selected contemporary issues are examined including: conflict and defense; the self; self-regulation; purpose and meaning; the effective personality.  
Reference  
Lieber, R.M. and Spiegler, M.D. Personality, 5th edn, Chicago, Dossey, 1986

AY313  Cognition and Human Performance  
Four hours per week  
Prerequisites, AY311, AY312  
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, human factors, sports psychology, decision-making, learning.  
References  
Solso, R.L. Cognitive Psychology. 2nd edn, Allyn and Bacon, 1988

AY314  Counselling and Interviewing  
Two hours per week  
Prerequisites, AY311, AY312  
Assessment is based on a class test of theory, and a practical interview 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 microcounselling model proposed by Ivey. 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  
Benjamin, A. The Helping Interview. 4th edn, Boston, Houghton Mifflin, 1986  

AY315  History and Philosophy of Psychology  
Two hours per week  
Prerequisites: corequisites, AY311, AY312  
(This subject is available only to students enrolled in the double major in psychology)  
Assessment is based on a research essay and a class test  
This course provides a brief introduction to selected influential theorists in psychology and contemporary philosophers of science. It addresses itself to two central issues: what is a science, and how is scientific research performed in psychology? Attention will be directed to the work of Karl Popper, Thomas Kuhn, Imre Lakatos, Paul Feyerabend and others to consider what constitutes 'scientific method'. Selected key movements in the history of psychology will then be investigated to determine whether they can appropriately be regarded as 'scientific' in their definition of subject matter and their method of inquiry.  
Reference  
Chalmers, A.F. What is this thing called science? 2nd edn, St Lucia, Queensland University Press, 1986
**AY316 Applied Social Psychology**

Three hours per week
Prerequisites: AY311, AY312
(This subject is available only to students enrolled in the double major in psychology)
Assessment is by a class test and a major research project

This lecture and seminar programme will provide students with an understanding of the application of social psychology in addressing social problems. The use and relevance of social psychological explanations, theories and methods in the study of real world issues will be examined.

Some of the areas of application to be considered will include environmental issues, mass communication and media, health and health care, decision making and negotiation in organizational settings, international relations, feminist social psychology, consumer research, survey research, evaluation research, research for social change and public policy research.

**References**


**AY317 Stress and Coping**

Three hours per week
Prerequisites: AY313, AY314
(This subject is available only to those students enrolled in the double major in psychology)
Assessment is based on a class test and a research project report

After a review of historical developments in the use of such psychological concepts as trauma, stress and adjustment, contemporary formulations of stress, adaptation and coping are examined. Different perspectives on the conceptualization of normally/abnormally are also considered. Selected influential models of stress and coping are explained, with particular reference to that formulated by R.S. Lazarus and his co-workers. Issues such as the measurement of life stress, the impact of stressors, subjective wellbeing, the role of social support and selected coping strategies are examined.

Selected applications are considered, including adjustment and stress disorders (DSMIII-R), the role of stress in health, the Type A behaviour pattern and approaches to stress management.

**Reference**


**AY318 Advanced Methods of Data Analysis**

Two hours per week
Prerequisites: AY313, AY314
(This subject is available only to students enrolled in the double major in psychology)
Assessment is based on data analysis assignments

This course is intended to build on students' knowledge of basic analysis of variance and multiple regression procedures as tools for analysing data. Multivariate procedures will be discussed in detail, and this will centre around the SPSSX MANOVA procedure: its uses, assumptions and limitations. Students will also be introduced to cluster, log linear, path and scaling analytical procedures.

**References**

Norusis, M.J. Advanced Statistic Guide. SPSS Inc. 1985


**DEPARTMENT OF SOCIAL AND POLITICAL STUDIES**

**Media Studies**

The approach in this course is essentially analytical and critical, rather than production-oriented. In 1988 all first-year students will undertake a foundation subject — AM100, which examines how the media produce meanings and how media communication is understood and interpreted. Both second-year subjects — AM200 and AM201 — or their equivalents, are compulsory for entry into third year. AM302 and AM303 combined form a full-year radio production and criticism subject. The media studies major comprises one subject at stage one, two subjects at stage two, and three semester subjects at stage three.

**Subjects offered**

**Code**

**Stage 1**

- **AM100** Foundation Course in Media

**Stage 2**

- **AM200** Publishing and Broadcasting
- **AM201** Institutions and Media

**Stage 3**

- **AM300** Cinema Studies
- **AM301** Media Public Policy
- **AM302** Radio Production and Criticism A
- **AM303** Radio Production and Criticism B
- **AM306** Professional Attachment Program

**Subject details**

**Stage one**

- **AM100** Foundation Course in Media
  - Four hours per week daytime
  - Three hours per week evening
  - Prerequisite: Nil
  - Assessment is continuous

The focus of this subject is on the production of meaning through the media, and particularly through film and television. The most useful critical accounts about the construction of meaning come from literature, art and cinema. Some of these accounts are beginning to be applied to television, and the various ways are examined in which television communicates meanings — through advertising, news, drama, soap operas and comedies. A critical investigation of both film and television texts is undertaken in class and in group projects. This discussion of programs and commercials is accompanied by an introduction to critical theory about the process of communication.

The implications of this approach include an exploration of key relationships between the individual film and television viewer, the media text, and the society at large. These relationships are traced in terms of shared knowledge and in terms of access to certain kinds of information and meaning. The effects of media are studied by examining media representations of reality; enquiring into what is being communicated and how it is understood. This approach becomes a study of signs, codes and systems of communicating meanings; a means of establishing the role of the media within social processes, and how they form part of a more general construction of reality.

**Recommended reading**

Belsey, C. Critical Practice N.Y., Methuen, 1980


Bordwell, D. and Thompson, K. Film Art: An Introduction. 2nd edn, N.Y., Alfred A. Knopf Inc., 1986

Fiske, J. and Hartley. J. Reading Television N.Y., Methuen, 1980

Williamson, J. Decoding Advertisements. Lond., Marion Boyars, 1978
Stage two

AM200 Publishing and Broadcasting

Four hours per week daytime
or
Three hours per week evening
Prerequisite, AM100 or equivalent
Assessment is continuous

This subject attempts to demystify the nature and processes of mass communication in its major forms, and its interrelationship with society. There is a continuing examination of key political, social and ethical issues concerning press and broadcasting institutions in society, particularly an analysis focused on the organisation, policy and practices of institutions as they construct particular themes and images of social experience. The Australian Broadcasting Corporation is examined as a case study of a broadcasting institution that produces distinctive and characteristic kinds of programming; and constructs certain attitudes and expectations among its viewers and listeners. Emphasis is placed upon analysis of content, self-censorship in programming, legal restraints on public comment, media invasion of privacy and freedom of information. Journalism is studied both critically and practically. There is an examination of the conventions and techniques of journalistic writing, to give students an insight into the demands of the publishing process and the opportunity to develop their writing skills. Students are encouraged to submit particular written assignments for publication.

References
Munro, J. and Inglis, E. ed. Fixing the News. North Ryde, N.S.W., Cassell, 1981

AM201 Institutions and Media

Four hours per week daytime
or
Three hours per week evening
Prerequisite, AM100 or equivalent
Assessment is continuous

The subject begins by looking at the institutions of school and family. It goes on to examine the ways in which media institutions produce meaning. Attention is focused on the organisation, policy and practices of institutions as they construct particular themes and images of social experience. There is a continuing examination of key political, social and ethical issues concerning press and broadcasting institutions in society, particularly an analysis focused on the organisation, policy and practices of institutions as they construct particular themes and images of social experience. The Australian Broadcasting Corporation is examined as a case study of a broadcasting institution that produces distinctive and characteristic kinds of programming; and constructs certain attitudes and expectations among its viewers and listeners. Emphasis is placed upon analysis of content, self-censorship in programming, legal restraints on public comment, media invasion of privacy and freedom of information. Journalism is studied both critically and practically. There is an examination of the conventions and techniques of journalistic writing, to give students an insight into the demands of the publishing process and the opportunity to develop their writing skills. Students are encouraged to submit particular written assignments for publication.

References
Inglis, E. ed. Fixing the News. North Ryde, N.S.W., Cassell, 1981

Stage three

AM300 Cinema Studies

Four hours per week
Prerequisites, AM100 or equivalent, and both AM200 and AM201 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 students with 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 and semiotic studies, and their function in relation to the humanist discourse which dominates more traditional critical work. In this context, particular questions to do with the developing study of film will be on the agenda for ongoing consideration: for the ways in which ideology is inscribed into the works examined (as well as into the methods of examination), for various systems of representation, for the usefulness of the work of the 'frame-by-frame heretics', for the kinds of relationships constructed between a film and its viewer, for the place of 'the author' in this process in relation to the formal and thematic organisation of the works which bear his/her name, for the usefulness of genre studies, for the function of the 'star system', and for the relationship between the film, the industry and the culture in which it exist.

Assessment will be based upon essay presentation and class work.

References
Grant, Barry Keith, ed. Film Genre Reader. University of Texas Press, 1986
Chen, Action Cinema Papers, The Journal of Popular Film and Television, Screen, Wide Angle

AM301 Media Public Policy

Four hours per week
Prerequisites, AM100 or equivalent and both AM200 and AM201 or equivalent
Assessment is continuous

The theme of this subject is an examination of media and communications technology in the context of an information or post-industrial society. The implications of the convergence of computers with telecommunications, referred to as communications, are examined in their broadest context. There is an analysis of the plethora of government inquiries into this area, where students are required to speculate on where television, or digital television, or broadcast television, or television, or radiotext, or television audioconferencing, or television + computer + videocassette recorders, or teletext, or videodiscs. Considerable emphasis is placed on the methodology of investigation: validity of evidence, analysis of government reports and lobbyists, interpretation of documents and the presentation of data. The subject is taught in a comparative framework of United States, Canadian and French telecommunications policy. Several major international communications policy issues are explored ... the tendency towards broadcasting deregulation by the FCC (USA) and CRTC (Canada), the crisis in public broadcasting, open skies for satellite and Third World spectrum space concerns, the politics of information transfer, and the privacy debate. Students are encouraged to present research in a form which will enable their work to be available to the community, as published papers, submissions to enquirers, or as public affairs radio programs.

References
AM302  Radio Production and Criticism A
Four hours per week
Prerequisites: AM100 or equivalent and both AM200 and AM201 or equivalent
Assessment is continuous

This subject incorporates both radio criticism and radio production. It has an extensive production content in which all techniques basic to pre-recorded and live radio broadcasting are covered, including recording techniques, radio interviewing, scripting, narrating, editing and sound mixing. The main emphasis is on documentary conception and production, in which students work on both individual and group projects. Interwoven with this production course is a theoretical investigation where the medium is approached from a number of distinct but interrelated perspectives. An attempt is made to discover those respects in which radio production and broadcasting are relatively autonomous from other media, along with those features shared with other forms of cultural production. This involves, for example, a study of the differences between speaking and writing, listening and reading, as one step toward establishing a framework for a radio criticism which is not merely a simple redirection of methods developed historically through the criticism of literature. Similarly, phenomena specific to the perception and cognition of meaning in sound is identified, and through extensive listening to sound, music and radio, a working vocabulary of sound analysis is developed.

Textbook

References
Amheim, R. Radio. Lond., Faber and Faber, 1936
Belsey, C. Critical Practice. Lond., Methuen, 1980
Brecht, B. "Radio as a Means of Communication", Screen. V20, Nos 314
Foucault, M. "The Discourse and Language", in The Archaeology of Knowledge and the Discourse on Language. N.Y., Harper and Row, 1976
Hood, S. "Brecht on Radio", Screen. V20, Nos 314

AM303  Radio Production and Criticism B
Four hours per week
Prerequisites: AM100 or equivalent and both AM200 and AM201 or equivalent and AM302
Assessment is continuous

In this subject radio production skills are developed further and applied to produce a wider range of radio forms. The role of radio within our culture is considered from two perspectives, firstly through an examination of 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 power in our society on the one hand, and the conditions imposed upon the production of radio texts by radio work processes on the other. The notion of aesthetics in general, and the question of radio aesthetics in particular are examined. Students are required to carry out original radio criticism using Melbourne radio broadcasts as texts, as well as conceiving (on paper) new forms of radio production.

Textbook
Higgins, C.S. and Moss, P.D. Sounds Real. St Lucia, Q.U.P., 1982

References
As for AM302

AM306  Professional Attachment Program
15 days
Prerequisites: 5 Media Studies Subjects
Assessment is continuous

This subject is available during Semester 2 to a limited number of students. Those selected will be attached, after consultation, to a variety of media organisations. There they will be required to work under the direction of the supervising staff member. The program will be overseen by a member of the Swinburne Media Studies staff.

DEPARTMENT OF SOCIAL AND POLITICAL STUDIES

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 context.

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, AP300, AP303 and AP308
(b) social and political change in Asia
   e.g. AP104, AP111, AP204, AP206, AP304, AP307, AP311 and AP312
(c) political economy of capitalist development with examples from Third World and industrialised societies
   e.g. AP113, AP202 and AP313.

The political studies area allows a critical and evaluative view of the whole structure of our society in the late twentieth century. By focusing on Australian society and, at the same time, providing a variety of perspectives on Asia, the subject area defines our position in our own society more sharply and conveys some understanding of our relationships with Asian neighbours.

Students may take single semester subjects, a minor, a major, a major and a minor, or a double major in political studies.

A minor consists of at least one semester subject at stage one and at least two semester subjects at stage two.

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 seven subjects offered, but two stage one political studies subjects are required as prerequisites for four or more stage two subjects.

The subject AP102 is offered at stage one only and cannot form part of a major or minor in political studies.

Subjects offered

Code
Stage 1
AP103 Australian Politics
AP101 Foundations of Modern Politics
AP104 Australian and South-East Asia
AP111 Modern China
AP112 Australian Identities
AP113 Asia: Politics and Development

Stage 2
AP200 Advanced Australian Politics
AP201 Political Sociology
AP202 Europe, Capitalism and the Third World
AP204 Modern Japan
AP206 Politics of China A

Stage 3
AP300 Public Policy in Australia
AP303 Politics of the USSR
AP304 Japan in Asia
AP305 Seminar in Political Studies
AP311 Politics of China B
AP312 Problems of Contemporary South-East Asia
AP313 India: Uneven Development

Faculty of Arts

POLITICAL STUDIES

DEPARTMENT OF SOCIAL AND POLITICAL STUDIES

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 context.

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, AP300, AP303 and AP308
(b) social and political change in Asia
   e.g. AP104, AP111, AP204, AP206, AP304, AP307, AP311 and AP312
(c) political economy of capitalist development with examples from Third World and industrialised societies
   e.g. AP113, AP202 and AP313.

The political studies area allows a critical and evaluative view of the whole structure of our society in the late twentieth century. By focusing on Australian society and, at the same time, providing a variety of perspectives on Asia, the subject area defines our position in our own society more sharply and conveys some understanding of our relationships with Asian neighbours.

Students may take single semester subjects, a minor, a major, a major and a minor, or a double major in political studies.

A minor consists of at least one semester subject at stage one and at least two semester subjects at stage two.

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 seven subjects offered, but two stage one political studies subjects are required as prerequisites for four or more stage two subjects.

The subject AP102 is offered at stage one only and cannot form part of a major or minor in political studies.

Subjects offered

Code
Stage 1
AP103 Australian Politics
AP101 Foundations of Modern Politics
AP104 Australian and South-East Asia
AP111 Modern China
AP112 Australian Identities
AP113 Asia: Politics and Development

Stage 2
AP200 Advanced Australian Politics
AP201 Political Sociology
AP202 Europe, Capitalism and the Third World
AP204 Modern Japan
AP206 Politics of China A

Stage 3
AP300 Public Policy in Australia
AP303 Politics of the USSR
AP304 Japan in Asia
AP305 Seminar in Political Studies
AP311 Politics of China B
AP312 Problems of Contemporary South-East Asia
AP313 India: Uneven Development
Subject details

Stage one

AP100  Australian Politics

Four hours per week daytime
or
Three hours per week evening
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, the public service, the organisation of the main political parties, and the role and future of minor political parties. These topics are taught at a level which presumes no previous knowledge of Australian politics. However, as the subject progresses students are introduced to the broader dimensions of politics which include the role of pressure groups, their basis of support, in the electorate and in society at large, and their bearing on Australian democracy.

Preliminary reading
Forell, C.R. How We Are Governed. 9th edn, Melb., Longman Cheshire, 1983
or
Jemson, D. An Introduction to Australian Politics. 2nd edn, Melb., Longman Cheshire, 1984

AP101  Foundations of Modern Politics

Four hours per week daytime
or
Three hours per week evening
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 origin and development of the main force at a level which presumes no previous knowledge of Australian politics. However, as the subject progresses students are introduced to the broader dimensions of politics which include the role of pressure groups, their basis of support, in the electorate and in society at large, and their bearing on Australian democracy.

Preliminary reading

AP104  Australia and South-East Asia

Four hours per week daytime
or
Three hours per week evening
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

This subject cannot be taken by students who have passed AP205 (History of Modern China)

Four hours per week daytime
or
Three hours per week evening
Prerequisite, nil
Assessment is by papers and tutorial participation

This subject will focus on developing some understanding of Modern China. The following themes will be investigated: peasant rebellion and land reform, Sino-Western relationships, reform and modernisation, institutional change, education and ideology, issues and problems centering on these themes will be critically examined and discussed through the use of a variety of materials including documents, memoirs, biographies and path-breaking works of modern Sinologists. To an extent, it will then be possible to identify and appreciate some of the distinctive features of contemporary China.

Textbooks

AP112  Australian Identities

Four hours per week daytime
or
Three hours per week evening
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 begins by 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.

Introductory text

AP113  Asia: Politics and Development

Four hours per week daytime
or
Three hours per week evening
Prerequisite, nil
Assessment is by essays and tutorial participation

The course examines the political dimension of development in contemporary Asia. It will analyse economic changes in the Asia-Pacific region in context of the world economy and the prevailing political order. There will be particular focus on the rapid industrialization in Southeast and East Asia and its social political ramifications. Topics include the politics of aid, agribusiness and the commercialization of food, export-oriented industrialization, politics and labour, repressive-developmentalist regimes, and technology and the environment.

Preliminary reading
McCoy, A.W. Priests On Trial. Ringwood, Penguin, 1984

Textbook
Faculty of Arts

Stage two

AP200 Advanced Australian Politics
Four hours per week daytime or Three hours per week evening
Prerequisite, any stage one political studies subject or an approved equivalent. A background in Australian Politics and/or 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 guidelines are distributed.

AP201 Political Sociology
Four hours per week daytime or Three hours per week evening
Prerequisite, any stage one political studies subject or an approved equivalent (students may choose AP201 Political Sociology or AS203 Sociology 2D, but not both)
Assessment is continuous
In this subject, key aspects of the relationship between politics and society are examined. It is an introduction to the theme of power and its exercise. Its main objective is to provide students with the basic skills necessary to identify and understand major forms of power, which they can apply to their immediate environment or to the broader dimensions of society.
Topics to be considered include the historical background to political sociology; classic views about the nature of human beings and society; an analysis of the concepts of power, authority and influence, with reference to Max Weber; the problem of locating power in modern society and an examination of three theories of power and society, namely Marxist, elitist and pluralist theories; the definition of democracy and the debate about its various models.

Preliminary reading
Dowse, R.E. and Hughes, J.A. Political Sociology. Lond., John Wiley & Sons, 1972, ch. 1

AP202 Europe, Capitalism and The Third World
(This subject cannot be taken by students who have passed AT146 Foundations of the Third World)
Four hours per week daytime or Three hours per week evening
Prerequisite, any stage one political studies subject or an approved equivalent but it is advisable to have taken AP103 or AP108
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
Four hours per week daytime or Three hours per week evening
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)
Four hours per week
Prerequisite, any stage one political studies subject
AP111 Modern China is highly recommended.
Assessment is continuous
In 1949 the Chinese Communist Party came to power after the defeat of the Nationalists. This subject investigates the development of new China through an examination of the political system, different models for economic growth, education policies and mass campaigns. By analysing the variety of theories, 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

Stage three

AP300 Public Policy in Australia
Four hours per week
Prerequisites, AP100 or equivalent, two stage two political studies subjects
Assessment is continuous
In this subject the decision and policy-making structures and processes of the Australian Federal Government are examined. While the focus is on the Federal Government, other institutions and actors in the policy process will also be considered. 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 formation 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 and the prices and inosmecy.
There are lectures and workshops dealing with selected areas of Labor Government policy. Students are able to specialise in an area of Government policy and are asked to submit a policy case study at the end of the semester.

Reference
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
</table>
| AP303       | Politics of the USSR | This 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, but not to the exclusion of comparisons with western 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. London : Blackwell, 1984 Schmidt-Hauer, C. Gorbachev: The Path to Power. London : Pan Books, 1986 |}
| AP304       | Japan in Asia | 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 | 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. |}
| AP311       | Politics of China B | (This subject cannot be taken by students who have passed AP310/Chinese Politics B) Four 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 recent 'open door' policies. References Yahuda, M. Chinese Foreign Policy After Mao. London : Macmillan, 1983 |}
| AP312       | Problems of Contemporary South-East Asia | Four hours per week Prerequisites, two stage two political studies subjects AP104 Australia and South-East Asia is highly recommended Assessment is continuous by seminar participation 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 most recent immigrants have come. It is intended to develop students' capabilities for undertaking research on the background of contemporary issues, and for sifting facts out of the conflicting propaganda and reportage, and identifying possible courses of action. The present focus is on Vietnam, Cambodia and Laos. The subject also deals with the impact events in Indochina have had on Australia. References Evans, G. and Rowley, K. Red Brotherhood at War: Indo-China since the Fall of Saigon Sydney : Pluto Press, 1985 Stuart-Fox, M. Laos: Politics, Economy and Society. London : Frances Pinter, 1987 Duker, William, Vietnam: Nation in Revolution. Western Press, Boulder, Colorado, 1983 Vickery, M. Kampuchea: Politics, Economy and Society. London : Frances Pinter, 1986 |}
| AP313       | India — Uneven Development | Four 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. Preliminary reading Ali, Tariq. The Nehrus and the Gandhis. An Indian Dynasty. London • Pan Books, 1985 |}
DEPARTMENT OF SOCIAL AND POLITICAL STUDIES

Sociology

The Sociology course is designed to provide an understanding of the social world. It deals with the individual’s place in society and the social forces shaping the development of self. It also examines the nature of society and investigates social institutions such as the workplace, education and the family. The course covers varieties of social behaviour and considers the basic theoretical perspectives which explain social life. Basic techniques of gathering and interpreting data are also canvassed and students have the opportunity to gain first-hand experience of social research. 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 two, students are strongly advised to take AS201 Sociology 2B (Methodology of Social Research) if they intend to pursue a major in sociology. Two stage two subjects are required for a major in sociology.

Students may enrol in either AS203 Sociology 2D or AP201 Political Sociology but not both.

At stage three, students completing a major must take three of the six units offered.

For those students intending to pursue a career in applied sociology the Graduate Diploma in Urban Research and Policy is offered.

Subjects offered

<table>
<thead>
<tr>
<th>Code</th>
<th>Stage</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>AS100 Sociology 1A</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>AS101 Sociology 1B</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>AS200 Sociology 2A</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>AS201 Sociology 2B</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>AS202 Sociology 2C</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>AS203 Sociology 2D</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>AS300 Urban Sociology</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>AS301 Theory and Practice in Sociology</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>AS302 Sociology of Organisations</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>AS303 Current Issues in Sociology</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>AS304 Sociology of Minorities</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>AS305 Social Research and Policy</td>
</tr>
</tbody>
</table>

Stage one

AS100 Sociology 1A

- Individual and social groups
- Semester one only
- Four hours per week daytime
- Three-and-a-half hours per week evening

Prerequisite, AS100

Assessment consists of essays and examination

This subject is concerned with people as social beings. It takes up the questions of how individuals become socially aware, how their ideas of appropriate behaviour and their views of society are formed by that society and what is the nature of the interaction an individual has with the surrounding social world. The emphasis is on small-scale processes such as role learning, gender development, socialisation, social interaction and ritual, and small group dynamics. In addition, some social institutions which most directly concern us in everyday life are examined, including the family and peer groups.

Teaching is mainly by lectures and tutorials, and films and videotapes are used.

Preliminary reading


Reference


AS101 Sociology 1B

- Issues in contemporary Australia
- Semestertwo only
- Five hours per week daytime
- Three-and-a-half hours per week evening

Prerequisite, AS100

Assessment consists of essays and examination

This subject is an introduction to sociological ways of thinking about contemporary society as a whole, and particularly about Australia. It emphasises the empirical study of various aspects of Australian society and its social institutions, examined within the framework of macrosociological theory. The central theme of the subject is social inequality and includes issues of poverty, unemployment, social class, gender, race and ethnicity, education and the distribution of social resources.

Elementary methods of data analysis are taught but no statistical knowledge is assumed.

Reference


Stage two

AS200 Sociology 2A

- Social change
- Four hours per week daytime
- Three hours per week evening

Prerequisites, AS100 and AS101

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.

The emphasis of the subject is on technological change and social movements. Both are subjects which are discussed outside academic sociology and offer an opportunity to test the relevance of sociological theory as a means of understanding contemporary problems.

Topics covered include sociological theories of social change, technological change, 19th Century industry, late 20th Century industry, changes in domestic life, literary representations of change, the women’s movement and the conservation movement.

References


Hutton, D. Green Politics in Australia. North Ryde, Angus and Robertson, 1987
For description of this subject see AP201 Political Sociology.
ASS03 Current Issues in Sociology

Four hours per week daytime
or
Three hours per week evening
Prerequisites: two stage two sociology subjects
Assessment is continuous

Within the discipline of sociology, there are several fundamental problems of explanation and debates over the appropriate approach to the subject matter. These issues pervade every substantive area in the discipline. In this unit, some of these issues as they are debated currently in the area of gender inequality are observed. The course focuses on various forms of social control concentrating on examples from reproductive technology, the justice system (women as offenders and as victims) and medical and mental health areas. The major writings on gender and social control are examined and those questions which are important, both for sociological explanation and for social action, are highlighted.

References

AS034 Sociology of Minorities

Four hours per week daytime
or
Three hours per week evening
Prerequisites: two stage two sociology subjects
Assessment is continuous

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 including Aborigines, non-Anglo immigrants and women, Australian data are looked at in general theoretical terms 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
Bottomley, G. and deLepervanche, M. Ethnicity, Class and Gender in Australia. Sydney, G. Allen & Unwin, 1984
Jennett, C. and Stewart, R. Three Worlds of Inequality — Race, Class and Gender. Melbourne, Macmillan, 1987

AS035 Social Research and Policy

Four hours per week daytime
or
Three hours per week evening
Prerequisites: two stage two sociology subjects
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 welfare 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

Faculty of Arts

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 as enrolment in the subject may depend on the availability of places and/or on certain prerequisites.

Course regulations specify that:
(a) students taking both majors within the Faculty may take subjects taught outside the Faculty up to a maximum unit value of six;
(b) students taking one approved major outside the Faculty may take subjects taught outside the Faculty up to a maximum unit value of ten.

For the purposes of this regulation, the subjects SM276 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

Thirty hours of lectures
Thirty hours of laboratory work
Assessment is 80% theory, 20% laboratory

This subject is offered in the first semester by the Department of Applied Chemistry for students enrolled in the Bachelor of Arts program. No prior knowledge of biology or chemistry is assumed.

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.


Digestive system: the arrangement and functions of the digestive system.


Muscular system: types of muscle and their roles. Mechanism of contraction. Conduction in the heart.

Immune system: reticuloendothelial system. Inflammation, phagocytosis; lymphocytes, cell-mediated immunity; antibody-mediated immunity.

Nervous system: nerves and excitability; transmission, the synapse; simple reflex arc. Overview of functions and structures in the central nervous system.

Endocrine system: functions. Major glands, their products and functions.

Reproductive system: anatomy; gametogenesis, contraception, pregnancy.

Integration of body systems: responses to stresses such as exercise, shock.

During teaching of the above topics safety measures will be emphasised.

Practical work in the course includes use of the microscope in the examination of cells and tissues, the testing of body pa mal and physiological functions and the demonstration of cardiovascular respiration. Extensive use is made of anatomical charts. Biological models and such specialised equipment as spirometers and electrocardiographs. Microcomputers are used by students in exercises that simulate certain body functions.

Reference
SC174 Biology
Thirty hours of lectures
Thirty hours of laboratory work
Assessment is 80% theory, 20% laboratory
This subject is offered in the second semester by the Department of Applied Chemistry for students enrolled in the Bachelor of Arts program. A knowledge of SC175 Biology will be assumed. The subject will consist of two components as described below:

Basic microbiology: an introduction to the microbial world to include the history, nature and scope of microbiology. Elements of the microbial world to range from viruses, mycetes, chlamydia, bacteria, algae and blue-green algae, fungi and protozoa. Methods of handling microorganisms, methods of isolation and methods of growth. Relationships between microorganisms and pathogenicity.


References


SP250 Psychophysiology A
Five hours per week (3 hours lectures, 2 hours practical) during first semester
Prerequisites: AY100 and AY101
Assessment is continuous
and

SP251 Psychophysiology B
Five hours per week (3 hours lectures, 2 hours practical) during second semester
Prerequisite: SP250
Assessment is continuous

These subjects are designed to familiarise students with human physiological processes, especially those relevant to the study of psychology, and to introduce students to psychophysiological recording and monitoring techniques. This course is intended as a relevant option for students undertaking major studies in psychology. Psychophysiology A introduces the concept of cellular excitability and its application to the neuromuscular, autonomic, cardiovascular and endocrine systems. The influence of stress on these systems is reviewed. Emphasis is placed on techniques of recording physiological signals, e.g. in monitoring stress and biofeedback.

Psychophysiology B focuses on neurophysiological and neuropharmacological aspects of behaviour with an introduction to neuroanatomy, sensory and motor function followed by an examination of mechanisms of brain function, including emotion, language, learning, memory, sleep and consciousness. Some disorders of brain function and techniques of central nervous system activity monitoring are also covered.

References
There is no single prescribed reference for these courses. Students are referred to sections of suitable physiological and psychological texts and journal articles.

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. Arts students intending to take an economics major must discuss their overall study program with a course adviser in the Faculty of Arts to ensure that their study plans will satisfy the requirements for a degree. The Department of Economics offers a wide range of subjects and units which may be taken individually, as a minor strand over two years, or as a major strand over three years. To complete Faculty of Arts requirements for a degree major in economics the following subject units must be taken:

Stage 1 BE101
Stage 2 BE201 and BE202
or
One plus any other selected from: BE203, BE301, BE302, BE303, BE304 or BE305.

Stage 3 Three additional semester subjects from the list immediately above.
To complete an Economics major as part of a Bachelor of Arts degree students are required to pass Economics 1 which is the equivalent of two semester subjects, and six semester subjects chosen from stages two and three as specified above, giving a total required of seven semester subjects.

It is important to note that BE101 is a required course for all other economics units offered by the Faculty of Business and that every Arts student taking an economics major must also complete either BE201 or BE202.
BE101 Economics 1

The main objective of this subject is to teach students how economists analyse economic problems within the framework of the Australian economic and business environment. The course commences by examining the role of the contemporary market system in allocating resources and distributing output. It then examines the firm's production, costs and revenues in a variety of market situations. This is followed by a detailed analysis of the determinants of the level and rate of change of national output, employment, prices and the rate of exchange. Attention is then focused on the role of fiscal, monetary, prices and incomes, balance of payments and exchange rate policies in achieving economic stabilisation.

References

BE201 Managerial Economic Analysis

Prerequisite, BE101 Economics 1

Students who are contemplating major studies in economics should include this unit and BE202 Industry and Government in their course.

This unit shows how economic analysis can be used to assist business decision-making. Empirical studies are used as a means of illustration. The unit deals with these topics: demand analysis (including empirical demand studies and forecasting); cost estimation and forecasting; profit and alternative goals of firms; pricing decisions of firms and public utilities and an introduction to the economics of advertising and promotional decisions.

References
Davies, J.R. and Hughes, S. Managerial Economics. Plymouth, U.K., McDoNell and Evans, 1979

BE202 Industry and Government

Prerequisite, BE101 Economics 1

Students who are contemplating major studies in economics should include this unit and BE201 Managerial Economic Analysis in their course.

This unit deals with the structure, conduct and performance of industry in contemporary economics with special reference to Australia and considers the role of government in these economies.

A study of an Australian industry is an integral part of this unit. Monopoly and the modern corporation (including the impact of transnational corporations), collusion of corporate capitalism and specific approaches to industry regulation and policy are discussed.

Textbook

References

BE203 Industrial Relations

Prerequisite, BE101 Economics 1

This unit aims to equip students with an understanding of the Australian Industrial Relations system with some comparative reference to other countries.

As well as examining the development of our present system, current issues will feature prominently during the semester so that students will gain an understanding of how industrial disputes begin and affect the economy. To further comprehend the processes involved in the resolution of industrial conflict students will participate in several simulation exercises. The learning experience will therefore include a large element of student participation in addition to formal class work.

Topics to be studied include:
- the nature of industrial conflict
- the manifestation of industrial conflict
- the development of Australia's Conciliation and Arbitration Commission
- the Award Making process
- Employer Associations
- Trade Unions
- the National Wage
- worker participation and industrial democracy.

Reference

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 tax systems; analysis of personal and corporate income tax with particular emphasis on the tax unit, the tax base and tax rates; analysis of present sales tax and excise tax arrangements and alternatives to these subsidies to consumers; taxes on the factors of production and schemes to reform the Australian tax system;
(3) techniques for evaluating government expenditure programs (with particular emphasis on cost-benefit analysis).

References
Australia, Taxation Review Committee. Full Report, Canberra, January, 1975
Treasurer Taxation Papers Nos. 1-15, Canberra, 1974
Brown, C.V. and Jackson, P.M. Public Sector Economics. 2nd edn, Lond., Martin Robinson, 1982

BE302 Economic Research

Prerequisite, BE201 Managerial Economic Analysis or BE202 Industry and Government

In this unit, the aim is to broaden students' familiarity with the nature and scope of research undertaken in Economics and to increase students' ability to analyse and carry out economic research of a practical nature.

Topics may include, methodology in economic research; data sources; collection, analysis and presentation of data; selected topics in applied economic research (economic model building, cost benefit analysis, industry studies, aspects of industrial relations).

An integral part of this unit is a major research project. Students are expected to conduct an investigation and write a report on their research which will constitute a major proportion of the assessment in this unit.

References
There is no single prescribed reference for this course. Extensive use is made of current journal articles.

BE303 Monetary Economics

Prerequisite, BE101 Economics 1

Objectives
To provide students with:
(1) an understanding of the major monetary theories and implications of these theories;
(2) knowledge of the structure, functioning and development of Australian and international financial institutions and markets; and
(3) an appreciation of the nature and workings of the Australian monetary system and changes in this system and for society.

Course outline
Monetary theories -- classical, Keynesian, modern quantity, Neo-Keynesian, Australian and international finance markets -- nature and developments.

Australian monetary system and change -- nature of change, analysis of implications of change for monetary and finance systems.
Textbook

References
Bruce, R., McKen, B., and Pollard, I. Handbook of Australian Corporate Finance. Butterworths, Sydney, 1983
Marzouk, G. The Flow of Funds and Monetary Policy in Australia. Macquarie Univ., 1987

BE304 International Economics
Prerequisite: BE101 Economics 1

This unit provides a study of International finance and trade with special reference to Australia. Topics covered include: the nature of foreign exchange markets and the determination of exchange rates; balance of payments adjustment mechanisms; internal and external policy mixes — Australian policy aspects; international financial arrangements — historical developments, and current Issues; the basis of international trade and the determination of trade patterns; trade restrictions; alternative approaches to industry development; Australia's industry assistance policies — current debate; international development issues and economic integration.

References
Industries Assistance Commission. Annual Report, Canberra, AGPS, various years
Lindert, P.H. International Economics. 8th edn, Homewood, Ill, Irwin, 1986

BE305 Urban Economics
Prerequisite: BE101 Economics 1

In this unit, students develop an analytical approach to appraising urban problems and policies. While the emphasis is on economic analysis, 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 the impact of resources development.

References

BS465 Urban and Regional Economics

This subject appears in the postgraduate subject details under Urban Research and Policy.
Faculty of Arts

Marketing
(10 mandatory and 7 Japanese subjects and 1 further elective)
  Market Behaviour
  Marketing Strategy
  Marketing Data Management
  Accounting for Marketing
  Organisation Behaviour
  Marketing Research
  Product Management
  Strategic Marketing Cases
  Marketing and the Law
  * one elective unit which must be 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.

Postgraduate courses

NO84 Graduate Diploma in Applied Psychology

The course is offered as a one year full-time or two years part-time program. It is designed for students who have completed a first degree with a three-year major sequence of studies in Psychology undertaken in a course (or courses) approved for this purpose by the Australian Psychological Society. The course 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 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 who meet basic eligibility requirements 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 Psychology Society as published in its Bulletin, or
2. have equivalent overseas qualifications.

In those cases where an applicant meets the requirement of 1(a) above, but does not meet the requirement 1(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 program is organised around a system of ‘core’ subjects and ‘options’, that vary in unit weighting. This weighting reflects the work requirements of each subject in the program.

In order to fulfil the requirement for the award, a student must satisfactorily complete all the Core subjects (14 units), any two 3-unit options (6 units) and any two 2-unit options (4 units).

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. It also permits students to exercise some choice in selecting subjects in which to develop advanced knowledge and skills consistent with their career aspirations.

The range of subjects and their unit values are as follows:

Core subjects

<table>
<thead>
<tr>
<th>Course</th>
<th>Subject details</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY400</td>
<td>Applied Social Psychology</td>
</tr>
<tr>
<td>AY401</td>
<td>Research Design and Analysis</td>
</tr>
<tr>
<td>AY402</td>
<td>Quantitative Methods</td>
</tr>
<tr>
<td>AY403</td>
<td>Research Project and Thesis</td>
</tr>
<tr>
<td>AY404</td>
<td>Computer Use in Psychology</td>
</tr>
<tr>
<td>AY405</td>
<td>Small Group Processes</td>
</tr>
<tr>
<td>AY406</td>
<td>Counselling in the Human Services</td>
</tr>
</tbody>
</table>

3-unit options

- two of these must be completed

<table>
<thead>
<tr>
<th>Course</th>
<th>Subject details</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY407</td>
<td>Issues in Social Psychology</td>
</tr>
<tr>
<td>AY408</td>
<td>Assessing Persons and Environments</td>
</tr>
<tr>
<td>AY409</td>
<td>Individual and Social Change</td>
</tr>
<tr>
<td>AY410</td>
<td>Special Applications</td>
</tr>
<tr>
<td>AY411</td>
<td>Statistical Analysis Procedures</td>
</tr>
<tr>
<td>AY412</td>
<td>Personality and Social Development</td>
</tr>
</tbody>
</table>

2-unit options

- two of these must be completed. Not all subjects listed will be available in any given year. Offerings will be dependent upon staff availability.

<table>
<thead>
<tr>
<th>Course</th>
<th>Subject details</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY413</td>
<td>Issues in Social Psychology</td>
</tr>
<tr>
<td>AY414</td>
<td>Assessing Persons and Environments</td>
</tr>
<tr>
<td>AY415</td>
<td>Individual and Social Change</td>
</tr>
<tr>
<td>AY416</td>
<td>Special Applications</td>
</tr>
<tr>
<td>AY417</td>
<td>Statistical Analysis Procedures</td>
</tr>
<tr>
<td>AY418</td>
<td>Personality and Social Development</td>
</tr>
</tbody>
</table>

The course can be completed in one year of full-time study extending across two semesters. In first semester a student will be involved in 12 hours of class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time and will also be consulting regularly with an academic supervisor about data analysis for the research project and the writing of the thesis.

The course can be completed in two years of part-time study extending over four semesters. A part-time student typically has weekly class contact hours as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Semester 1 6</td>
</tr>
<tr>
<td></td>
<td>Semester 2 4</td>
</tr>
<tr>
<td>2</td>
<td>Semester 1 6</td>
</tr>
<tr>
<td></td>
<td>Semester 2 2</td>
</tr>
</tbody>
</table>

A student will also be involved in weekly consultation with an academic supervisor about data analysis for the research project and the writing of the thesis.

Subject details

<table>
<thead>
<tr>
<th>Course</th>
<th>Subject details</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY400</td>
<td>Applied Social Psychology</td>
</tr>
<tr>
<td>AY401</td>
<td>Research Design and Analysis</td>
</tr>
<tr>
<td>AY402</td>
<td>Quantitative Methods</td>
</tr>
<tr>
<td>AY403</td>
<td>Research Project and Thesis</td>
</tr>
<tr>
<td>AY404</td>
<td>Computer Use in Psychology</td>
</tr>
<tr>
<td>AY405</td>
<td>Small Group Processes</td>
</tr>
<tr>
<td>AY406</td>
<td>Counselling in the Human Services</td>
</tr>
</tbody>
</table>

3-unit options

- two of these must be completed

<table>
<thead>
<tr>
<th>Course</th>
<th>Subject details</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY407</td>
<td>Issues in Social Psychology</td>
</tr>
<tr>
<td>AY408</td>
<td>Assessing Persons and Environments</td>
</tr>
<tr>
<td>AY409</td>
<td>Individual and Social Change</td>
</tr>
<tr>
<td>AY410</td>
<td>Special Applications</td>
</tr>
<tr>
<td>AY411</td>
<td>Statistical Analysis Procedures</td>
</tr>
<tr>
<td>AY412</td>
<td>Personality and Social Development</td>
</tr>
</tbody>
</table>

2-unit options

- two of these must be completed. Not all subjects listed will be available in any given year. Offerings will be dependent upon staff availability.

<table>
<thead>
<tr>
<th>Course</th>
<th>Subject details</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY413</td>
<td>Issues in Social Psychology</td>
</tr>
<tr>
<td>AY414</td>
<td>Assessing Persons and Environments</td>
</tr>
<tr>
<td>AY415</td>
<td>Individual and Social Change</td>
</tr>
<tr>
<td>AY416</td>
<td>Special Applications</td>
</tr>
<tr>
<td>AY417</td>
<td>Statistical Analysis Procedures</td>
</tr>
<tr>
<td>AY418</td>
<td>Personality and Social Development</td>
</tr>
</tbody>
</table>

The course can be completed in one year of full-time study extending across two semesters. In first semester a student will be involved in 12 hours of class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time per week.

The course can be completed in two years of part-time study extending over four semesters. A part-time student typically has weekly class contact hours as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Semester 1 6</td>
</tr>
<tr>
<td></td>
<td>Semester 2 4</td>
</tr>
<tr>
<td>2</td>
<td>Semester 1 6</td>
</tr>
<tr>
<td></td>
<td>Semester 2 2</td>
</tr>
</tbody>
</table>

A student will also be involved in weekly consultation with an academic supervisor about data analysis for the research project and the writing of the thesis.

Subject details

<table>
<thead>
<tr>
<th>Course</th>
<th>Subject details</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY400</td>
<td>Applied Social Psychology</td>
</tr>
<tr>
<td>AY401</td>
<td>Research Design and Analysis</td>
</tr>
<tr>
<td>AY402</td>
<td>Quantitative Methods</td>
</tr>
<tr>
<td>AY403</td>
<td>Research Project and Thesis</td>
</tr>
<tr>
<td>AY404</td>
<td>Computer Use in Psychology</td>
</tr>
<tr>
<td>AY405</td>
<td>Small Group Processes</td>
</tr>
<tr>
<td>AY406</td>
<td>Counselling in the Human Services</td>
</tr>
</tbody>
</table>

3-unit options

- two of these must be completed

<table>
<thead>
<tr>
<th>Course</th>
<th>Subject details</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY407</td>
<td>Issues in Social Psychology</td>
</tr>
<tr>
<td>AY408</td>
<td>Assessing Persons and Environments</td>
</tr>
<tr>
<td>AY409</td>
<td>Individual and Social Change</td>
</tr>
<tr>
<td>AY410</td>
<td>Special Applications</td>
</tr>
<tr>
<td>AY411</td>
<td>Statistical Analysis Procedures</td>
</tr>
<tr>
<td>AY412</td>
<td>Personality and Social Development</td>
</tr>
</tbody>
</table>

2-unit options

- two of these must be completed. Not all subjects listed will be available in any given year. Offerings will be dependent upon staff availability.

<table>
<thead>
<tr>
<th>Course</th>
<th>Subject details</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY413</td>
<td>Issues in Social Psychology</td>
</tr>
<tr>
<td>AY414</td>
<td>Assessing Persons and Environments</td>
</tr>
<tr>
<td>AY415</td>
<td>Individual and Social Change</td>
</tr>
<tr>
<td>AY416</td>
<td>Special Applications</td>
</tr>
<tr>
<td>AY417</td>
<td>Statistical Analysis Procedures</td>
</tr>
<tr>
<td>AY418</td>
<td>Personality and Social Development</td>
</tr>
</tbody>
</table>

The course can be completed in one year of full-time study extending across two semesters. In first semester a student will be involved in 12 hours of class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time per week. In second semester a student will be involved in 6 hours of weekly class contact time per week.

The course can be completed in two years of part-time study extending over four semesters. A part-time student typically has weekly class contact hours as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Semester 1 6</td>
</tr>
<tr>
<td></td>
<td>Semester 2 4</td>
</tr>
<tr>
<td>2</td>
<td>Semester 1 6</td>
</tr>
<tr>
<td></td>
<td>Semester 2 2</td>
</tr>
</tbody>
</table>

A student will also be involved in weekly consultation with an academic supervisor about data analysis for the research project and the writing of the thesis.
AY405 Small Group Processes

- Laboratory: 3 hours per week
- Assessment: Participation (including the conduct of in-class group learning activities) 65%
- Essay 35%

Contemporary theory and practice in small group psychology
Models of leading small groups
Instrumentation in leading and maintaining small group processes.
Development of group process observation, group participant and group facilitation skills.

References

AY411 Counselling in the Human Services

- Lectures: 1½ hours per week
- Laboratory: 1½ hours per week
- Prequisite: AY405
- Assessment: Practical examination 50%
- Theory examination 50%

Contemporary theory, research and practice in counselling psychology.
Recent theory and research on relationship factors in counselling and interviewing.
Models of training in counselling and interviewing.
Models of supervision in counselling and interviewing.
Human services systems.
Models of counselling service delivery systems.
Evaluating and monitoring counselling service programs

References
Egan, G. The Skilled Helper; 3rd edn, Monterey, California, Brooks/Cole, 1986

AY413 Research Project and Thesis

Independent research under supervision
Assessment: Submission of a minor thesis (8,000-12,000 words), assessed by two examiners

Each student is required to formulate individually an empirical research question, design an appropriate study, collect and analyse data, interpret these data in relation to the original research question, and submit a report on the investigation in the form of a minor thesis.
The research project may take any one of a number of forms: controlled observations, case studies, field surveys, laboratory experiments, field experiments, secondary analysis of data sets, archival research. The individual student must plan and carry out every phase of the project from initial planning to final analysis, interpretation and reporting of the data.

While flexibility in methodology is clearly required, given the diversity of potential topics for investigation, the methodology and data analysis procedures used must be (a) generally recognised within the field of psychological research as sound and appropriate for the particular question, and (b) correctly implemented in a systematic manner.

A member of the Psychology Department will be assigned to supervise the research. Supervisor and student will be expected to meet regularly for consultation according to a mutually agreed timetable.
The conduct of the research overall must conform in all respects to the principles of research ethics stated in the Psychology Department's Statement of Research Ethics.

References
Psychology Department. Statement on Research Ethics. Melbourne, Swinburne Press, 1986

AY414 Computer Use in Psychology

- Lectures: 1½ hours per week
- Practical Classes: 1½ hours per week
- Assessment: Examination on SPSS-X 50%
- Practical exercise on FACOM, TSS & EDIT 20%
- Assignment on the IBM-PC 30%

Introduction to the FACOM M180N and the TSS operating system.
Using EDIT — EDITing techniques. The Statistical Package for the Social Sciences — SPSS-X — basic techniques and data entry.
Running SPSS-X jobs on the FACOM.
Data transformation and recoding with SPSS-X.
Principles of data analysis with SPSS-X.
Introduction to the IBM-PC microcomputer and the PC-DOS operating system.

Basic techniques in word processing.
Database systems and information retrieval.
Special applications.

References

AY415 Issues in Social Psychology

- Seminars: 2 hours per week
- Assessment: Presentation of a seminar paper 80%
- Submission of two written "comments" on a seminar paper 20%

This subject will not be offered every year. It will be offered as an option when a Visiting Lecturer joins the Department for a semester. In those semesters when the subject is offered, it is expected that other staff members will participate in the seminar and discuss their research as this bears on various seminar topics.

The syllabus for a given semester will vary according to the particular areas of expertise of the staff member conducting the seminar. Topics covered would generally include those being discussed in current issues of such journals as:

Social Cognition
Journal of Personality and Social Psychology

An illustrative program might include:
Modelling the determinants of "Quality of Life"
Social support and the stress-buffering hypothesis.
The schema concept in personality and social psychology.

Social skills
Issues in cross-cultural psychology.
Determinants of altruistic behavior

References
No set text: students will be directed to specific articles and monographs relevant to the program topics.
AY420 Assessing Persons and Environments
Lectures: 1 hour per week
Workshop/Demonstration: 1 hour per week
Assessment:
- Examination: 40%
- Test appraisal: 20%
- Measurement exercise: 40%

History of psychological measurement, significant developments, present status and pattern of test usage.
Foundations of psychological measurement: reliability, validity, item characteristics.
Constructing tests: generating items, formats, norms.
Using tests: general principles of test selection, administration, scoring, interpretation, reporting and communication.
Assessment in particular applications: educational, vocational, personality function, neurological and psychomotor, interpersonal behaviour, environments. Computer administration, scoring and interpretation.

References

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:
Psychology as a profession: The Australian Psychological Society and requirements for registration in the State of Victoria.
Confidentiality, report writing and supervision.
Quality assurance, peer evaluation and professional negligence.
Philosophical and professional issues in morality and ethics: professional problems.
Values and attitudes in social research.
Human resources accounting.
Psychology and the law: forensic psychology; the psychologist as expert witness; counselling in the Family Court, etc.

References

AY424 Individual and Social Change Processes
Lectures: 1 hour per week
Assessment:
- Required attendance and participation in at least 75% of the scheduled/class meetings.
- Oral presentation of a seminar paper.
- Theory examination

Introduction to the major conceptual models of planned change and associated intervention procedures.
Introductions to the theory of transition and life-span development.
An overview of the main theories of stress and coping.
Descriptions and analysis of changes resulting from the impact of social forces and events on individuals and groups. Such changes include the predictable, unpredictable, voluntary and involuntary developments occurring over the life-span, for example: marriage, parenthood, becoming unemployed, becoming disabled, returning to paid work, coping with natural disasters, etc.

Brief introduction to program evaluation.

References

AY426 Special Application
Fieldwork Placement
Assessment: Satisfactory completion of the fieldwork program
Submission of a report on the assignments and activities

Students who make application on the basis of demonstrated vocational relevance will be permitted to undertake a period of approved practical work in a Psychological Services Unit under the direct supervision of a professional psychologist. This work will normally involve areas of applied psychology such as social survey research, personnel selection, vocational health and safety, test construction and development, counselling services, educational research. Students intending to undertake such a program will be required to prepare a detailed proposal which must be jointly agreed upon by the supervising psychologist and the member of the Psychology Department assigned to monitor the fieldwork placement. The program will involve assigned reading, regular consultation between the student and the supervisor and the coordinator, the keeping of a work diary by the student, and the submission of a report of 3,000-4,000 words on the placement and the issues of practice highlighted by the placement.
A minimum of 120 hours must be spent in the field.

Reference

AY428 Statistical Analysis Procedures
Lectures: 1 hour per week
Seminars and laboratory: 1 hour per week
Assessment:
- Assignment 1: interpreting computer analysis: 40%
- Assignment 2: solving problems of analysis: 30%

Review of computer-based analyses (SPSS® and SAS).
Review of basic multivariate analytical procedures.
Detailed examination of complex multivariate analyses (including time series, cluster, multidimensional scaling and log linear analyses).
Seminar presentation/program of complex analytical technology.
Interpreting computer printouts associated with the above statistical procedures.
Advances in analytical technology — the future.

Reference
AY429 Personality and Social Development

Lectures: 1 hour per week
Seminars: 1 hour per week
Assessment:
- Theory research essay 50% (1,500-2,000 words)
- Seminar presentation 50% (1,500-2,000 words)

This subject teaches theoretical perspectives of the processes of psychological development and the application of this theory to practical situations. Some basic understanding of developmental theory will be assumed. Topics include:

- Developmental psychology: contemporary issues.
- Theory and meta-theory on development
- Social cognition.
- Piagetian theory.
- Dialectical psychology.
- Parenting: historical and cultural perspectives
- Development of communicative competence
- Attachment: practical implications.
- Problems of development: family breakdown: infertility
- Dysfunctional development: Axis II of DSM III.
- Psychotherapy in development.
- Ageing.

References

NO86 Graduate Diploma in Equal Opportunity Administration

This graduate diploma is offered as a one year full-time or two years part-time course. It has been designed to meet the training and education needs associated with legislative and social initiatives in equal opportunity and affirmative action.

The objectives of the course are:
(a) To develop an understanding of the principles and operation of equal opportunity through exploration of key issues and practical experiences.
(b) To increase understanding of organisations, including their systems and operations.
(c) To provide participants with analysis of case studies and to assist with the development and implementation of similar initiatives within organisations which they choose to study.
(d) To provide a range of skills that are necessary for successful equal opportunity program administration: researching, information gathering, change agent skills, facilitating skills, developing personnel systems, networking, decision-making, report writing and communications skills.
(e) To increase the confidence and competence of equal opportunity practitioners.
(f) To contribute to improvements in the quality of equal opportunity initiatives in the state.

Admission requirements
Applicants should hold a degree or diploma from an approved tertiary institution, but others having particularly relevant experience or qualifications will be encouraged to apply and will be considered for entry.

Applicants’ experience in the following areas will be taken into account in selection of participants:
- Work with groups with special needs
- Personnel management
- Industrial relations
- Unions
- Equal Opportunity programs or related fields

Personal interviews will 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 in achieving equal opportunity outcomes and the existing statutory requirements in Australia are examined.

Other issues covered include:
- Basic concepts used to understand equal opportunity such as discrimination, target groups, race, gender, ethnicity, disability, harassment, labour market segmentation.
- The role of government in international and local contexts.
- The legal framework and the operation of laws governing equal opportunity.

**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 presentation, the following topics will be covered:
- Accessing existing data sources, determining new data sources within the organization, organizing a data bank, 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 to understand workplace dynamics and to operate as effective equal opportunity administrators. It will also raise issues of workplace organisation as they affect employees in general and target groups in particular. Topics covered include:
- The structure and nature of organisations, formal and informal 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 draws on the concepts and skills learned in appropriate units of the Bachelor of Arts degree course, or institute. All applicants are assessed by a selection committee and in certain cases may be required to complete appropriate units of the Bachelor of Arts degree course, or undertake a preliminary reading course before being accepted for enrolment.

Graduate Diploma in Italian
Subject to VPSCEC accreditation the Faculty of Arts will offer a Graduate Diploma in Italian. Further information is available from the Humanities Department.

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 understanding of long and complex sentence structures, and the acquisition of a wider vocabulary range, including a large number of characters, is essential. Students become familiar with a wide variety of journalistic and written styles found in newspapers. Training in translation and precis writing, and in the various styles and speech levels which characterise modern spoken Japanese is also a part of the course.

Language development is focused on four major areas of Japanese studies: social, cultural, business and political. Students consider:
- (a) general problems and trends as they are analysed by Japanese writers within the framework of the society as a whole; and
- (b) the validity of assertions and generalisations which are made by Japanese, as well as by foreign writers.

Entrance requirements
Application for the Graduate Diploma is made on the 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 and in certain cases may be required to complete appropriate units of the Bachelor of Arts degree course, or undertake a preliminary reading course before being accepted for enrolment.

Course structure
The course may be completed part-time in the evening over two years. It comprises eight semester subjects and each involves four hours of class meetings per week. Usually, students enrol for two subjects concurrently in each of the four semesters but may in special circumstances, enrol for only one subject per semester.

Subjects on Japanese society and culture, and on business and politics are offered in alternative years. Reading materials are available through the department. In all subjects students are required to complete one research project and two tests.

The subjects offered at present are:

- **AJ400** Japanese Society A
- **AJ401** Japanese Society B
- **AJ402** Japanese Culture A
- **AJ403** Japanese Culture B
- **AJ404** Japanese Business and Industry A
- **AJ405** Japanese Business and Industry B
- **AJ406** Japanese Politics A
- **AJ407** Japanese Politics B

Preliminary reading

References
Kindoichi, K. ed. Shihonoken Kokugo Jiten. 2nd edn, Tokyo, Sanseido, 1979
Subject details

AJ400  Japanese Society A
This subject provides an introduction to problems which exist in Japanese society. The topics cover family problems, old age and social security, social problems relating to crime, suicide, gangster organisations, youth violence; dietary life and common diseases; female inequality, and theories on Japanese society. The program is based mainly on newspaper items but some media broadcasts are included and specialist lecturers lead seminars on certain topics.

Students have the opportunity to deliver individual oral reports to improve their spoken Japanese.

AJ401  Japanese Society B
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 topics 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.

Most of the material on which the program is based is selected from newspapers but some media broadcasts are also included. Emphasis is on the acquisition of vocabulary, characters and some practice in translation and precise writing.

Students have the opportunity to deliver individual oral reports to improve their spoken Japanese.

AJ405  Japanese Business and Industry B
This subject is divided into two components. In one, 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. In the other component, students are divided into small groups for extra conversation practice.

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, defense, anti-nuclear movements, administration, government interference, politicians travelling abroad, environmental protection and refugee policy.

AJ407  Japanese Politics B
This subject is divided into two components allowing students to pursue further reading which extends the topics introduced in Japanese Politics A and to develop their conversational skills.

Graduate Diploma in Japanese

Subject to VPSEC accreditation the Faculty of Arts will offer a second Graduate Diploma in Japanese in 1989 for people with no prior knowledge of the language. Further information is available from the Humanities Department.

NO82  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 planning, urban administration, community development and research. More specifically the course is designed to provide knowledge of and experience in:

(a) the analysis of 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, and policy formulation and evaluation.

Entrance requirements

Application for the Graduate Diploma is made on the Institute’s graduate studies application form.

Applicants must hold a degree or diploma from an approved tertiary institution, including major studies in at least one of: sociology, politics, economics, geography, planning or contemporary history. Students with majors in disciplines 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 eight 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 1988:

AS400  Urban Social Theory
AS402  Urban Policy
AS403  Research Report
AS404  Advanced Urban Research
AS410  Contemporary Issues in Urban Studies
AS411  Urban Research
AS412  Urban Politics and Administration
AS413  Applied Social Planning
BS465  Urban and Regional Economics

Each student is expected to complete a research report relating to either policy issues 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 population, housing, land use, transport, and public service provision will be used to exemplify issues, and experts in various policy areas 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 program which involves taking a research issue through from conception to completion of a final report. The research program will involve students in survey design, data collection, interviewing, coding, computing, and research analysis. For students undertaking an empirical analysis in their research projects or for students seeking employment as research officers, this subject provides necessary additional training in urban research.

AS410 Contemporary Issues in Urban Studies
This subject will examine contemporary urban issues that warrant specific analysis. It will provide students with a further opportunity to apply major theoretical frameworks and urban research skills to the analysis of major substantive issues and the development of appropriate policy and planning strategies. Issues that might be examined in detail include housing, health care delivery, labour market change, ageing and immigration.

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 involves introductory statistical procedures relevant to urban research, use of Swinburne’s computer facilities, and an introduction to the SPSS (Statistical Package for the Social Sciences) for purposes of data analysis.

AS412 Urban Politics and Administration
This subject examines the nature of public and private decision-making as it affects the development and form of urban policy. Attention is given to different models of decision-making, the constraints on decision-making, and decision-making structures. Case studies are used to exemplify ideas and themes.

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 underpinning the planning process, this subject is predominantly skills oriented. Particular attention is paid to the techniques of needs surveys, evaluation, social indicators, and secondary data analysis.

BS465 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 within the Faculty. Applications for masters’ candidature may be made by persons whose first degree or diploma has been completed to a sufficiently meritorious standard or whose background and experience is considered suitable. In the first instance, enquiries should be directed to the Head or Chairman of the appropriate department.
Undergraduate courses

Bachelor of Business
- Accounting stream
- Computing stream
- Economics - Marketing stream
- Marketing stream

Mandatory units
Elective units

Bachelor of Business/Bachelor of Arts (Japanese)

Degree in Information Technology

Postgraduate courses

Graduate Diploma in Accounting
Graduate Diploma in Business Administration
Graduate Diploma in Business Forecasting
Graduate Diploma in Business Information Technology
Graduate Diploma in Corporate Finance
Graduate Diploma in Management Systems
Graduate Diploma in Organisation Behaviour
Master by Course Work and Minor Thesis
- Information Technology
- Organisation Behaviour

Subject details
General Information
Swinburne Institute Information
Faculty of Business
Dean
M.C. Frazer, BSc(Hons)(Mon), GradDipEdTech(DDIAE), MBA(Mon), PhD(Comb), AIMA, MAIP
Assistant Registrar (Business)
V. Stiles, BA(Melb)
Administrative Officer
J. Berry

Academic staff
Department of Accounting
Head
B.C. McDonald, BCom. DipEd(Melb), FASA CPA
Principal Lecturers
N.J. Allport, BCom, MBA(Melb), BEc(Mon), AAAS(Sen)
W.C. Nash, BCom, DipEd(Melb), MBA(GratIT)
W.H. Pratt, BCom, DipEd(Melb), MAdmin, MEvEdSc(Mon), AAAS
Senior Lecturers
J.P. Barker, BBus(SIT), MComm(Melb), AAAS(Sen)
R.C. Donkin, MAppEng(SIT), DipBus(ACCA)(VICT), MBA(Deakin), AAAS CPA, MACS
B.R. Graham, BEc(Mon), MAdmin(Melb), AAAS CPA
B.W. Spurrell, BCom, BA, DipEd(Melb), AAAS CPA
D.G. Vinen, BEc, MAdmin, DipEd(Mon)
J.D. Wells, BComm(Qld), MAdmin(Mon), AAAS(Sen)
Lecturers
A. Bell, BBus(SIT), AAAS(Prov)
M. Dunkley, BBus(CIT), DipEd(Melb)
J. Foreman, BBus(SIT)
J.R. Gerrand, BEc(Mon), AAAS
M. Hulls, BEc(Mon), AICA
L. Kloor, BA(Melb), BBus(SIT), AAAS, CPA
L. Marcello, BBus(SIT)
C. Marsh, DipBus(Acc)(SIT), ACA
R. Richardson, BEc(Mon), GradDipEDP(CIT), MBA(Melb), ACA
E. Sandercock, BA(WA), BBus(SIT), AAAS CPA, ACA
I. Tempone, BCom, DipEDP(Melb), AAAS CPA
K. Turpie, BEc(Hons)(LaT)

Department of Marketing and Organisation Behaviour
Head
L.A. Zimmerman, BCom, MBA(Melb)
Principal Lecturer
C. Christodoulou, PhD(Mon), BAppSc(Com), BSc, MAdmin(Mon)
Senior Lecturers
R.M. Brown, BComm(Melb), DipEd(Melb), MEc(Mon), FIBA, MACE, MIPMA
G. Drummond, MA(Melb)
B. Evans, BAppSc(RMIT), MAdmin(Mon), GradIMA
J. Newton, MA(Leeds), BBus(CIT)
G. Watts, BComm, MBA, MBA, DipEd(Melb), GradDipAppSocPsych(SIT)
Lecturers
J.G. Batros, BSc, BA(Melb), TSTC
P. Boyce, BBus(Comb)(CIT)
B. Carrillon, BA(Melb), MAPS
D. Chng, BSc(Hons)(Mon), DipAppChem(SIT)
M. Enright, DipBusStud(CIT), BA(Melb)
B. Lasky, BBus(PublicAdmin)(RMIT), GradDipPersAdmin(Victoria), AIPMA, AITD
J.P. Prestie, BBus(CIT)
C. Selvarajah, BA(Tas), MBA(Hons), GradDipT&D(Massey)
J. Shannon, BA(Qld)
J. Stawell, BA, BEc, MedStat(Mon), TTPC
K. Van Veenendaal, AssDipMktg, BBusMktg(CIT)

Department of Data Processing and Quantitative Methods
Head
D.G. Adams, BCom(Melb), MAdmin(Mon), TSTC
Principal Lecturers
J.A. James, DipMedRadiotherapy, GradDipDP(RMIT)
G.M. Leonard, BSc(Melb), MACS
Senior Lecturers
K. Behan, BBus(SIT), DipBus(DP)(RMIT), GradDipDIP(NIDA), MACS
D. Holmes, BComm(Melb), MACS
G. Murphy, BComm(Melb), AAAS
M.G. Nichols, MEd, PhD(Mon), MACE
J.F. Pidgeon, BA, DipEd(Mon)
W.D. Wilde, BCom(Berm), MSc(Melb), MACS
Lecturers
N.L. Bailey, BSc(Leeds), GradDipEd(HIE), MACS
O. Burmeister, BAppSci(SIT)
R. Coldwell, DipArch(Hons), PhD(Wales), FRANZ, MACS, MCSI
A. Currie, BSc(Melb), DipEd(Vict), GradDipMgtSyst(SIT)
F. Ghoti, PhD, MSc(Wa)
P. Kindler, DipBus, BAppSci(CIT), AAAS, CPA, MACS
E. Lindberg, BAppSci(EDP)(CIT), GradDipEd(HIAE), MACE
J. Munro, BEc(Mon), MACE
P. Salla, BBus(SIT)
H. Schroor, BA(Hons), BSc(Melb)
S. Sicilia, BSc(Hons)(Mon)
P.M. Simmons, BSc(hons)(Sheff), MACS

Department of Economics
Head
J.B. Piggott, BComm(Hons), MA, DipEd(Melb)
Principal Lecturer
D.J. Thomas, BA(NSW), MA(Syd), PhD(Mon)
Senior Lecturers
P.G.L. Harkness, BAgEC(UNE), MAdmin(Mon)
B.N. Okarn, BComm, DipEd(Melb), MEC(Mon)
D.J. Owens, BEc(Hons), MAdmin(Mon)
Lecturers
C. Barry, MEC(Mon)
M. De Lorenzo, BComm(Hons)(Melb)
J. Gerstman, BA, BEc(Mon)
S. Holligan, BEc(Hons)(LaT)
L. Schulberg, BEc, DipEd(Mon)
R.N. Smith, BA(Hons), DipEd, DipContEd(UNE), MCom(NSW)
J. Watkins, MEC, DipEd(Mon)
P.O. Xavier, BEc(Hons)(WAust), MA(Leic), MEC(Mon)

Department of Law
Head
B.R. Clarke, BEc, LLM(Mon), GradDipMkt(CIT), Barrister and Solicitor (Vic) Supreme Court
Senior Lecturers
P. Holland, BComm, LLB(Hons), DipEd(Melb), MEnvSc(Mon), Barrister and Solicitor (Vic) Supreme Court
P.J. Pascoe, LLM, BComm(Melb), DipEd, AASA, Barrister and Solicitor (Vic) Supreme Court
Lecturers
S. Edmonds, LLB(Adel), Barrister and Solicitor (Vic) Supreme Court
P. Johnstone, LLB, BA, DipEd(Melb), Barrister and Solicitor (Vic) Supreme Court
M. Psaltis, BA, LLM, DipEd(Melb), Barrister and Solicitor (Vic) Supreme Court
S. Wilson, BA, LLM, DipEd(Melb), Barrister and Solicitor (Vic) Supreme Court

Department of Physical Education and Sport Science
Head
J.H. Birt, BSc(Adel), DipPE, DipEd(Melb), MEd, Master of Science (SIT)
Principal Lecturers
K. Behan, BBus(SIT), DipBus(DP)(RMIT), GradDipDP(RMIT)
G.M. Leonard, BSc(Melb), MACS
Senior Lecturers
K. Behan, BBus(SIT), DipBus(DP)(RMIT), GradDipDIP(NIDA), MACS
D. Holmes, BComm(Melb), MACS
G. Murphy, BComm(Melb), AAAS
M.G. Nichols, MEd, PhD(Mon), MACE
J.F. Pidgeon, BA, DipEd(Mon)
W.D. Wilde, BCom(Berm), MSc(Melb), MACS
Lecturers
N.L. Bailey, BSc(Leeds), GradDipEd(HIE), MACS
O. Burmeister, BAppSci(SIT)
R. Coldwell, DipArch(Hons), PhD(Wales), FRANZ, MACS, MCSI
A. Currie, BSc(Melb), DipEd(Vict), GradDipMgtSyst(SIT)
F. Ghoti, PhD, MSc(Wa)
P. Kindler, DipBus, BAppSci(CIT), AAAS, CPA, MACS
E. Lindberg, BAppSci(EDP)(CIT), GradDipEd(HIAE), MACE
J. Munro, BEc(Mon), MACE
P. Salla, BBus(SIT)
H. Schroor, BA(Hons), BSc(Melb)
S. Sicilia, BSc(Hons)(Mon)
P.M. Simmons, BSc(hons)(Sheff), MACS

Department of Politics
Head
J.B. Piggott, BComm(Hons), MA, DipEd(Melb)
Principal Lecturer
D.J. Thomas, BA(NSW), MA(Syd), PhD(Mon)
Senior Lecturers
P.G.L. Harkness, BAgEC(UNE), MAdmin(Mon)
B.N. Okarn, BComm, DipEd(Melb), MEC(Mon)
D.J. Owens, BEc(Hons), MAdmin(Mon)
Lecturers
C. Barry, MEC(Mon)
M. De Lorenzo, BComm(Hons)(Melb)
J. Gerstman, BA, BEc(Mon)
S. Holligan, BEc(Hons)(LaT)
L. Schulberg, BEc, DipEd(Mon)
R.N. Smith, BA(Hons), DipEd, DipContEd(UNE), MCom(NSW)
J. Watkins, MEC, DipEd(Mon)
P.O. Xavier, BEc(Hons)(WAust), MA(Leic), MEC(Mon)

Department of Psychology
Head
B.R. Clarke, BEc, LLM(Mon), GradDipMkt(CIT), Barrister and Solicitor (Vic) Supreme Court
Senior Lecturers
P. Holland, BComm, LLB(Hons), DipEd(Melb), MEnvSc(Mon), Barrister and Solicitor (Vic) Supreme Court
P.J. Pascoe, LLM, BComm(Melb), DipEd, AASA, Barrister and Solicitor (Vic) Supreme Court
Lecturers
S. Edmonds, LLB(Adel), Barrister and Solicitor (Vic) Supreme Court
P. Johnstone, LLB, BA, DipEd(Melb), Barrister and Solicitor (Vic) Supreme Court
M. Psaltis, BA, LLM, DipEd(Melb), Barrister and Solicitor (Vic) Supreme Court
S. Wilson, BA, LLM, DipEd(Melb), Barrister and Solicitor (Vic) Supreme Court
Courses offered in the Faculty of Business

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Length of Course (minimum)</th>
<th>Entrance Requirements</th>
<th>Special Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Business</td>
<td>Full-time</td>
<td>Part-time</td>
<td></td>
</tr>
<tr>
<td>— A050 Accounting</td>
<td>3 years</td>
<td>6 years</td>
<td>Four subjects</td>
</tr>
<tr>
<td>— A051 Computing</td>
<td>3 years</td>
<td>6 years</td>
<td>(including English)</td>
</tr>
<tr>
<td>— A052 Economics—Marketing</td>
<td>3 years</td>
<td>6 years</td>
<td>at VCE(HSC)</td>
</tr>
<tr>
<td>— A053 Marketing</td>
<td>3 years</td>
<td>6 years</td>
<td>or equivalent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>For the degree</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>course, it is advisable to have studied mathematics to at least Year 11 level.</td>
</tr>
<tr>
<td>Graduate Diploma</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>— A080 Accounting</td>
<td>2 years</td>
<td></td>
<td>An appropriate</td>
</tr>
<tr>
<td>— A083 Business Administration</td>
<td>2 years</td>
<td></td>
<td>tertiary degree</td>
</tr>
<tr>
<td>— A084 Management Systems</td>
<td>2 years</td>
<td></td>
<td>or diploma</td>
</tr>
<tr>
<td>— A085 Organisation Behaviour</td>
<td>2 years</td>
<td></td>
<td>a degree or diploma</td>
</tr>
<tr>
<td>— A086 Corporate Finance</td>
<td>2 years</td>
<td></td>
<td>in that field. For the other</td>
</tr>
<tr>
<td>— A087 Business Information Technology</td>
<td>2 years</td>
<td></td>
<td>Graduate Diplomas a limited number of places are available for applicants with no formal qualifications but considerable work experience.</td>
</tr>
<tr>
<td>— A088 Business Forecasting</td>
<td>2 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masters by Course Work and Minor Thesis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>— Information Technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>— Organisation Behaviour</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Business/Bachelor of Arts (Japanese) — 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.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree in Information Technology — a three year degree course taught in conjunction with the Faculty of Applied Science.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Entrance requirements

The normal entry requirements for the Bachelor of Business are:—

VCE(HSC) (previously accredited by VISE)
Grade D (or better) in four Year 12 subjects including English. The subjects must have been taken in the one year. It is recommended that applicants have a background in mathematics at least to Year 11.

Victorian Certificate of Education
(Tertiary Orientation Program)
Applicants must have satisfied the requirements of an approved VCE(TOP) at a Victorian technical school or college. It is recommended that applicants have a background in mathematics at least to Year 11.

Other qualifications
Applicants must have gained a qualification deemed by the Victorian Curriculum and Assessment Board to be the equivalent of either of the above. Such qualifications would include interstate and overseas qualifications and certificate studies at a TAFE college.

Special entry
For applicants who have not satisfied a Year 12 course of study and who are not less than 25 years of age. A special entry test will be required.

Quota
Not all qualified applicants will be accepted because of the limited number of available places.
Bachelor of Business (BBus) courses

The degree course leading to the award of Bachelor of Business offers major studies in accounting, computing, marketing or economics—marketing, and special elective studies in accounting, economics, computing, the business environment, quantitative methods and law.

Some aspects of the three major streams are as follows:

**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 specialisation 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.

Graduates in accounting are in heavy demand at present, in the accounting profession, industry, commerce and government. The employment opportunities available cover many diverse and challenging fields. Accountants in public practice offer specialist services in such areas as taxation, auditing and management. Accountants in industry, commerce and government cover the complete range of services necessary for the successful operation of business activity.

Some graduates in accounting never take up careers in what could be technically described as accounting. The analytical skills and the understanding of accounting gained through a basic qualification, 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 Accountants (as a professional 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. Further advancement in these professional bodies is 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 pervades 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.

**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.

During the course students also undertake complementary studies in other relevant business-oriented disciplines such as accounting, law, computing and organisational behaviour.

Employment prospects are good in a wide range of interesting and challenging fields including:

- marketing and market 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.

The choice available to students of two additional mandatory units chosen from either the marketing or economic electives available, gives them an opportunity to further specialise in the discipline of their career choice.

**A023 The Marketing stream**

**What is Marketing?**

Essentially marketing is dealing with people. It is a management discipline which helps organisations understand what people and other organisations want and how they handle their purchasing decisions.

As such, marketing matches an organisation’s resources with market opportunities. The main function is to design marketing strategies based on what is happening in the community at large as well as in specific markets in Australia and overseas.

Today’s business world is turbulent, and new generations of consumers will be far more demanding in the market place than their parents. Similarly, business customers will approach their purchasing decisions in a more professional way. Moreover, Australia is very much in need of increased export capability. This adds a global dimension to business.

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 membership of the Australian Computer Society.
It goes without saying that the future Marketing executive will need to be a professional to handle these challenges. There is no doubt that business will increasingly employ professional marketers to deal with uncertainty, and the growing complexity of business, as well as with international customers.

The Bachelor of Business (Marketing)
The Bachelor of Business (Marketing) is exciting and challenging. It provides a strong conceptual background for would-be entrants to the marketing profession. Marketing students 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.

Double BBus/BA (Japanese) Degree
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 units in order to qualify for the award of two degrees. :

Course requirements
The first year of the Bachelor of Business is compulsory for all degree streams. Students in the combined Business/Japanese course must complete:
- Business Common Year (10 units)
  - the mandatory units in one of the Business degree streams (10 or 8 units as listed)
  - The following Japanese units
    - Japanese 1
    - Japanese 2
    - Japanese 3A
    - Japanese 3B
    - Introduction to Japan
    - Communication in Japan
    - Modern Japan
- one further elective unit chosen from either Arts or Business (for Accounting, Economics—Marketing, Marketing), three further electives for Computing.

Degree course structure
The degree course comprises twenty-six units. The first (or common) year comprises ten units. The second and third years of the course comprise mandatory units as shown below plus an additional number of elective units to reach the twenty-six total.

First year
In Common Year, full-time students are expected to study all ten units in the one year. This is a standard enrolment. Part-time students study two units per semester.

First year (common to all degree streams)
BC101 Accounting1A or BC102 Accounting1B
BC103 Accounting1C
BE101 Economics (= 2 units)
BH101 Organisations and Management
BL101 Legal Environment of Business
BM101 The Marketing Concept
BT101 Information Technology (= 2 units)
SM147 Quantitative Analysis A
or
SM148 Quantitative Analysis B

Students do not have to identify which of the major streams they intend to study until enrolling for second-year units.

Second and third years
In second and third years, full-time students are expected to study four units per semester. Part-time students are expected to study two units per semester. The choice of units is up to the students but the faculty issues an enrolment guide to highlight the best combinations.

Accounting
(10 mandatory, 6 electives)
Cost Accounting
Management Accounting
Contract Law
Quantitative Management Techniques
Corporate Accounting
Law of Business Organisations
Taxation
Financial Management
Accounting Theory
Auditing

Computing (1987 revision)
(10 mandatory, 8 electives)
Information Analysis
Commercial Programming
Data Base Management Systems
Data Communications
Systems Development Strategies
Systems Software
Industrial Project (2 units)

Economics—Marketing
(10 mandatory, 6 electives)
Managerial Economic Analysis
Industry and Government
Economic Techniques for Business
Market Behaviour
Marketing Strategy
Marketing Research
Product Management
One thirdyear Economics unit
Two further units from either Economics and/or Marketing

Marketing
(9 mandatory and 7 elective units)
Market Behaviour
Marketing Strategy
Marketing Data Management
Accounting for Marketing
Organisation Behaviour
Marketing Research
Product Management
Strategic Marketing Cases
Marketing and the Law

* one of the elective units must be a thirdyear Marketing unit.
Elective units may be taken from any of the Business units listed below:

Whilst not mandatory, it is highly recommended that students taking the Accounting stream study BH201 Organisational Behaviour 1 and a further Data Processing unit amongst their elective units.

Students may also take their elective units from the Faculty of Arts with the following exceptions:
- no units with an AT prefix
- not AP109 Society and Economics A
- not SM171 or SM172 Mathematics
- no 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 (e.g. AP 1**) will be credited towards the degree.

Students wishing to take electives in Japanese should also check the double degree Business/Arts (Japanese) on page B5.

Students wishing to study units from a faculty other than Business or Arts must seek approval before enrolling.

Disciplines and unit codes

The number of units timetabled each year is governed by the demand and the availability of suitable teaching staff.

Disciplines

Accounting
BC101 Accounting1A
BC102 Accounting1B
BC201 Corporate Accounting
BC202 Cost Accounting
BC203 Management Accounting
BC204 Accounting for Financial Reporting
BC205 Accounting for Marketing
BC300 Accounting Theory
BC304 Auditing
BC305 Budgeting
BC306 Taxation
BC308 Advanced Taxation
BC311 Financial Management I
BC312 Financial Management II
BC313 Financial Accounting
BC314 EDI Auditing

Economics
BE101 Economics 1 (2 units)
BE201 Managerial/Economic Analysis
BE202 Industry and Government
BE203 Industrial Relations
BE204 Economic Evaluation
BE205 Economic Techniques for Business
BE206 Public Finance
BE208 Economic Research
BE303 Monetary Economics
BE304 International Economics
BE305 Urban Economics
BE306 Economics of Social Issues

Computing
BT101 Information Technology (2 units)
BT200 Business Computing
BT201 Information Analysis
BT202 Commercial Programming
BT203 Data Base Management Systems
BT204 Data Communications
BT205 Knowledge Based Systems
BT211 Systems Development Strategies
BT301 Systems Software
BT303 Industrial Project (2 units)
BT304 Programming and Hardware

Law
BL101 Legal Environment of Business
BL201 Contract Law
BL202 Law of Business Organisations
BL203 Marketing and the Law
BL204 Computers and the Law
BL205 Retailing and the Law
BL301 Advanced Company Law
BL302 International Marketing and the Law
BL303 Employment Law
BL304 Finance and Credit Law

Marketing
BM101 The Marketing Concept
BM201 Marketing Research
BM202 Marketing Appreciation
BM203 Market Behaviour
BM204 Marketing Strategy
BM301 Product Research
BM302 Business Cases
BM303 Marketing Services
BM304 Advanced Marketing Research
BM305 Retail Marketing
BM306 Advertising and Media Planning
BM308 International Business
BM309 Product Management
BM310 Strategic Marketing Cases
BM311 Sales Management

Human Resource Management
BH101 Organisational Behaviour 1
BH201 Organisational Behaviour 2
BH301 Organisational Behaviour 3
BH302 Human Resource Management

Quantitative Analysis
SM147 Quantitative Analysis A
SM148 Quantitative Analysis B

Business
BQ201 Quantitative Management Techniques
BQ202 Business Forecasting
BQ203 Computer Programming and Packages
BQ204 Marketing Data Management
BQ301 Simulation
BQ302 Quantitative Cases

Maximum units available from one discipline

Each discipline is identified by the code prefix. The faculty has a rule that no more than 11 units may be studied from the one discipline. This includes all the mandatory and elective units with the same prefix.

Students planning to study several electives from the same discipline should check with the Assistant Registrar.

Prequisites

Students must have passed the listed prerequisite if it is shown without qualification e.g.

BC202 Cost Accounting
Prerequisite, BC103 Accounting 1C

Where a prerequisite is listed as follows:
BL304 Finance and Credit Law
Prerequisite, students enrolled in this unit will be expected to have passed BL201 Contract Law, this means that all students taking BL304 must have studied BL201 in order to understand the concepts involved. Some students who did not pass the prerequisite but achieved a reasonable level of understanding may be given permission to enrol for the higher-level unit.

Preclusions

BC202 Cost Accounting and BC203 Management Accounting and BC204/205 Accounting for Marketing 1 and 2, are mutually exclusive and students are precluded from counting both in a course.

Only students completing an Economics—Marketing or Marketing major may enrol for BC204 and BC205.
Professional Institutes
To be eligible for membership of the various professional institutes, students must complete the following requirements:

**Australian Computer Society**
Computing stream graduates are eligible for membership of this society. Other graduates may qualify for membership by choosing appropriate computing electives.

**Australian Society of Accountants**
**Accounting stream**
Provisional membership — the completion of the degree requirements satisfy the educational requirements for Provisional Membership. Advancement to higher levels (Associate, CPA, etc.) is dependent upon completion of further study and experience requirements as specified by the ASA.

**Computing stream**
Computing stream students satisfy the educational requirements for provisional membership by taking the mandatory Computing units plus the mandatory Accounting units (and BE201, QMT — which is a prerequisite unit).

Advancement to higher levels (Associate, CPA, etc.) is dependent upon completion of further study and experience requirements as specified by the ASA.

**Overseas students**
Graduates from tertiary institutions in Australia, if nationals of Hong Kong, Malaysia and Singapore, will be able to gain membership of their National Accounting body after satisfying local requirements and prerequisites.

**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 Provisional membership of the Australian Society of Accountants above.

**Economics—Marketing stream**
Mandatory units plus
- Corporate Accounting
- Cost Accounting
- Management Accounting
- Contract Law
- Law of Business Organisations
- Financial Management
- Accounting Theory
- Auditing
- Taxation

**Institute of Chartered Secretaries and Administrators**
**Students who proceed to the Graduate Diploma in Accounting**
in order to become members of the Institute of Chartered Secretaries and Administrators (ACIS), are advised that a prerequisite for entry to the ACIS is completion of second-year economics units BE201 Managerial Economic Analysis and BE202 Industry and Government.

**Australian Institute of Bankers**
The Australian Institute of Bankers accepts the Bachelor of Business degree as an approved degree for the purpose of Affiliate Membership of the Institute. Affiliate membership is a transitional level leading to Senior Associate status. An Affiliate member is required to undertake specialist banking subjects to complete the educational requirements for Senior Associate status.

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

**Exemptions**
Exemptions may be granted for tertiary subjects studied at another institution; the maximum is twelve units. See the Bachelor of Business, degree course structure.

Applications should be made at the time of enrolment on a form available from the Student Administration Office accompanied by a photostat copy of results achieved in any previous tertiary studies. Students must complete the Application for Exemptions Form and lodge it with the Assistant Registrar (Business).

**Notice-boards**
Information for the benefit of all students is displayed on the notice-boards on level 2 of the Business and Arts (BA) Building and it is advisable to check these from time to time. Other assistance is available at the General Office of the Faculty of Business on level 9 of the BA Building.

**Textbooks**
Unless otherwise specified 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.

**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 (2) 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) A student representative selected by the Chair from the panel of student members on Faculty Board, provided that, if the student being reviewed so wishes, no student representative shall sit on the Review Committee for that interview.

(b) Procedure
(i) Students will be required to submit in writing full details of their reasons for poor 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 two units per semester.

Over-enrolments
Students may not enrol for more than 4 (full-timers) or 2 (part-timers) units per semester 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 2 extra units must apply in writing to the Dean for permission.

Withdrawal from units
Students are required to withdraw from a unit by a date specified for each semester (nine weeks prior to the commencement of the examination periods — for 1989, Friday 14 April and Friday 1 September), otherwise the result in that unit will be shown as a fail. Provided a student withdraws in the correct manner and in due time from a unit, the unit withdrawn will not be counted as a fail or used in the assessment of progress. However, attention is drawn to 6(a) and (b), outlining the faculty expectations as to a standard enrolment per semester.

Transfer between part-time and full-time study
Subject to the fulfilment of any conditions set by the Student Review Committee, a student can transfer between full- and part-time study at normal re-enrolment times without special request.

Admission to examinations
Enrolment and satisfactory completion of prescribed assignment work, are normal prerequisites for admission to any final examination.

Withdrawal from study
A student who wishes to withdraw from study or to change a unit at any time during the year, should discuss this first with the Assistant Registrar (Business) or Administrative Officer. All withdrawals must be notified on an Amendment to Enrolment form.

Requests to complete subjects away from Swinburne
These should be lodged with the Assistant Registrar (Business) before enrolling in those units at another institution.

General
(a) Part-time students
Part-time students will derive considerable benefit from being able to attend daytime classes for at least one unit per semester; they are encouraged to approach their employers for day release for this purpose.
(b) Full-time students
Full-time students have about four hours each week for tuition in each subject.
Faculty of Business Scholarships

T.W. Higgins Scholarship
This scholarship will be awarded to a needy full-time student in the Faculty of Business. Applications close in April.

The Bourne Griffiths/Swinburne Entrepreneurial Accountant Scholarship
Awarded on interview to a student entering final year accounting.

The Aspect Computing Scholarship
Awarded on interview to a second year computing student.

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 1 and Accounting Theory.

- The Bill Hibble, Arthur Andersen and Co. Prize
  The best performance in a data processing programming unit.

- The Australian Computer Society Prize
  The best student in final year computing practical work.

- The Australian Society of 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 BP Australia Prize
  The best student in Corporate Accounting.

- The William Buck and Co. Prize
  The best student in the unit Business Computing.

- The Butterworths Books Prizes
  The top students in Organisations and Management, The Marketing Concept, Legal Environment of Business, Economics 1, Information Technology and Quantitative Analysis.

- The Chandler and Macleod Consultants Prize
  The best performance in Administration of Human Resources.

- The Coopers and Lybrand Prize
  The best student in Cost Accounting and Management Accounting.

- 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 Peat Marwick Hungerfords Prize
  The best student with a major study in economics.

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

- The Logica Prize
  The best performance in Quantitative Management Techniques.

- The Mobil Oil Aust Ltd Prize
  The best written presentation in Marketing Management 2.

- The National Mutual Prize
  The best overall student completing the Graduate Diploma in Organisational Behaviour.

- The National Mutual Prize
  The best student in the subject The Organisation.

- The Price Waterhouse Prize
  The best student in Financial Accounting.

- The Road Construction Authority Prize
  The best student in Management and Leadership in Organisations.

- Swinburne Graduate Society of Business Administration Prize
  Best overall student in the Graduate Diploma in Business Administration.

- The Touche Ross and Co. Auditing Prize
  The best performance in degree Auditing.

- The Touche Ross and Co. Taxation Prize
  The student with the best aggregate result in Taxation and Advanced Taxation.

- The Touche Ross and Co. Business/Japanese Prize
  The best second year student in the Business/Japanese double degree.

- The following prize is presented by Swinburne Institute of Technology:
  The T.W. 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 related fields which have assumed a position of greater importance for accounting professionals.

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.

Revised 1987 course structure

The course consists of seven units, five of which are mandatory. Two of the mandatory units are each the equivalent of one-and-a-half normal units, such that the course has a work load equivalent to an eight-unit course structure.

The mandatory units are:

- BC550 Current Issues in Accounting* (1.5 units)
- BC551 Taxation* (1.5 units)
- BC553 Auditing and EDP*
- BG601 Financial Modelling
- BC603 Investment Analysis

* These three units are the Swinburne equivalent of the Institute of Chartered Accountants' Professional Year technical modules of Accounting, Taxation and Audit and EDP.

The two elective units are to be chosen from:

- BL501 Secretarial Practice and Procedure
- BH503 Personnel and General Administration
- BC611 Advanced Taxation

Exemptions

Students will be granted exemptions for a maximum of two Professional Year units previously passed.

Methods of study and assessment

With respect to the units equivalent to the Professional Year modules, candidates will complete the same module case studies, 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.

With respect to other units, a variety of methods of instruction is employed, ranging from structured seminars, hands-on computing work and syndicate presentations. Assessment varies accordingly.

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.

Professional Institutes

Institute of Chartered Accountants in Australia

Upon completion of the units run in conjunction with the Institute of Chartered Accountants candidates will have satisfied the technical module requirements of the Institute's Professional Year.

Institute of Chartered Secretaries and Administrators

Candidates seeking admission to the Institute of Chartered Secretaries and Administrators must complete the elective units BL501 Secretarial Practice and Procedures and BH503 Personnel and General Administration and otherwise satisfy the Institute’s entrance requirements.

A083 Graduate Diploma in Business Administration

This program is offered for qualified executives or potential executives, who have not undertaken significant studies in the administration/management fields, but in the course of their employment, feel the need for a broader knowledge of this area.

The program gives candidates:

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 of small and medium-sized organisations both private and government, 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**
- BM501 Introduction to Financial Management
- BE501 Economics
- BH501 Administrative/Organisational Systems
- BM601 Marketing Management 1
- BO601 Quantitative Methods

**Second year**
- BC604 Financial Structures and Policy
- BE601 Industrial Relations (½ unit)
- BH601 Administrative Human Resources
- BM601 Marketing Management 2
- BM603 Business Policy

The program is an intensive two-year part-time course. Candidates should complete at least four first-year units and in some cases (depending on background studies) be required to complete five. All second-year units are compulsory, except that students who have successfully completed BE602 Australian Industrial Relations will be exempted from BE601 Industrial Relations. In the first year, candidates are introduced to current thought in the area of marketing, economics, finance and organisation theory. Second year covers the important areas of marketing strategy, financial management, human relations, industrial relations and organisational change. These aspects are viewed in the overall light of corporate strategy (business policy). Thus, the emphasis in the second year is on the effective application of knowledge acquired in the first year. The unit BE601 Industrial Relations is a half-unit and will be incorporated in the Wednesday evening seminar program.

Because of the integrated nature of the course, students are required to complete all first-year studies before attempting second year.

**Preclusions**
Depending on previous training, candidates may be precluded from some of the first-year units and assigned alternative units in their place.

**Alternative units**
Alternative units, chosen after consultation with the course convener will be available in the evening for those students who are precluded from more than one first-year 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 seminar/syndicate sessions will be scheduled for one evening (normally Wednesday) between 6.00pm and 9.00pm. The units listed as alternative units are offered on different evenings.

**A088 Graduate Diploma in Business Forecasting**

**Course objectives**
The Graduate Diploma in Business 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 where 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 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE504</td>
<td>BM602</td>
</tr>
<tr>
<td>The Nature and Characteristics of Markets</td>
<td>Selecting and Influencing Markets</td>
</tr>
<tr>
<td>BG502</td>
<td>BM603</td>
</tr>
<tr>
<td>Database Sources and Methods</td>
<td>Business Forecasting 1</td>
</tr>
</tbody>
</table>

**Second year**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BG602</td>
<td>BC612</td>
</tr>
<tr>
<td>Business Forecasting 2</td>
<td>Forecasting and the Planning Process</td>
</tr>
<tr>
<td>BM604</td>
<td></td>
</tr>
<tr>
<td>Data Collection Methods and Applications</td>
<td></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. Using common business software packages
  2. Computer programming
  3. Structured analysis
  4. Developing data base management systems
  5. Setting up data communication links
  6. Using expert systems shells

- Conceptual knowledge about:
  1. Evaluating appropriate systems development tools
  2. Choosing appropriate methods of systems development and appropriate processing facilities
  3. Understanding problems associated with implementing computer and office automation systems
  4. The applicability of knowledge based systems for various business problems

Employment opportunities
Employment opportunities include:
- Programmers in user departments
- Information Centre support analysts
- User Area support analysts, e.g., Systems Accountants
- E.D.P. Auditors both internal and external
- Marketing and support representatives with hardware and software suppliers
- Education and training officers either within industry or in schools

Course structure
Taken on a part-time basis, the course will consist of eight (8) semester units taken as two (2) units in each of four semesters, as follows:

Year 1
- BT504 Introduction to Information Technology
- BT505 Software for End Users
- BT506 Information Analysis
- BT507 Computer Programming

Year 2
- BT601 Data Base Management Strategies
- BT602 Information Technology and Automation
- BT603 Knowledge Based Systems
- BT604 Management Information Systems

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.

A086 Graduate Diploma in Corporate Finance

Course objectives
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 corporate finance.
- to integrate the associated disciplines encompassed by the corporate finance function (e.g., economics, law, corporate strategy, quantitative methods) with the corporate finance core of the course.
- to improve significantly, specific decision-making and management skills by emphasising the practical application of theoretical concepts developed during the course.

Entrance requirements
The course is intended for graduates and diplomates who have sufficient professional experience to benefit from it. Entrance is also available to a restricted number of mature-age non-graduates or diplomates whose position or experience is sufficient indication of their capacity to complete the course.

Course structure
The course is organised into an eight-unit structure to be completed over two years of part-time study at the rate of two units per semester. In order to continue in the program, candidates must maintain a satisfactory standard of progress.

Consistent with the course objectives of a broad coverage and the integration of related disciplines, there are no elective units available. In the unlikely event that they have recently passed an equivalent unit elsewhere. In such instances candidates may select an elective unit after consultation with appropriate staff members.

Standards of progress
The following should be read in conjunction with 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.’
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 computing technology and use sound reasoning to determine the applicability of these developments.
3. Fully appreciate the effects of various proposed solutions.

Course structure

The course is in two parts, mandatory units and elective units. The compulsory part of the course is concentrated on the 'systems and management' side of data processing. The range of the investigation, analysis, design and development of management systems will form a major part of the course. Project and operation management is covered in depth to ensure that students have a thorough understanding of how systems can be developed and operated efficiently. The course stresses commercial applications with particular emphasis on the involvement of the eventual users of these systems in the process of their development.

The program is made up of eight units and candidates are required to take these from two groups as follows:

Group 1

The following six units are compulsory:
- BT501 Systems Analysis and Design (2 units)
- BT502 Current Issues in Systems Design
- BH501 Systems Project Management
- BT503 Information Systems Management
- BT601 Management Systems

Group 2

Students must take an approved pair of units from this section:
- EH604 Management, Organisation and People
- BM602 Strategic Management
- or
- BC503 Introduction to Financial Management
- BC604 Financial Structures and Policy
- or
- BC501 Current Issues in Accounting
- BC502 Profit Planning and Control

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 six three-hour seminars in 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. Data processing personnel progressing past the programmer level into systems analysis and project management.
2. Systems analysis, consultants and some user department representatives who have had considerable experience in the development of management systems.

Entrance requirements

Entry is open to graduates who have a degree, diploma or equivalent from a recognised university or other institution. Graduates from any discipline may apply but applicants are expected to have work experience in a data processing environment. Those who lack the required entrance experience may be admitted to the course via bridging studies.

The course is available also to a number of carefully selected candidates without tertiary qualifications. These comprise only a small percentage of total enrolments. Applicants are interviewed prior to acceptance into the course to assess their suitability and to determine from which units they may be precluded.

A085 Graduate Diploma in Organisation Behaviour

This course is for managers who wish to extend their knowledge of human behaviour within organisations. Most students in this course aspire to, or occupy middle and senior management positions in large or small organisations.

The object of the course is to give candidates:

1. A knowledge of the human factors that affect the task of management, together with a study of available methods for affecting and 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 organisational theory.

The second year deals with the management of conflict and 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 the second year.

First year

- AB641 Psychology and Interpersonal Skills
- BH650 The Organisation

Both these units run for the whole academic year and have a total class time commitment of 5 hours per week.

Second year

- BH602 Managing Conflict and Change in Organisations
- BH603 Management and Leadership in Organisations

Each unit runs for 4 hours per week. The first is conducted in first semester only and the second in second semester.

Faculty of Business
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
Sessions for both first year and second year units are organised on a block system. Both first year units are offered on Wednesday morning 8.00am to 1.00pm and second year sessions on Friday 8.00am to 12.30pm. 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.

Lecturers
The teaching program is conducted by staff from the faculties of both Business and Arts.

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 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
Year One and Two
Graduate Diploma Units
BH701 Career and Life Planning
BH702 Power and Politics in Organisations
BH703 Research in Organisation Behaviour
BH704 Current Issues in Organisation Behaviour

Year Three
Career and Life Planning
BH801 Organisation Research Project
Minor Thesis (under supervision)

A092 Master of Business (Information Technology)
The Master of Business (Information Technology) involves 4 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 those students who aspire to management level positions or in management consulting with software houses or management service organisations.

During the course, students will develop:
- the high level capacity and independent analytical skills necessary to assess the impact of Information Technology on an organisation, the people in it and its implications for commerce, industry and government;
- the capacity to understand the Information Technology needs of an organisation, and the ability to manage its selection, introduction and operation within the organisation;
- an understanding of the technology of information processing and its application in technical or management tasks.
In general, graduates will have enhanced skills in developing and applying advanced Information Technology systems in a wide range of industrial, commercial and public sector applications.

Course structure
The Graduate Diploma in Management Systems forms the first two years of the Master of Business (Info. Tech.). Candidates in that course wishing to proceed to the Master of Business (Info. Tech.) should choose the elective pair: BH404 Management/Organisation and People BM602 Strategic Management

First Year and Second Years
Graduate Diploma in Management Systems units.

Third Year (Masters Course)
Semester 1
BC701 Business Forecasting
BT702 Knowledge Based Systems
Semester 2
BC702 Computer Aided Management
BH705 Management of Strategic Change

Fourth Year
BT801 Project and Thesis

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 Management Systems studies.

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 Management Systems studies.

Business subject details

BC101 Accounting 1A
Prerequisite, nil

The unit is divided into three segments. A basic introduction to accounting concepts, the processing of accounting data and the preparation of financial reports.

The first segment covers the accounting function basic terminology, the accounting equation, and the preparation of a balance sheet and profit and loss statement from a simple ledger system. The second segment introduces the accounting system as a means of providing information for management control and decision-making, and to provide data for the preparation of final reports. The two systems to be looked at are the cashbook and accounts receivable modules of a micro computer accounting system. Each system is looked at as a stand-alone module and they are then integrated to provide an overall accounting system.

The third segment of the unit includes balance day adjustments and the preparation of final reports. This segment will use the general ledger module of the micro computer system to record the transactions.

Textbook

References

BC102 Accounting 1B
Prerequisite, a result of C+ or better in Year 12 Accounting or equivalent experience

The object is to provide a supplementary unit in accounting methods and techniques for students with some prior knowledge of bookkeeping or accounting. The course content is as for BC101 — see above.

Textbook

BC103 Accounting 1C
Prerequisites, 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: revenues and expenses; accounts receivable; cost of sales and inventory valuation; assets and depreciation; liabilities and leases; accounting for shareholdings equity; performance evaluation; analysis and interpretation and funds statements and cash flow statements.

Textbook

References
Barton, A.D. The Anatomy of Accounting. 3rd edn, St. Lucia, University of Queensland Press, 1984

BE101 Economics 1

The main objective of this subject is to teach students how economists analyse economic problems within the framework of the Australian economic and business environment. The course commences by examining the role of the contemporary market system in allocating resources and distributing output. It then examines the firm’s production, costs and revenues in a variety of market situations. This is followed by a detailed analysis of the determinants of the level and rate of change of national output, employment, prices and the rate of exchange. Attention is then focused on the role of fiscal, monetary, prices and incomes, balance of payments and exchange rate policies in achieving economic stabilisation.

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 controlling;
— to develop students’ abilities to apply organisation theory to organisations and job situations;
— to help students better appreciate the context of work and their own roles as organisation members.

In addition to the theoretical material covered in lectures, tutorial exercises are designed to enable students to apply concepts either to situations within their own experience or to relevant business situations. The importance of people in organisations is stressed in these exercises.
References


Textbook

McCarthy, E.J. and Perreault, Jnr. H.D. Learning Aid for Use with Basic Marketing, 9th edn, Illinois : Irwin, USA

References

Peter, T. and Austin, N. A Passion for Excellence, London : Collins, 1985
Other supporting material will be prescribed when appropriate, in lectures. It is expected that extensive use will be made of the large collection of relevant material in the library — both texts and current journals.

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.

At the end of the unit, the successful student will have acquired an understanding of the role of the marketing function. This understanding includes the role marketing plays in the business environment. Particular emphasis is given to the role marketing plays in the formulation of management techniques and its interaction with the management stream.

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 from a variety of perspectives. Related issues of concern to not-for-profit organisations are also explored.

Particular emphasis is given to the role marketing plays in the organisation’s process of 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 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.

Teaching methods

Thirteen two-hour tutorials and twenty-six one-hour lectures are offered, i.e. 1 x 2-hour tutorial per week and 2 x 1-hour lectures per one semester.

Textbook

McCarthy, E.J. and Perreault, Jnr. H.D. Learning Aid for Use with Basic Marketing, 9th edn, Illinois : Irwin, USA

References

Peter, T. and Austin, N. A Passion for Excellence, London : Collins, 1985
Other supporting material will be prescribed when appropriate, in lectures. It is expected that extensive use will be made of the large collection of relevant material in the library — both texts and current journals.

BT101 Information Technology

Information Technology is an integral component of business today. It is essential for business practitioners to be competent in this area.

This course has three general objectives:

1. To give all students a broad understanding of information technology in the business environment.
2. To provide a firm basis as a prerequisite for second and third year DP units, taken as part of the DP degree or as electives.
3. To provide the students with skills in using computers that they can use in other common year units and in second and third year units of any discipline.

The course will cover:

— Computers and Applications;
— Spreadsheets using LOTUS1-2-3;
— Database using DBase;
— Programming with DBase;
— Large Systems and Communications;
— Systems Development.

The course is designed to be a blend of theory and practice. Students will write programs, build simple applications on the computer, and use computer packages to solve business problems.

Textbook

To be advised.

References

Most introductory books on computers in business.

SM147 Quantitative Analysis A

SM148 Quantitative Analysis B

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 four 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 four 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.

Topics covered will include the following: language and notation; functional relationships; differential calculus including determination of maxima and minima, partial differentiation; matrix algebra; introductory mathematics of finance; demographic methods, 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, BC100 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 and theory of corporate accounting; by reference to actual situations where
- to develop students' independent research skills by the assignment of research areas within the course;
- to develop student awareness of the interrelationship between corporate accounting and corporate law.

The unit covers the following areas:
- share capital and other forms of finance;
- business combinations, including amalgamations, mergers and takeovers;
- group accounting — particular emphasis is 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
Australian National Companies and Securities Legislation, C.C.H. Australian or Government Printer
Australian Society of Accountants: Members' Handbook
Leo, K.J. and Hoggett, J.R. Company Accounting in Australia. 2nd edn, Sydney: Wiley, 1988

References
Cliff, R. Corporate Accounting in Australia. 2nd edn, Sved., Prentice-Hall of Australia, 1985

BC202 Cost Accounting
Prerequisite, BC100 Accounting 1C

Cost Accounting is a second-year semester length unit which is mandatory for students taking the accounting stream. The unit is designed to introduce students to the features of financial information systems that are used for the purpose of cost measurement both for external compliance reporting and internal managerial reporting and decision-making in manufacturing and service businesses. Within this context students will study the application of absorption, variable, job and process costing systems and the different concepts of cost that may be used for measuring and reporting costs.

Textbooks

BC203 Management Accounting
Prerequisite, BC202 Cost Accounting

In this unit the material in BS202 Cost Accounting is built on with the object of developing both the student's understanding of the role of the management accountant within the management process of an organisation, and to acquire and apply various techniques and concepts designed to prepare and present relevant accounting information to management. Among topics covered are: standard costing; budgeting including computerised financial modelling; budget variance analysis and capital budgeting; evaluation of segment performance and transfer pricing.

Textbooks

References
Shillinglaw, G. Managerial Cost Accounting. 5th edn, Homewood, Ill., Irwin, 1982

BC204 Accounting for Marketing 1
Prerequisite, BC109 Accounting 1C

This unit is a second-year semester length unit which is mandatory for students taking the Marketing Stream who do not wish to obtain professional qualifications in Accounting. The syllabus and texts are the same as for BC202 Cost Accounting.

BC205 Accounting for Marketing 2
Prerequisite, BC204 Accounting for Marketing 1

The object in this unit is to provide students in the economics—marketing stream with an analytical framework and methodology for evaluating marketing decisions.

Working capital management, techniques for optimising the investment in receivables and inventories.

Impact of marketing-mix decisions on working capital.

Short-run optimisation decisions — products mix, make or buy — linear programming applications.

Capital expenditure decisions in a marketing context.

Financial modelling and its application to marketing-mix decisions.

Pricing decisions — role of costs and funds invested.

The analysis and reporting of marketing performance, segment reporting, problems posed by joint cost.

Transfer pricing between manufacturing and marketing divisions.

Textbook
Shillinglaw, G. Managerial Cost Accounting. 5th edn, Homewood, Illinois, Irwin, 1982

References

BE201 Managerial Economic Analysis
Prerequisite, BE101 Economics 1

Students who are contemplating major studies in economics should include this unit and BE202 Industry and Government in their courses.

The unit shows how economic analysis can be used to assist business decision-making. Empirical studies are used as a means of illustration. It deals with the following topics: demand analysis (including empirical demand studies and forecasting); cost estimation and forecasting; profit and alternative goals of firms; pricing decisions of firms and public utilities and an introduction to the economics of advertising and promotional decisions.
References
Davies, J.R., and Hughes, S. Managerial Economics. Plym., U.K., MacDonald and Evans, 1979

BE201 Economics
Prerequisite: BE101 Economics
This unit aims 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 interpretation of information rather than underlying mathematical theory.
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 interpretation of information rather than underlying mathematical theory.
Course outline
Statistical computing
Collection and sources of data
Data analysis
- exploratory data analysis
- estimation
- experimental design
- econometric modelling and forecasting
- simple linear regression models
- multiple regression and economic modelling
Textbook

BH201 Organisational Behaviour 1
Prerequisite, BH101 Organisations and Management
This unit builds on and derives from the systems theory of organisations introduced in first year. It focuses on the people or psychosocial sub-system. The major aim of the unit is to give students knowledge about the concepts and theories that form the basic building blocks of the subject and through experiential learning methods to be able to transfer that learning to organisational situations. Students gain insights into the behaviour of people as individuals and as group members within the organisational context and begin to learn about themselves.
Topics include: communication, motivation, learning, problem-solving, perception, personality, stress management, leadership, managing conflict, decision-making and group dynamics, managing change.
Textbook

BH202 Organisation Design
Prerequisite, BS132 Administrative Studies 1 or BH101 Organisations and Management
This unit builds on the conceptual frameworks introduced in first year. It deals with the design of organisations, the development of organisational structures and the effectiveness of organisational structures.
Objectives
- the design of jobs and work structures;
- the development of a total system and the design choices that can be made and the considerations relevant to these choices; to understand the main problems that arise in designing structures and jobs, and to develop skills in the analysis of problems and the design of strategies.
- the nature of industrial conflict;
- the manifestation of industrial conflict;
- the development of Australia's Conciliation and Arbitration Commission;
- the Award Making process;
- Employer Associations;
- Trade Unions;
- the National Wage;
- worker participation and industrial democracy.

Reference

BE204 Economic Evaluation
Prerequisite: BE101 Economics
This unit provides students with a sound grasp of basic concepts and techniques of economic evaluation for application in areas such as: a review of the effectiveness of budgetary programs; evaluation of major construction projects and capital equipment acquisition; and cost-effectiveness studies. Emphasis in the unit is on the development of interpretative skills, through awareness and knowledge of important factors entering into the evaluation process and an appreciation of the elements of uncertain and imprecise information.
Textbook
BL201 Contract Law
Prequisite: BL101 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 businesses. Particular attention is also given to the legal repercussions of concluding an agreement (including the impact of statute) and breaches of obligations undertaken.

Textbooks
Latimer, P. Australian Business Law. 1988 edn, CCH Australia Ltd

References
Khoury, D. and Yamouni, Y.S. Understanding Contract Law. Syd.: Butterworths, 1985
Tarr, A.A. Australian Insurance Law. Law Book Co., 1987

Acts of Parliament
Goods Act 1958 (Victoria)
Trade Practices Act 1974 (Commonwealth)
Fair Trading Act 1985 (Victoria)

BL202 Law of Business Organisations
Prequisite: BL101 Legal Environment of Business
This unit is compulsory for students in the accounting stream; optional for others
The intention here is to undertake a comparative analysis of the form of business organisations.

Textbooks
Companys (Vic) Code 1981
Law and Companies in Australia. 2nd edn, Syd., CCH Australia Ltd, 1986
Lipton, P. and Herzberg, A. Understanding Company Law. 3rd edn, Syd., Law Book Co., 1989

References
Afterman, A.B. and Baxt, R. Cases and Materials on Corporations and Associations. 9th edn, Syd., Butterworths, 1986

BL203 Marketing and the Law
Prequisite: BL101 Legal Environment of Business
The unit involves an examination of the legal controls imposed on the manufacturing, labelling, packaging, distribution, promotion, pricing, and retailing of goods and (where applicable) services.

Topics involved in this study are:
- the inability of manufacturers and retailers of goods at common law and under statute; proprietary interests in products; packaging and labelling of goods; advertising and promotion of goods and services; restrictive trade practices.

Textbooks
Law and Companies in Australia. 2nd edn, Syd., CCH Australia Ltd, 1983

BL204 Computers and the Law
Prequisite: BL101 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, manufacture, acquisition and use.
2. The law in relation to computer abuse.

Course outline
To meet objective (1) above, students will examine the application to computer technology of existing law and practice, pertaining to:
- development and manufacture
- acquisition
- use

BL205 Retailing and the Law
Prequisite: BL101 Legal Environment of Business

This unit aims to provide a practical knowledge and awareness of the laws which impinge upon the function of retailing, concentrating upon those areas affecting the day-to-day activities of the business.

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.
Marketing Appreciation

Prerequisite, BM101: The Marketing Concept

This subject has been designed for students in the accounting and data processing stream who wish to take only one unit of marketing as an elective post common year. This unit is not available to economics-marketing stream students. 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 environment and an overview of the total business function, in particular with respect to planning and decision-making;
- To enable students to apply their knowledge of accounting techniques, qualitative and quantitative methods to business decisions;
- To develop the practical job role of a marketing executive by introducing students to business situations. To achieve this, emphasis is on case study analysis and management games.

Marketing appreciation deals with the fundamentals of marketing and consumer behaviour. The course provides for a broad understanding of 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 and promotion decisions.

Methods of instruction

In a course of this nature active participation is essential. The theoretical aspects of marketing are supplemented by practical problems through the use of case studies and fieldwork exercises.

References


BM205 Market Behaviour

Prerequisite, BM101: The Marketing Concept

Market Behaviour is a compulsory subject in the economics-marketing stream of the Bachelor of Business or other relevant degree streams.

Unit objective

This subject aims to further develop marketing concepts and show students the importance of these concepts to the marketing planning process. Students should become highly conscious of pressures and opportunities which organisations need to respond to with and take advantage of in a highly competitive environment. Good marketers also need to have a thorough understanding of markets in general and consumers in particular.

The unit therefore endeavours to give students an understanding of both physical and behavioural aspects of consumers.

Method of instruction

In a course of this nature active participation is essential. The theoretical aspects of marketing are supplemented by practical problems through the use of case studies and fieldwork exercises.

Textbooks


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 BM205;
- To enhance students' capacity to critically analyse business situations from a marketing viewpoint;
- To further build student's creative and communications 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

Introduction to product portfolios.
Retailing and pricing.
International marketing.
Advertising and sales promotion.
Distribution.
Marketing planning, controlling marketing programs.
Industrial marketing.
Case study methods.

Textbook


Other supporting material will be prescribed when appropriate. It is expected that extensive use will be made of library resources.
Faculty of Business

BQ201 Quantitative Management Techniques
Prerequisites, SM147/148 Quantitative Analysis or equivalent

The unit provides:
- an awareness of a 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 and the determination of transfer prices in a decentralised organisation;
- 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 including an introduction to financial modelling and its applications; development of models using FORESIGHT; and elementary decision theory.

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.

Textbook

References
To be advised during lectures.

BQ202 Business Forecasting

The purpose of this unit is to give students an understanding of how business forecasting methods, their general areas of application and criteria for selection of procedures, including cost-benefit analysis; extrapolation methods; time series analysis for both short and long term forecasting. Analysis of trend, seasonal and cyclical factors. Identification of appropriate areas for application; causal models; the use of linear regression models. The appropriate areas of application and the need for cost-benefit appraisal before undertaking; the nature and use of input/output analysis. Construction of input/output tables and solution of system. Relationship between the individual/firm and national statistics; use of lead/lag indicators; qualitative procedures — including the role of market research, delphi methods, consensus, etc. in predicting future behaviour and likely scenarios.

Textbook

References
A detailed list of texts, journal articles and other reference material will be made available during the course.

BQ203 Computer Programming and Packages
Prerequisite, BT101 Information Technology

The purpose of this unit is to give students an understanding of how computers may be used in the solution of business problems. The emphasis is on the use of microcomputers. Application areas are directed towards topics covered in other degree units.

The unit has both a programming and a packages component.

Programming
This component is based on using one of the leading microcomputer data base systems, dBase III Plus and DATAflex have been used in the past.

Coverage includes:
- analysis techniques;
- structured programming techniques;
- file design and handling procedures;
- screen design and handling;
- report design;
- menu operated systems.

Packages
A number of state of the art microcomputer packages are introduced. Students then use, test and evaluate the packages. The range of software used in the past includes graphics, spreadsheets, word processing, desktop publishing and various accessory packages.

Students should then be able to:
- evaluate capabilities of packages and select between alternatives available;
- assess when the use of a package is applicable.

References
The majority of reference material consists of computer manuals, user guides and current journal articles.

BT200 Business Computing
Prerequisite, BT101 Information Technology

This unit is specifically designed for accounting and economics marketing students who want further knowledge of computer applications but who will not be taking other units from the data processing area.

The unit aims to enable students to understand the development process for business systems and to apply techniques to the development of end-user systems. The emphasis moves away from the BT101 Information Technology aim of understanding the technology, to an identification and evaluation of the technological solutions which may be applied to business problems. The unit also aims to enhance skills in the verbal and written presentation of system studies. The unit is structured for a study of business computing from the user’s point of view rather than from the Information Systems Department’s.

Hands-on exercises are used to build upon the practical skills gained in first year, with emphasis on the utilisation and evaluation of business packages. Skills previously developed with business software packages will be enhanced and extended.

It is important that students note that this unit does not satisfy the prerequisite requirements of third-year data processing units.

Textbook

References
A detailed reading guide will be issued for each topic and will include articles from industry journals and newspapers. Also included will be Hinks, J.O. Accounting Information Systems, 2nd edn, St. Paul, West, 1986


BT201 Information Analysis
Prerequisite, BT101 Information Technology

In some cases, BT101 Introduction to Data Processing will be acceptable.

Information is the lifeblood of any organisation and data is the foundation upon which information systems are constructed. Without appropriate and careful analysis of information needs, systems will not meet their requirements.

It is now widely recognised that the active involvement of corporate management and users is essential to a successful information analysis effort.

This unit aims to provide all business students with the skills necessary to perform information analysis and data modelling for detailed application as well as at the corporate level.
Students will 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. Prepare a logical system model for a small application, to be used as a structured design specification.
2. Develop a working prototype data base in an SQL-type system for a small application.
3. Analyse corporate information requirements and hence contribute to the preparation of a Strategic Data Model for an organisation.
4. Select the information analysis approach appropriate to a particular situation from a range of modelling techniques and tools.

Topics covered include the following:
- Systems, data and models;
- Data analysis;
- Detaileddata modelling;
- Structured systems analysis;
- Corporate informationsystems;
- Corporate data modelling.

Textbook
To be advised.

References
Howe, D.R. Data Analysis for Data Base Design. London : Edward Arnold, 1983

BT202 Commercial Programming
Prerequisite: BT101 Information Technology

The main aim of this unit is to give students a thorough understanding of the principles and practice of procedural programming. By the end of the course, students will be able to design, write, test and document attractive well-structured programs in COBOL.

Topics covered include:
- Program structure;
- Data structure;
- Algorithm design;
- Data validation;
- Arrays and tables;
- Sequentialfiles;
- Indexes/files;
- Reporting;
- Testing;

Textbook

References

BT203 Database Management Systems
Prerequisites: 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. Implement appropriate security, integrity and recovery functions in the above.

Topics
This unit builds upon the logical design concepts taught in Information Analysis in covering the implementation, considerations of a number of DBMSs. The students’ acquaintance with SQL from that unit is also built upon in the coverage of Relational Data Bases.

References
Date, C.J. An Introduction to Database Systems. 4th edn, Reading, Mass. : Addison-Wesley, 1985

BT204 Data Communications
Prerequisite: BT201 Information Analysis and BT202 Commercial Programming

Unit objectives
The aim of this unit is to enable students to understand the concepts of Data Communications systems and to apply design techniques to such systems.

At the end of this unit the student will be able to:
1. Design the data communications components of both simple and complex informationsystems.
2. Price a simple teleprocessing system.
3. Understand the requirement for control in data communications systems.
4. Understand the impact of data communications technology on an organisational all levels.
5. Explain how the various office technologies such as VOICE, TEXT, IMAGE and DATA processing enhance the productivity of office and professional workers.

References
Black, U.D. Data Communications, Networks and Distributed Processing. Virginia : Reston, 1983
Telemcon Australia, technical material
Stapler, D.A. Business Data Communications. Menlo Park, California : Benjamin/Cummings, 1986

BT205 Knowledge Based Systems
Prerequisite: BT201 Information Analysis

In this unit, the student develops an understanding of the nature and uses of expert systems in business. The unit involves practical work using a variety of expert system building tools.

Topics covered:
- what expert systems are, how they are developed and who is using them;
- how expert systems differ from conventional software programs, laboratory artificial intelligence programs in particular, and human beings who perform tasks expertly;
- basic concepts of artificial intelligence and knowledge engineering that affect design and implementation;
- knowledgebased design;
- evolutionary process of knowledge acquisition needed to put expertise into a machine;
- principles of rule based systems and induction systems;
- principles of frame based systems;
- comparative strengths and weaknesses of existing knowledge engineering tools for end users and professional developers;
- the pitfalls and opportunities that arise from the important need to evaluate artificial expertise.

Textbooks
To be advised.
Faculty of Business

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 the formulation of auditing standards; audit independence; audit rights, duties and legal liability of auditors; the audit report and the concept of truth and fairness; internal control. The various approaches to the sufficiency of audit evidence; computer audits; internal and management audits and materiality.

References
Fraser, D.J. and Aiken, M.E. Stewart’s System Based Audit. 2nd edn, Englewood Cliffs, N.J., Prentice-Hall, 1981

BC305 Budgeting

Students enrolled for this unit will be expected to have passed BC202 Cost Accounting. BC203 Management Accounting or alternatively be enrolled at present for BC301

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.

The unit draws on the areas of organisational behaviour, operations research, economics, data processing and marketing.

Budgeting is introduced within the context of a corporate planning framework. Both the operating and financial budgets are studied in detail with emphasis on the interrelationships and interdependencies between the various components.

Techniques such as financial modelling, simulation, cost-volume-profit analysis, discounted cash-flow analysis, standard costing and a number of optimisation models are studied in the context of their uses as aids to budgetary planning.

Budgetary planning and control in non-manufacturing and non-profit organisations is covered, with particular reference to zero based and program budgeting.

References

BC306 Taxation

Prerequisite: Students enrolled in this unit are expected to have passed BC201 Corporate Accounting

The unit involves a study of Australian income tax law and practice with particular attention being given to its significance in business decision-making. Topics covered are the nature of assessable income, allowable deductions and the provisions relating to companies, partnerships and individuals. In this unit, the effect of overseas transactions and the role of the Income Tax (International Agreements) Act, is also considered.

References
Australian Federal Tax Reporter. CCH Australia Ltd
Australian Income Tax Assessment Act 1936, 1988 edn, CCH Australia Ltd
1982 Australian Master Tax Guide. CCH Australia Ltd
BC308 Advanced Taxation

Prerequisite: students enrolled in this unit will be expected to have passed BC306 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. 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;
- unincorporated entities;
- S177 A and tax avoidance;
- trusts, beneficiaries and children’s income;
- superannuation funds;
- primary producers;
- future trends and current developments in taxation

References
CHI Australia. Australian Tax Cases. CCH Aust. Ltd.
Income Tax Assessment Act (Latest edn)

BC311 Financial Management 1

Prerequisite: 1 unit will be applied to pass BC301 Corporate Accounting and BC201 Qualitative Management Techniques

The objectives of this unit are:

- to provide students with an understanding of concepts and methods employed in accounting and finance that assist management in decision making, planning, and control;
- to develop the analytical skills of students with respect to the application of analytical techniques to solve problems in financial management.

The course is structured from the point of view of orientating the student to the fundamentals of managing the financial aspects of a business and covers the following specific topics:

- financial statement analysis;
- concepts of valuation;
- evaluation and selection of investment projects;
- cash flow forecasting;
- cost of capital; working capital management;
- sources of finance and financial intermediaries;
- options and futures markets;
- financing methods and impact on capital structure;
- current developments in finance.

Textbook

References
Various current Exposure Drafts and Standards issued by the Australian Accounting Research Foundation and the Accounting Standards Review Board.

BC312 Financial Management 2

Prerequisite: BC311 Financial Management 1

Business financial theory and practice are examined as a means of evaluating the firm’s investment, financing, and dividend decisions. Analytical techniques for a variety of financial decisions are considered and the role of subjective factors in the analysis is stressed.

The principles of capital budgeting are developed and the cost of capital is derived with consideration for the theory of capital structure and the impact of dividends on valuation. Debt policy and leasing are considered in relation to the acquisition of long-term assets and the cost of capital.

The evaluation of the financial decisions of the firm in relation to their effect on its value is considered in a firm risk and overall market portfolio context. Theoretical as well as practical implications of analysing risk in this manner are discussed.

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 is a final year unit designed for students who require additional experience of EDP auditing. It should be most useful for those students planning to enter the profession.

The objective of the unit is to provide students with an understanding of the principles of the audit of Computerised Accounting Information Systems and the application of statistical and analytical techniques in the audit context.

The topics to be studied include:

- the study of the principles of auditing with specific reference to computerised accounting information systems;
- EDP audit techniques;
- statistical sampling techniques;
- analytical review techniques;
- audit related causes for company failure.

The subject makes extensive use of audit oriented software packages, both using the FACOM mainframe computer and the IBM PC computer.

References
Chambers, A.D. Computer Auditing. Syd., CCH Australia Ltd., 1981

Current journals

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:

- an introduction to the welfare economics and public choice paradigms and their implications for public sector revenue and expenditure;
- taxation analysis; criteria for evaluating taxes and tax systems; analysis of personal and corporate income tax with particular emphasis on the tax base, the tax base and tax rates; analysis of present sales tax and excise tax arrangements and alternatives to these; subsidies to commodities and consumers; taxes on the factors of production and schemes to reform the Australian tax system;
- techniques for evaluating government expenditure programs (with particular emphasis on cost-benefit analysis).

References
Brown, C.V. and Jackson, P.M. Public Sector Economics. 2nd edn. Lond., Martin Robinson, 1982

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 and scope of research undertaken in economics, and to increase students' ability to analyse and carry out economic research of a practical nature.

Topics may include: methodology in economic research; data sources; collection, analysis and presentation of data; selected topics in applied economic research (economic model building, cost-benefit analysis, industry studies, aspects of industrial relations).

An integral part of this unit is a major research project. Students are expected to conduct an investigation and write a report on their research which will constitute a major proportion of the assessment in this unit.

References
There is no single prescribed reference for this course, but extensive use is made of current journal articles.

BE303 Monetary Economics
Prerequisite, BE101 Economics 1
Objectives
To provide students with:
- an understanding of the major monetary theories and implications of these theories;
- knowledge of the structure, functioning and development of Australian and international institutions and markets; and
- an appreciation of the nature and workings of the Australian monetary system and changes in this system.

Course outline
Monetary theories — classical, Keynesian, modern quantity, Neo-Keynesian.
Australian and international finance markets — nature and developments.
Australian monetary system and change — nature of change, analysis of implications of change for monetary and financial systems.

Textbook

References
Bruce, R., McKen, B., and Pollard, I. Handbook of Australian Corporate Finance. Sydney, Butterworth, 1986
Marzouk, G. The Flow of Funds and Monetary Policy in Australia. Macquarie University, 1987

BE304 International Economics
Prerequisite, BE101 Economics 1
This unit provides an introduction to international finance and trade with special reference to Australia. Topics covered include: the nature of foreign exchange markets and the determination of exchange rates; balance of payments adjustment mechanisms; international and external policy mixes; an introduction to financial arrangements; historical developments, and vent is, the role of international trade and the determination of trade patterns; trade restrictions; alternative approaches to industry development; Australia's industry assistance policies; current debate; international development issues and economic integration.

References
Industries Assistance Commission, Annual Report. Canberra, AGPS, various years
Lindert, P.H. International Economics. 8th edn. Homewood, Ill., Irwin, 1986

BE305 Urban Economics
Prerequisite, BE101 Economics 1
In this unit an appreciation of the nature and workings of the Australian monetary system and changes in this system.

The objectives of this unit are firstly, to introduce students to the nature and scope of research undertaken in economics, and to increase students' ability to analyse and carry out economic research of a practical nature.

Topics may include: methodology in economic research; data sources; collection, analysis and presentation of data; selected topics in applied economic research (economic model building, cost-benefit analysis, industry studies, aspects of industrial relations).

An integral part of this unit is a major research project. Students are expected to conduct an investigation and write a report on their research which will constitute a major proportion of the assessment in this unit.

References
There is no single prescribed reference for this course, but extensive use is made of current journal articles.

BE306 Economics of Social Issues
Prerequisites, BE201 Managerial/Economic Analysis or BE202 Industry and Government or BE204 Economic Evaluation
The objectives of this unit are firstly, to introduce students to the wide range of contemporary social issues in Australian society. Secondly, this unit offers students an understanding of the economic causes and consequences of major social issues. Because of the contemporary nature of the material, topics may be selected from the following areas: social security, income and wealth distribution, health, crime, education, discrimination, the political economy of the modern corporation, environmental issues.

The unit endeavours to teach students the theory and principles needed to be able to analyse social issues from an economic perspective.

Textbook
Because of the contemporary nature of the unit no textbook is set. Reference will be made to current journals and reports appropriate to specific topics.

BH301 Organisational Behaviour 2
Prerequisite, BH201 Organisational Behaviour 1
The major aim of this unit is to focus on the development of personal resources with the intention of facilitating participants transition to the world of work. It is assumed that in addition to technical skills developed in other subjects of the Business School, students should have the opportunity to develop a sound conceptual framework and skills associated with interpersonal behaviour. Such concepts and skills might typically include: self knowledge and assertiveness, negotiating, handling conflict, ethics and values, counselling skills, assertive reaction.

Textbooks and references
O'Connor, P. Understanding JUNG. Understanding Yourself. Methuen Paperback, 1985, Australia
Other readings will be given to participants during the course.

Faculty of Business
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 is divided into seven sections:

- the nature and importance of human resources;
- staffing the organisation;
- analysing, evaluating and compensating work;
- training and developing people;
- establishing and maintaining effective employee relations;
- managing change.

This subject usually includes 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 convener.

References


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 conflict, company misfeasance, company finance and company takeover activity. In recent years the course has focused substantially on company takeovers. The Code of Ethics requires students to sign a consent document at the beginning of the semester. Any further queries about this matter should be directed to the subject convener.

Textbook

CCH Australia Ltd. Australian National Companies & Securities Legislation (Latest edn), Sydney, CCH Australia Ltd.

References

Li, P. and Herzberg, A. Understanding Company Law. 2nd edn, Melbourne, Law Book Co., 1986
Purvis, N. Corporate Crime. Sydney, Butterworths, 1979

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 encompassing the following topics:

- international contracts of sale of goods, including a study of trade terms, performance of the contract, acceptance and rejection of goods, and the rights of the unpaid seller and buyer;
- the proper law of a contract and jurisdiction to determine disputes;
- financing and insurance involved in export sales; the role of tariffs and protection policies;
- producer and commodity agreements;
- methods of transportation and distribution of goods and the legal principles relating thereto;
- international conventions for the protection of industrial property;
- international franchising.

References

Greig, D. International Law, Sydney, Butterworths, 1976
Hoyle, M.S.W. The Law of International Trade. CCH Australia Ltd., 1985
Puuwis, R. and Darras, R. The Law and Practice of Commercial Letters of Credit, Shipping Documents and Terminations of Disputes in International Trade. Sydney, Butterworths, 1975

BL303 Employment Law

Prerequisite: BL101 Legal Environment of Business

The general objective is to assess the impact of law upon the relationship of employer and employee. The following matters are analysed in this unit:

(a) the contract of employment – formation of the contract of employment including discrimination and compulsory unionism, distinguishing an employee from an independent contractor, the terms of the contract of employment, common law remedies for wrongful termination;
(b) the arbitration system – the structure of the Australian Arbitration System, the constitutional context, the system in operation in settling disputes and making awards;
(c) industrial conflict – penal powers under the arbitration system, deregistration, common law liability for industrial action, statutory liability for industrial action;
(d) occupational health and safety – the role of the law in occupational health and safety, common law remedies, the Victorian Worker’s Compensation System, the prevention of industrial accidents.

References

Conciliation and Arbitration Act 1904, as amended (Cth), latest edn, Sydney : CCH Australia Ltd.
Guidebook to Australian Industrial Law. 4th edn, Sydney : CCH Australia Ltd., 1984
Guidebook to Australian Occupational Health and Safety Laws. 2nd edn, Sydney : CCH Australia Ltd., 1986
Gunningham, N. Safeguarding the Worker. Sydney : Law Book Co., 1984

BL304 Finance and Credit Law

Prerequisite: students enrolled in this unit are expected to have passed BL201 Contract Law

The objective of the unit is to extend and develop the principles of contract by canvassing such areas as the financing of contractual obligations, the alternative methods of securing financial obligations and the insuring 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: BM201 Developing a Marketing Plan 2 or 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; to give students an overview of how an organisation functions; to give students an opportunity to develop and practice their analytical and communications 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/non-business problem.

References
To be advised.

BM303 Marketing of Services
Prerequisite: BM201 Developing a Marketing Plan 2 or BM206 Marketing Strategy
More than 40% expenditure is directed at the services sector. 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 marking. Consumer behaviour in the service industry. Special implementation problems in the service industry. Investigating a service industry of your choice (e.g. financial services, hospital services, insurance industry, catering services, etc.).

Method of instruction
Refer: BM306 Market Behaviour and BM206 Marketing Strategy
Reference

BM304 Advanced Marketing Research
Prerequisites: BM206 Marketing Strategy; BM203 Marketing Research and PB204 Marketing Data Management and BE206 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/analyst 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.

Textbook
Details will be provided at the first session

BM305 Retail Marketing
Prerequisite: BM206 Marketing Strategy
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 not covered in other units but which are particularly relevant to retailing in Australia in the 1990s.

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.

Textbook

References
Latchford, P. Successful Retailing. 156 Key Questions Answered. Melbourne: Information Australia, 1987

BM309 Product Management
Prerequisite: BM202 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 Market Behaviour and Marketing Strategy. The objective of this unit is to enable students to apply their marketing knowledge to the specific area of Product Management. Within this broad unit objective, there are a number of specific objectives. These specific objectives address the unit from the management approach, that is to say, with a lesser emphasis on other approaches such as economic, technical or purely creative. These areas are not ignored but they are treated as contributory disciplines.

Specific objectives
- To explore the meaning, importance and function of the product management role in business today;
- To examine the range of concept generating techniques used for new product development;
- To examine the means of evaluating new product ideas;
- To examine the preparation of a product, or product launch plan and its importance as a marketing control tool for new products, product maintenance and product re-launches;
- To understand the importance of:
  - product positioning within the target marketing process
  - branding
  - packaging
  - and the importance of successful working relationships with advertising, marketing, research, promotion agencies, etc. in the product management process;
- To 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
BM310 Strategic Marketing Cases
Prerequisites, BM309 Product Management, BM201 Organisation Behaviour

This subject consists of two parts:

Part 1: Strategic Marketing cases

Objectives
Strategic Marketing cases (Part 1) is designed to enable students to integrate and apply the concepts and techniques taught in the prerequisite units of the Bachelor of Business (Marketing). The unit also addresses the strategic aspects of marketing issues.

More specifically, the objectives are:
- to link corporate strategic planning with marketing planning;
- to clarify the role of marketing in relation to the other functions in an organisation including interfunctional conflict;
- to introduce key issue management and management of time;
- to further develop report writing and presentation skills;
- to further improve the ability of students to think through business and non-business problems to provide creative as well as practical solutions;
- to encourage students to use computers in their analysis.

Unit implementation
The emphasis of this unit will be placed on case study analysis. The important consideration is to encourage students to use the materials taught in the previous units and to insist on solutions which can be realistically implemented.

In order to ensure that students understand the interrelationship between marketing and the other functions of an organisation, a number of sessions will be devoted to Marketing Management in Action.

Time permitting, a marketing simulation may be given to ensure students complete a number of small cases, using computer simulation facilities.

This unit develops some of the analytical techniques appropriate to solving business problems that are not readily quantifiable by conventional mathematical methods.

Teaching will be mainly by practical work, students being required to use wherever applicable, quantitative techniques already studied in the unit, as well as developing and applying their own techniques.

This unit addresses a number of important market issues to enable students to further develop written and oral presentation skills.

Reference
References and evaluation will be primarily on the multiple choice examination and, to a lesser extent, report and oral presentation tasks.

BM306 Advertising and Media Planning
Prerequisite, BM206 Marketing Strategy

This unit is an elective subject for the degree course in Business.

Unit objectives
This is a course not about how to create advertisements. It is not a course in headline writing, television direction, typography, radio, and public relations. This course is about developing sound advertising strategies and effective execution of these strategies.

Topics
- Introduction to advertising;
- The advertising process;
- The client advertising brief - client/agency view;
- The advertising creative process;
- Advertising media in Australia;
- Sales promotion;
- Public relations and publicity;
- Advertising research;
- The media scene and the mediaplans.

Textbook
Rumyn, K.E. Advertising, 2nd edn, Columbus, Ohio : Merrill Publishing Company, 1984

Reference

BQ201 Simulation
Prerequisite, BQ201 Quantitative Management

This unit develops some of the analytical techniques appropriate to solving business problems that are not readily quantifiable by conventional mathematical methods.

Teaching will be mainly by practical work, students being required to complete a number of small cases, using computer simulation facilities.

Financial evaluation of alternative investments and their associated risks; inventory modelling; marketing evaluations; computer operations systems; evaluation and analysis of decision making problems; independent study and computer operations facilities.

Preliminary reading

BQ302 Quantitative Cases
Prerequisite, BQ201 Quantitative Management

This unit provides students with an opportunity to further develop report writing and presentation skills.

This unit extends students’ familiarity with some important quantitative techniques necessary for problem solving in business, industry and government.

This unit is assessed entirely on the evaluation of case management reports and oral presentation tasks.

This unit addresses a number of important quantitative cases provided in case study format, each covering a number of important market issues in the case study format, each covering a number of important market issues.

References
A detailed list of texts, journal articles and other references is issued at the appropriate time during the course.
BT301  Systems Development Strategies
Prerequisites: BT206 Data Base Management Systems and BT204 Data Communications
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;
- decisionsupport systems;
- office automation;
- traditional lifecycle development;
- problems with traditional lifecycle development;
- application packages;
- user interface;
- user driven computing;
- fourth generation languages;
- prototyping;
- participative design;
- information systems issues for management.

Textbook

References

BT302  Systems Software
Prerequisite: completion of second-year mandatory data processing units
This unit is concerned with software constructed for a range of hardware, including microcomputers, minicomputers and mainframes. The view taken of the machine is that of a total productive entity, capable of solving commercial problems. The software component includes operating systems, languages both procedural and non-procedural, and other software popularly used in the commercial environment.

The unit commences with a view of microcomputers. DOS is examined together with its utilities, and a survey of popular packages running under DOS is made. Minicomputer systems, UNIX and PICK are reviewed, and their relative advantages considered. Popular third-party packages are studied. The operating system examined also forms the point of view of work throughput. Other general considerations covered include systems management facilities, performance monitoring, systems generation and maintenance.

Textbook
To be advised during lectures.

References

BT303  Industrial Project
Prerequisites: BT203 Data Base Management Systems and BT204 Data Communications
This subject counts as two units.

Major objectives
- To apply as many of the principles/techniques learned elsewhere in the course as possible to a practical situation.
- To consolidate students’ understanding of information systems design in an integrated way.
- To involve students in a problem of some complexity, in order to increase their self-confidence in handling the human aspects of systems analysis, design, and project management.
- To enable students to gain some experience in project planning and control, self-organisation, working in a team, commitment to task completion.
- To develop the students’ skills in varied programming languages.

Theory content
- Project management and control.
- Three current commercial Programming Languages, e.g. PL/I, RPG II, RPG III, C, etc.
- Seminars re cn on demand to meet the requirements of particular projects.

Project content
1. Introduction
Projects will be solicited from both external organisations and within Swinburne. It is anticipated that projects selected will be regarded as non-critical by the sponsoring organisation and of a size that allows completion within the available time frame.

2. Project teams
Project teams of about four students will generally be allocated by the convenor in consultation with the project supervisors. Teams will be responsible for the performance of the project in terms of control and task allocation.

3. Deliverables
(a) Systems analysis phase
- Report
- Presentation
(b) System design phase
- Report
- Presentation
(c) Implementation phase
- User documentation
- Systems documentation
- Presentation of working system
(d) Project control/documentation

References
Reference material will be nominated or issued as required.

BT304  Programming and Hardware
(Commercial Programming C)
Prerequisite: BSS29 Systems Software A
The aim of this unit is to introduce the student to a deeper understanding of computer hardware and to enable the student to use an assembly language.

- Topics will be selected from:
  - What is an assembly language? Why is it used? The hardware and software environment.
  - Writing programs in assembly language. Debugging techniques.
  - Graphics programming.
  - Computer hardware.

This is a practical unit and substantial programming exercises will be given.

References
References appropriate to the hardware and software used will be given.
Graduate Diploma subjects

BC503 Introduction to Financial Management
Prerequisite, nil
A first-year unit in the graduate diploma course in business administration.
The general objective is to educate candidates to become informed and intelligent users of accounting information.
The course is particularly concerned with how accounting information can help the firm achieve all its goals. One role of accounting is in the measurement of performance, and it is in this area that the strengths and limitations of accounting information is discussed.
No prior knowledge of accounting is assumed.
Applicants who have previously studied accounting at a tertiary level or are working as accountants are advised to enrol for one of the subjects from the graduate diploma course in accounting. Applicants who have studied accounting at sub-tertiary level or who finished their courses some time ago are enrolled in this subject.
Topics include:
- the objectives of business organisations and a comparison with the objectives of an accounting system;
- accounting reports for performance evaluation and the assumptions that are implicit in their compilation;
- costs for planning and control;
- costs for decision-making and specific techniques such as cost/volume/profit analysis and constrained flow analysis;
- divisional performance evaluation and transfer pricing.
Textbook
References
Hutter, M.H. and Allport, N.J. Accounting, Syd., Holt Rinehart and Winston, Rev. edn. 1979
McDonald, R.C., Cooper, R.G. and Astill, B.J. Accounting for the Non-Finance Executive. Rev. edn, N.Z., Longman Paul Ltd., 1987

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 emphasizing 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 Financial Management 1
Objectives
This unit is designed to develop an understanding of the way in which firms plan and manage their financing and investment strategies.
Course outline
Strategic planning — commitment of resources to profitable activities.
Fund flow analysis: cash flow analysis — testing for cash inadequacy, cash insolvency.
Financing techniques, managing liabilities.
Control of short-term assets.
Prediction of financial distress and corporate failure.
Analysis of take-overs and mergers.
Determination and evaluation of the firm's financing and investment strategies. E.g., financial mobility, leasing, project financing, divestments.
References
Bruce, R., McKern, V., Polland, J. and Skully, M. Handbook of Australian Corporate Finance. Syd., Butterworths, 1983

BC550 Current Issues in Accounting
Current issues in Accounting is a mandatory unit in the graduate diploma course in accounting. It carries a weighting of 1.5 units.
The unit incorporates within it the Accounting module of the Institute of Chartered Accountants' Professional Year.
The major emphasis in this course is in-depth coverage (both practical and theoretical) of the Accounting Standards. Current exposure drafts and recent developments in reporting require the Companies Code are also studied.
Assessment
By one case study and a final exam.
References

BC551 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 1.5 units.
References
Australian Federal Tax Reporter. North Ryde, N.S.W. CCH Australia Ltd
Journal articles

BC553 Auditing and EDP
Prerequisites, BC504 Auditing and BT101 Information Technology, 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 unit it is intended to acquaint people with some auditing computerised systems.
Topics covered include: revision of basic data processing principles; the audit role in systems development; the design functions and development of controls; processing and program controls; the computer audit trail; auditing packages; appraisal of control requirements in the various processing options, e.g., bureaux, time-sharing, etc.; auditing advanced systems, e.g., on-line systems, data base, etc., internal control questionnaire for EDP.
The teaching method is by lectures, seminars and practical case work. A major case study is undertaken.
References
Specific articles and texts are referred to when completing each topic area.

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 post graduate diploma subject. Applicants who have studied economics at secondary level or who finished their course some time ago are enrolled in this subject.
Consideration is given to the factors that determine the general level of economic activity. These factors are assumed to be 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 pricing/ incomes policies.
BE502 Australian Industrial Relations

This unit provides a study of the Australian industrial relations system with some comparative reference to the systems of other countries. Topics to be studied include:

- nature and meaning of industrial relations and an industrial relations system;
- nature, sources and manifestations of industrial conflict; pattern of strike activity in Australia;
- parties; trade unions, employer associations, management and industrial tribunals;
- role and processes: arbitration, collective bargaining, worker participation/claims.

References


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 the nature and workings of the Australian monetary system and its management.

Course outline

Liquidity and money
- nature, role and evolution of money
- definition of money
- supply of money and liquidity

Financial markets and institutions
- nature and role of financial intermediation
- growth and description of Australian financial intermediaries
- impact of deregulation on the financial environment

Australian international finance markets
- nature and developments
- analysis of change for Australian finance markets and monetary authorities

Effects of liquidity and money on economic activity
- determination of interest rates
- Keynesian and monetarist transmission mechanisms

Textbooks


References


BE504 Nature and Characteristics of Markets

This is a one-semester unit for students in the graduate diploma course in business forecasting.

Objectives

The unit will provide an introduction to aspects of micro-economics which will promote an understanding of the nature and characteristics of markets. Students will become familiar with the analytical methods which enable them to evaluate critically the policies of firms and the policies 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


Davies, J.R. and Hughes, S. Managerial Economics. Plymouth : McDon-ald and Evans, 1977
Donaldson, P. Economics of the Real World. 3rd edn, Pelican, 1984

BH501 Administration of Organisational Systems

Prerequisite: no prior knowledge of administrative theory

A first-year unit in the graduate diploma courses in business administration and management systems. This unit constitutes an examination of organisational problems in the implementation of corporate strategy with particular emphasis on the relationship between strategy, structure, process and people. The learning experience depends largely on the involvement and experience of the students, who bring knowledge and skill to the task. The lecturer’s role is to generate a situation in which current attitudes and practices are challenged, and alternative approaches to management are evaluated. Theoretical models are applied to problems in order to permit impartial analysis of organisational issues. Experience is also gained in co-operative group preparation of material and presentation to the class. Theory is applied to real situations through assignments requiring the investigation of an organisation to which the student has access. The value of theory as a means of expanding the range of a manager’s decisions and actions is the basis of this course.

Framework

The main topics include:
- the organisations as a system;
- analysis of organisational environments;
- analysis of organisational goals and values;
- influence of technology;
- structural types and options;
- components of the psychosocial system;
- managerial roles and management style;
- design of rewards, restraints and controls;
- managing in the total system.

Textbook


References


References

Indecs. State of Play 5. George Allen and Unwin, 1988

A detailed reading guide will be issued at the start of the semester.
BH502 The Organisation
A first year subject in the graduate diploma course in organisation behaviour.

The subject is concerned with:
- different ways (metaphors) for looking at and thinking about how we organise;
- the interrelationship between behaviour and structure, both conscious and unconscious;
- the individual and collective investigation of the strengths and weaknesses of different forms of organisation;
- expanding the ability of participants as thinkers about the actors within organisations.

References
Bolman, L. and Deal, T., Modern Approaches to Understanding and Managing Organisations. San Fran., Jossey Bass, 1986

BH503 Personnel and General Administration
A unit in the graduate diploma course in accounting.

Four sessions are spent on industrial law. The remaining sessions cover the topics of personnel practices, the personnel function and some related aspects of general administration. These sessions consider the nature of good personnel practice and the scope of the personnel function. The role of the personnel department in organisations, both now, historically and in the future. The relationship between the functions of personnel management and the personnel function of management. The alternatives available for the proper conduct of the personnel function in small companies without a personnel manager.

Particular attention is paid to: job satisfaction and morale; manpower planning; employee benefits and services; recruitment, selection and induction; training; performance appraisal; salary and wage administration; management development; organisation development and human resource development and the ways these various aspects can be related into a comprehensive integrated system of personnel management. Lectures will be supported by experiential exercises and other participative activities.

Textbooks

References

BS32

BL502 Legal Aspects of Finance
Prerequisites: No prerequisites
Students who have not studied law previously are expected to become familiar with the basic legal principles 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. redeemable preference shares, corporate repurchase of shares, corporate financing of acquisitions of its own shares;
- 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
Prerequisites: 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 fundamentals of marketing, marketing planning, consumer behaviour and approaches to looking for market opportunities.

Methods of instruction
Emphasis is shared between theoretical consideration and practical problems. Throughout the course students are expected to participate actively through the use of case studies and the presentation of group and individual assignments.

Course framework
Consumer behaviour — consumption and expenditure patterns, the buying process; market segmentation. Product/service policy — life cycle and adoption process, planning; differentiation, packaging and branding. Pricing policy — cost, demand, resources considerations; competition. The communications mix — advertising; promotion; personal selling. Distribution policy — channel selection; physical distribution. Introduction to marketing strategy.

Textbook
Details will be provided at the first session.

References
DeBono, E. Marketing Opportunities. Lond., Penguin, 1980
BMS02  Selecting and Influencing Markets
Prerequisites: The Nature and Characteristics of Markets

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 marketplace, 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 market segments each varying in size and requiring different marketing plan and set of resources.

Textbooks

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.

BQ501  Quantitative Methods
No formal prerequisites are specified beyond a previous knowledge of basic mathematics.

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 quantitative techniques via practical applications. User-friendly computer packages are used all the course wherever possible, reflecting their importance and usefulness.

The topics included are: linear programming, forecasting, inventory management, basic statistics, critical path methods (including PERT) and an introduction to hypothesis testing and sampling.

Textbooks
None specified. During the course, reference and other materials will be specified when appropriate.

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 computers.

Topics
- videotext: electronically published information for mass public audiences; the technology, the cost, the benefits; access to VIATEL and other generally available systems;
- public access databases: retrieval of bibliographic and numeric data;
- 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 AUSSTATS and TELESTATS;
- techniques for analysing and processing secondary data sources using SAS, SPSSX and SIRICENSYS. 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;
- techniques for building a database; using SAS, SPSSX and SIRICENSYS.

References
Australian Bureau of Statistics. Information Paper: Data Release Plans. 1st edn. 1986 Census of Population and Housing, Cat. no. 2173.0
Australian Bureau of Statistics. Information Paper: Special Data Services. 1986 Census of Population and Housing, Cat. no. 2181.0
Australian Bureau of Statistics. The 1986 Census Dictionary. 1986 Census of Population and Housing, Cat. no. 2174.0

BQ503  Business Forecasting I

Prerequisites: 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 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. Participants will, on successfully completing this unit, be able to users of the main forecasting techniques dealt with, considerable use of micro and main-frame computers will be involved in this unit.

Textbook

References
Journal articles and research publications will be referred to during the course at the appropriate time.
BT501 Systems Analysis and Design

A one-semester subject in the graduate diploma course in management systems.

The subject is intended to develop a formal awareness of the process of analysing and developing systems while at the same time emphasising the necessary communication skills for success.

The tools, techniques and methodologies for both analysing and designing an information system are covered to assist students in:

- understanding the system development process;
- acquiring technical skills in:
  - data modelling,
  - database analysis,
  - structured analysis,
  - database planning and design and implementation;
- developing an understanding of data communication concepts with a view to efficient network 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.

Textbooks


References


Date, C.J. An Introduction to Database Systems. 4th edn, Mass.: Addison-Wesley, 1985


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:

- encourage students to appraise critically state of the art developments and evaluate them for relevance to their own environment;
- communicate recent systems design techniques;
- provide an awareness of the anticipated directions within the computer industry.

Course structure

Topics covered include:

- systems analysis and design for the fourth and fifth generation systems;
- prototyping strategies;
- integrating personal and corporate computing;
- knowledge-based systems.

References

In addition to numerous periodicals and journals, the following texts will serve as a guide:


Date, C.J. An Introduction to Database Systems. 4th edn, Mass.: Addison-Wesley, 1985


BT504 Introduction to Information Technology

Unit objectives

This unit will provide an introduction to information technology and how it is used by businesses and organisations.

At the completion of this unit the student will be able to explain:

- basic computing concepts and common output, input and storage methods and devices;
- different ways of using computer systems and alternative hardware strategies that may be adopted;
- how data is organised and managed in computer files;
- why and how knowledge based systems are being developed and used in business;
- how to develop and test a small computer program;
- communications techniques and technologies currently in common use. Laboratory work will support the above.

Textbook

BT505  Software for End Users

Unit objectives
This unit is designed to provide students with a practical working knowledge of a number of the major categories of end-user software packages available for business applications. The course comprises four major topic areas taught during a one-hour class and a three-hour laboratory session each week. The class will be for presentation of theoretical aspects for each topic, case studies and exercises. The laboratory sessions will be for 'hands-on' usage and evaluation of nominated packages.

Topics covered include:
- word processing;
- spreadsheets;
- database systems;
- graphics.

Particular emphasis throughout the unit will be given to current developments in computing that relate to increasing end-user productivity.

References
References will be primarily the appropriate manuals for each package, complemented by appropriate references for each application area.

BT506  Information Analysis

Prerequisite BT504 Introduction to Information Technology

Information is the lifeblood of any organisation and data is the foundation upon which information systems are constructed. Without appropriate and careful analysis of information needs, systems will not meet their requirements.

It is now widely recognised that the active involvement of corporate management and users is essential to a successful information analysis effort.

This unit aims to provide students with the skills necessary to perform information analysis and data modelling for detailed applications as well as at the corporate level.

Students will 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:
- prepare a logical system model for a small application, to be used as a structured design specification;
- develop a working prototype database in an SQL-type system for a small application;
- analyse corporate information requirements and hence contribute to the preparation of a Strategic Data Model for an organisation;
- select the information analysis approach appropriate to a particular situation from a range of modelling techniques and tools.

Topics covered include the following:
- systems, data and models;
- data analysis;
- detailed data modelling;
- structured systems analysis;
- corporate information systems;
- corporate data modelling.

Textbook
To be advised.

References
Howe, D.R. Data Analysis for Data Base Design. London: Edward Arnold, 1983

BT507  Computer Programming

Prerequisite: BT504 Introduction to Information Technology

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 important and philosophy of testing;
- design a logical 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;
- interactive programming;
- testing.

Textbook

References

AB641  Psychology and Interpersonal Skills

This subject is designed for students taking the graduate diploma course in organisation behaviour.

The course comprises:
Three hours per week for two semesters. In addition, approximately four evening seminars plus one residential weekend plus two one day seminars.

The objectives are:
- to introduce psychological concepts and techniques relevant to personal and interpersonal behaviour;
- to help participants understand their own perceptions, values and attitudes, and to gain insight into how these may influence behaviour;
- to increase options for behaviour (mainly communications) through learning appropriate skills. Methods used are largely co-operative and practical rather than didactic and theoretical. Active group participation is therefore necessary.

Assessment is on a pass/fail basis appropriate to the learning methods used. Students are required to keep a day-to-day ‘journal’ which will include application of skills, etc. Students are also required to submit two minor written assignments. There is no written formal examination.

Because of the experiential nature of this subject, a minimum 80% attendance is required.

This subject usually includes some class work in the Management Behaviour Laboratory where activities may be observed and recorded. The Code of Ethics requires students to sign a consent document at the beginning of semester. Any further queries about this matter should be directed to the subject convener.

References
Extensive reading and other resources will be given as appropriate.
BC603 Investment Analysis

No formal prerequisites are required

This is a mandatory unit in the graduate diploma course in accounting (Professional/Year Degree Program).

Objectives
- to acquaint candidates with the various avenues for the investment of funds;
- to evaluate techniques of portfolio selection and management.

Course content includes a review of various avenues for the investment of funds and their taxation implications followed by a review of techniques utilized by security analysts to assess performance and value securities. The latter half of the course considers portfolio selection and management techniques, particularly the use of the futures and options markets.

References
Ball, R., Brown, R., Finn, F. and Officer, R. Share Markets - Portfolio Theory Ltd., Q.U.P., 1980
Bruce, R., McKern, B., Pollard, I. and Skully, M. eds. Handbook of Australian Corporate Finance. 2nd edn, Butterworths, 1986

Appropriate journals such as Financial Analysts Journal and Journal of Finance

BC604 Financial Structures and Policy

Prerequisites, a pass of exclusion from BC503

1b Financial Management

The general objective is to develop an understanding of financial theory so that the student can evaluate the firm’s investment, financing and dividend decisions in keeping with an objective of maximising shareholder wealth, together with providing students with the means of applying analytical techniques to solve a wide variety of problems involving financial decisions.

In particular, the topics covered include:
- financial statement analysis
- working capital management
- concepts of valuation
- cost of capital
- sources of finance
- capital structure and leverage
- business combinations

Textbook

References

BC605 Investment Management

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 the management of that portfolio.

References
Ball, R., Brown, R., Finn, F. and Officer, R. Share Markets - Portfolio Theory, Queensland, Q.U.P., 1980
Bruce, R. et al. eds. Handbook of Australian Corporate Finance. 2nd edn, Syd., Butterworths, 1986

Appropriate journals such as Financial Analysts Journal and Journal of Finance

BC606 Current Developments in Corporate Finance

Assessment, individual assignments and a final examination

The unit represents a coverage of contemporary issues in the area of corporate finance. Issues are presented by experienced professionals working in the area thus it is very much 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 considered vary from year to year but the following list indicates topics recently covered:
- borrowing offshore;
- rating commercial paper;
- foreign exchange management;
- equity raising;
- take-over activity;
- taxation implications for financing;
- regulation;
- competitive advantage;
- financing techniques.

References
A selection of articles as detailed each session by the session leader.

BC607 Research Project

Prerequisites, usually students would have completed the first four units of the course before commencing the research project

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 reference will be used, such as:
Allen, J. et al. Thesis and Assignment Writing. Sydney, Wiley, 197...
Because of the contemporary nature of this course, details of references newspapers, current journals, and selected government reports.

References
Australian Federal Tax Reporter, North Ryde, N.S.W., CCH Australia Ltd
Australian Income Tax Assessment Act, 1936 as amended
Journal articles

BC612 Forecasting and the Planning Process
Forecasting and the Planning Process provides a capstone to the graduate diploma course in business forecasting.

The unit deals with the issues of Strategic Management and, in particular, with the steps an organisation should take to work out its future direction. Incorporated as a main part of the unit are 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

BE601 Industrial Relations
Prerequisite, BH501 Administration of Organisational Systems

This half-unit provides an introduction to the study of Australian industrial relations with particular emphasis on industrial relations in organisations. Topics include nature of industrial relations and industrial conflict and conflict resolution. Class sessions draw upon lecture-discussions, films and group exercises/exercises.

References

BE602 Current Issues in Economics
Prerequisite, approved tertiary studies in economics

In this unit, important contemporary issues in economics are examined and analysed, with particular emphasis on economic policy implications. Particular topics covered are determined by the contemporary situation but usually are selected from the following areas: fluctuations in economic activity (unemployment and inflation); policies designed to offset undesirable fluctuations in economic activity; industrial relations; industry policies (inter-sector relationships, protection, structural change); balance of payments problems and policies (including exchange rate policies); current social economic issues.

References
Because of the contemporary nature of this course, details of references are provided at the first class. Students are expected to consult newspapers, current journals, and selected government reports.

BE603 International Finance and Monetary Theory
Prerequisite, 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 monetary theory and international financial management.

Course Outline
The following list should be taken as a guide only:
- Balance of payments
  - structured accounts
  - Australian perspective
  - adjustment theories
- The international financial system
  - description of events since 1945
  - current outlook and problems
- Review of international financial centres and markets
- origins and development
- outlook for international money markets
- exchange rates
  - foreign exchange deals and controls
  - theories of exchange rate determination
- International trade finance
- Borrowing from overseas
  - sources of overseas borrowings
- foreign currency exposure
- International managerial finance
  - corporation management of assets and capital structures

Textbooks

References
Davis, J. and Lewis, M., Monetary Policy in Australia, Melb., Cheshire, 1981
Inquiry into the Australian Financial System (Campbell Committee), Report of the Review Group (Martin Committee) on the Australian Financial System, Canberra, AGPS, 1984

A detailed reading guide is issued for each topic.

BH601 Administration of Human Resources
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.

- the student is introduced to current ideas of organisation theorists concerning communication, decision-making behaviour and organisation development;
- the student is able to use concepts to manage people;
- the development of skills in communication, assertiveness and self-knowledge are subsidiary aims.

After the course, the candidates will have developed increased awareness of human organisational problems and of the impact their personal behaviour has on others.

- BE5000/103 lecture-discussions, experiential exercises, case studies, tests, student presentations and films

These are complemented by extensive private reading and practical assignments of class.

Textbooks and references
Details provided at the first session
BH602  Managing Conflict and Change in Organisations

A second-year subject in the graduate diploma course in organisation behaviour.

The subject introduces students to current theory and practice associated with organisation culture as a prelude to managing conflict and change. It examines the fundamental elements and dynamics of organisation culture. Participants are required to analyse an organisation in terms of its culture and assess, given that culture, how conflict and change might be more effectively managed. The unit is tightly sequenced with the following unit Management and Leadership.

Textbooks and References

It is unlikely that a specific text will be prescribed. Participants will be given extensive handouts and these will be used as a basis for class discussions and accompanying experiential activities.

BH603  Management and Leadership in Organisations

Four hours per week for one semester

A second year subject in the graduate diploma course in organisation behaviour.

This subject has two specific points of focus:

1. Research Methods
2. Leadership

In the first section it is assumed that leaders need to have a basic understanding of research methods as studies of a quantitative or qualitative kind are frequently carried out within organisations. Participants, it is felt, need to know how to formulate fundamental research questions and choose an appropriate methodology to answer these questions. In addition leaders need a sound conceptual framework for their leadership and appropriate skills. In the second section participants will explore such issues as:

- Leaders as culture builders
- Leaders, conflict and change
- Leaders as symbols
- Leaders as managers of meaning
- Leaders and Human Relating
- Leaders and Group Development

Textbooks

In the main participants will use handout material for both class discussion and experiential activities. Beyond this they will be directed to a broad spectrum of references.

BH604  Management, Organisation and People

This unit is taken in the course for the Graduate Diploma 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 accounting and management systems environments immediately relevant to students. They have the opportunity to contribute by sharing their current and past work experience as a source of material to enrich class activities. Experiential learning methods as well as lecture-discussion and case methods are employed.

Considerable supplementary reading is required outside class time.

Assessment is progressive and may include essays, case studies and class presentations.

Topics are chosen from the nature of the organisation; the organisation as an open system; interactions between sub-systems and their implications for managers; organisation climate and effectiveness; organisation change and development; inter-group competition and co-operation; managing conflict; group dynamics and team building; group decision-making; synergy vs. groupthink; inter-personal processes and communication; the individual; leadership; motivation; behaviour change and modification; perception; learning; value; personality and individual differences; models of man — behavioural science views.

Students are continually encouraged to analyse newly-acquired knowledge to facilitate transfer to their own work situation.

References


BM601  Marketing Management 2

Prerequisite, BM501 Marketing Management 1.

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 concept, the marketing planning process and the elements of the marketing mix.

The aim of this unit is to:

- introduce the student to the fundamentals of marketing research;
- identify the value of additional information and how this information can be used;
- examine alternative approaches to new product introduction;
- introduce end-use analysis and the various approaches to forecasting;
- examine the alternative approaches to organising marketing activities;
- involve 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 complement the lecture material. Students are expected to participate actively throughout the semester, and are required to present both individual as well as group assignments.

Course framework

The main topics include:

- the role of marketing within the objectives and constraints of corporate strategy;
- marketing research: costs and benefits, marketing research strategy, evaluation of results;
- services marketing: key points of differences as against product marketing, how to classify services in terms of marketing strategy development, marketing for the professions;
- international business.

Textbook

Nil.

References


BM602  Strategic Management

A fourth semester subject in the graduate diploma in management systems.

Objective

The course provides students with an understanding of the management problems involved in developing strategic policies for organisations in both the public and private sectors.

The student is given a practical understanding of how the strategic planning process works, how corporate objectives are developed and how these are translated into strategic plans.

Emphasis is shared between theoretical considerations, the practical problems of case studies and discussions of prepared readings to help students learn how to employ strategy in selecting appropriate administrative 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.

Textbook

Detail will be provided at the first session.

References

Steiner, A. Strategic Planning. N.Y., The Free Press, 1979
BM603 Business Policy

Prerequisites: Because of the nature of this unit, Business Fr. 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 course.

Course

To integrate the philosophies discussed in all other units, students are required to incorporate behaviour, economic, financial, and marketing concepts and demonstrate that they have a clearly defined understanding of the area. The unit provides an opportunity to improve capacity to identify, analyze, and evaluate strategic business problems and opportunities.

Framework

Introduction. Business policy as a field of study; the managing director’s job: as organization leader, personal leader, architect of corporate purpose; determining corporate strategy; the concept of corporate strategy. The organization and its environment; the company and its strategies. The company and its societal responsibilities; implementing corporate strategy. The accomplishment of purpose: structure and relations. The accomplishment of purpose: process and behavior. Managing the strategic process.

References

Hatten, K.J. and Hattel, M.L. Effective Strategic Management. N.Y., Prentice-Hall, 1988
Steiner, G. Strategic Planning: What Every Manager Must Know. N.Y., The Free Press, 1979

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. The nature and role of social and marketing research as an aid in decision-making are explored. The various sources of data—surveys, experiments, and case studies—are discussed. The unit also covers planning, organizing, and conducting surveys, and the exploitation of existing data bases and computer packages.

Research design (including cost/benefit analysis) and the various qualitative and quantitative data collection methods are studied, together with the selection of appropriate models and their subsequent estimation. The development of hypotheses, establishment of appropriate models, and obtaining forecasts are considered and cures investigated. The difficulties of producing forecasts per se are also dealt with.

Course participants are also introduced to structural and input-output models from a user's point of view. Considerable use will be made of data bases and computer packages.

Textbook


References


BM605 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 current developments in computing that relate to finance and financial management.

Topic coverage includes:

- Decision support systems, micro-computers and current software developments, financial modelling using languages (e.g. FORTRAN) and spreadsheets (e.g. Lotus 1-2-3), graphics, data base systems, public data bases, approaches to risk analysis, simulation methods, evaluation and selection of computing systems.

References

Software documentation, user manuals and current journal articles will provide the major reference material for the unit. In addition the following texts will be used:

BT601 Systems Project Management

Course 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 management;
- 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.

Course 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 formal prerequisites are specified. However, it will be assumed that candidates have a prior knowledge of the systems development process equivalent to that gained from completing BT501 Systems Analysis and Design.

Preliminary reading
Brooks, F.P. The Mythical Man-Month. Reading, Mass.: Addison-Wesley, 1975

References

BT602 Information Systems Management

Course objectives
At the completion of this unit, the student should be able to:
- specify the organisation and operation of a modern information systems division in terms of its functional units;
- define and use performance criteria for the information systems function;
- introduce and control new developments in information technology in the organisation;
- negotiate the acquisition of new hardware and software;
- hire, fire, 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 management and planning; the user interface, end-user computing, office automation; negotiating; human resources management; productivity tools.

BT603 Management Systems

Course objectives
This unit covers the theory of management information systems and their application for decision-making in organisations. The student should be able to:
- identify the decision requirements for the management of an organisation;
- analyse an information-gathering and processing system intended to facilitate decision making and long-range planning;
- 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 course.

Course structure
Introduction to 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 infrastructure within their own organisations.

References
No single book covers the full scope of the course. The texts to be used as references will include:

BT605 Systems Development Project

The objective of this project is to:
- provide the student with supervised and structured practical experience in the development of computer-based management systems;
- allow the student to demonstrate a creative faculty in the area of systems design;
- provide an interpretation of the student’s understanding of data processing by encouraging the drawing together of various concepts and techniques developed during the course;
- provide the student with an opportunity to develop the ability to communicate through the presentation of written and oral project reports.

Candidates usually will have gained above-average results in all first year units required for the course, prior to commencing this project.
Course structure
Each student undertakes an individual project which is based on an actual commercial system, usually in the student's own work environment. The student initially submits a written proposal giving preliminary details of the project. If the proposal is approved in principle a supervisor is appointed who contacts the organisation concerned to ensure its support for the project and to determine that it is both meaningful and feasible.

The types of project likely to be approved vary substantially in content. They can be drawn from any area in the course that would enable the student to apply knowledge gained under the guidance of a supervisor. The supervisor is responsible in making sure that the student does not deviate too far from the original Objectives specified for the study.

The student should submit a written report on the project study. This report should include: a definition of problem; an appraisal of the work undertaken; a description and specification of the proposed solution to the problem; an evaluation of the proposed system.

This written presentation is supported by an oral presentation of the major factors associated with the project.

The project is assessed under several broad categories including: the student's initiative and industry during the period of the project's study; the student's understanding of the project and its related background; the content and presentation of the final report; the degree of acceptability of the proposed system.

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;
- ensure appropriate security, integrity and recovery functions in the above.

Topics
This unit builds upon the logical design concepts taught in Information Analysis in covering the implementation considerations of a number of DBMSs. The students' acquaintance with SQL from that unit is also built upon in the coverage of Relational Data Bases.

References
Date, C.J. An Introduction to Database Systems. 4th edn, Reading, Mass. : Addison-Wesley, 1985
Koenneke, D. Database Processing. 3rd edn, Chicago : SRA, 1987

BT607 Data Communications and Office Automation
Prerequisite, BT507 Computer Programming

Unit objectives
At the conclusion of this unit, students should be able to:

- understand the concepts and terminologies used in the office automation and data communication areas;
- demonstrate an understanding of the various technologies used in the office environment;
- explain how the various office technologies such as VIDEO, TEXT or WORD, IMAGE and DATA processing enhances the productivity of office workers;
- explain the need for INTEGRATION of office technologies and corporate information systems through the use of data communications networks;
- demonstrate a sound knowledge of the basic concepts and components involved in data communications;
- show an understanding of the functions of the equipment and facilities used in computer networks;
- show a good knowledge of common carrier services and facilities relevant to computer networks.

References
Black, U.D. Data Communications and Distributed Processing. Virginia : Reston, 1983
Chorafas, D. Designing and Implementing Local Area Networks. McGraw-Hill, 1984
Halls, P. Introduction to Data Communications and Computer Networks. Addison-Wesley, 1985

BT608 Systems Development Strategies
Prerequisites, BT506 Information Analysis and BT507 Computer Programming

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 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 Include:
- information systems theory;
- decision support systems;
- traditional life cycle development;
- problems with traditional life cycle development;
- Application packages;
- user-driven computing;
- fourth generation languages;
- participative design;
- information systems issues for management.

Textbook

References
BT609 Knowledge Based Systems

Prerequisite. BT506 Information Analysis

In this unit, the student develops an understanding of the nature and uses of expert systems. The unit involves practical work using a variety of expert systems shells.

Topics covered include:
- what expert systems are, how they are developed and who is using them;
- how expert systems differ from conventional software programs, with particular reference to the debate as to whether they are "artificial intelligence" or a progress in particular, and if so, what are "artificial" concepts of personal, organisational and cultural knowledge engineering that affect design and implementation;
- the architectural choices faced in building expert systems, including specific design prescriptions for tasks of different kinds;
- the evolutionary process of knowledge acquisition needed to put expertise into a machine;
- comparative strengths and weaknesses of existing knowledge engineering tools;
- the pitfalls and opportunities that arise from the important need to evaluate artificial expertise.

References


'Seminal Knowledge'. BYTE Magazine. November 1986

BH701 Career and Life Planning

Students examine, via reflection, discussion and theory, their personal development and life stage as a basis for considering the concept of career development and its implications for management.

References


Frankl, V. Man's Search for Meaning. N.Y.: Simon and Schuster, 1984


Sheehy, G. Passages. N.Y.: Bantam, 1977

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 research" 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 quality control, cultural change, inter-organisational relations, strategic planning and gender dynamics are currently being researched by staff members.

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 Mentor 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 and the impact of financial deregulation to their human, technological and structural consequences.

Syllabus
Topics will include:

Texts


Faculty of Business

BQ701 Business Forecasting

Prerequisites
Completion of the Graduate Diploma in Management Systems or equivalent.

Objective
(i) Identify the appropriate approach to adopt for a forecasting problem (e.g. quantitative, qualitative).
(ii) Select an appropriate technique consistent with the available data and knowledge.
(iii) Apply the chosen technique to a problem via the use of a number of computer programs.
(iv) Ensure that the results are presented in a clear and concise manner.
(v) Present findings on a number of case studies via the medium of a management report.

Note: Throughout the course, extensive use will be made of mainframe and microcomputer packages.

Text

References
Firth, M. Forecasting Methods in Business and Management. London : Edward Arnold, 1977

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 problems.
(iii) Enable students to apply these techniques to realistic problems with focus on business operations, planning and control. Emphasis will be on the interpretation and impact of the solutions.

Syllabus
Overview and Introduction
- Overview of various current computer based management systems.
- Focus on operation, planning and control issues of information systems.
- Identify situations where computer based management techniques can be applied.
- Overview of various 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 differences between conventional software and expert systems, including concepts such as plausible reasoning, reasoning under uncertainty, and the generation of explanations.
(iii) Recognise and analyse commercial problems to which expert systems may provide a solution.
(iv) Select the appropriate tool to apply to a commercial problem from a wide range of available computer languages (e.g.: LISP, PROLOG, microcomputer based expert system shells (e.g.: VP, Expert, Guru), mainframe based expert system shells (e.g.: IBM'S ESE, Cullin's Application Expert), or expert system languages (e.g.: RIS, XL).
(v) Discuss strategies for 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:
   (i) Knowledge acquisition.
   (ii) Architectures.
   (iii) The range of tools available to build expert systems.
   (iv) Logic programming.
   (v) The selection and evaluation of expert systems.
   (vi) Managing expert systems development.

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. The examiners will be external to the Department and should normally be external to the Institute.

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 with specific invitations to employers) where final year students will present the salient results of their project.

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.
DEPARTMENT OF MECHANICAL ENGINEERING, EN24
— Career potential, EN24

Undergraduate courses
Degree of Bachelor of Engineering (Mechanical), EN24

Postgraduate courses
Graduate Diploma in Air-conditioning, EN25
Graduate Diploma in Risk Management, EN25
Master of Engineering, EN25

Subject details
Graduate Diploma in Chemical Engineering, EN21
Graduate Diploma in Industrial Management, EN22
Graduate Diploma in Manufacturing Technology, EN22
Master of Engineering (By research), EN23
Master of Engineering (Computer integrated Manufacturing) (by coursework), EN23

Undergraduate courses
Degree of Bachelor of Engineering (Manufacturing), EN20
Degree conversion program, EN20

Postgraduate courses
Graduate Diploma in CAD/CAM, EN22
Graduate Diploma in Chemical Engineering, EN21
Graduate Diploma in Industrial Management, EN22
Graduate Diploma in Manufacturing Technology, EN22
Master of Engineering (By research), EN23
Master of Engineering (Computer integrated Manufacturing) (by coursework), EN23

FACULTY OF ENGINEERING, EN13
Graduate Diploma in Entrepreneurial Studies, EN13
Degree of PhD, EN14

DEPARTMENT OF CIVIL ENGINEERING, EN14
— Career potential, EN14

Undergraduate courses
Degree of Bachelor of Engineering (Civil), EN14
Diploma of Building Surveying, EN15

Postgraduate courses
Graduate Diploma in Civil Engineering
Construction, EN16
Master of Engineering, EN17

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING, EN17
— Career potential, EN17

Undergraduate courses
Degree of Bachelor of Engineering (Electrical and Electronic), EN18
Stream in Computer Systems Engineering, EN18

Postgraduate courses
Graduate Diploma in Telecommunication Systems Management, EN19
Graduate Diploma in Computer Systems Engineering, EN19
Master of Engineering, EN20
Master of Engineering (information Technology by coursework), EN20

DEPARTMENT OF MANUFACTURING ENGINEERING, EN20
— Career potential, EN20

Undergraduate courses
Degree of Bachelor of Engineering (Manufacturing), EN20
Degree conversion program, EN20

Postgraduate courses
Graduate Diploma in CAD/CAM, EN22
Graduate Diploma in Chemical Engineering, EN21
Graduate Diploma in Industrial Management, EN22
Graduate Diploma in Manufacturing Technology, EN22
Master of Engineering (By research), EN23
Master of Engineering (Computer integrated Manufacturing) (by coursework), EN23

Academic staff, EN2
Courses offered, EN4
Feeder courses, EN5
Women in engineering, EN5
Cooperative education, EN5
Cooperative employers, EN5
Advice to prospective students, EN7
Application procedure, EN7
Course requirements, EN8
Examinations and assessment, EN9
Faculty passing scheme, EN9
Guidelines for part-time study, EN11
Enrolment, EN11
Publication of results, EN12
Prizes, scholarships and awards, EN12
Short courses, EN13
Professional recognition, EN13

FACULTY OF ENGINEERING, EN13
Graduate Diploma in Entrepreneurial Studies, EN13
Degree of PhD, EN14

DEPARTMENT OF CIVIL ENGINEERING, EN14
— Career potential, EN14

Undergraduate courses
Degree of Bachelor of Engineering (Civil), EN14
Diploma of Building Surveying, EN15

Postgraduate courses
Graduate Diploma in Civil Engineering
Construction, EN16
Master of Engineering, EN17

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING, EN17
— Career potential, EN17

Undergraduate courses
Degree of Bachelor of Engineering (Electrical and Electronic), EN18
Stream in Computer Systems Engineering, EN18

Postgraduate courses
Graduate Diploma in Telecommunication Systems Management, EN19
Graduate Diploma in Computer Systems Engineering, EN19
Master of Engineering, EN20
Master of Engineering (information Technology by coursework), EN20

DEPARTMENT OF MANUFACTURING ENGINEERING, EN20
— Career potential, EN20

Undergraduate courses
Degree of Bachelor of Engineering (Manufacturing), EN20
Degree conversion program, EN20

Postgraduate courses
Graduate Diploma in CAD/CAM, EN22
Graduate Diploma in Chemical Engineering, EN21
Graduate Diploma in Industrial Management, EN22
Graduate Diploma in Manufacturing Technology, EN22
Master of Engineering (By research), EN23
Master of Engineering (Computer integrated Manufacturing) (by coursework), EN23

General Information, G1
Swinburne Institute Information, IT1
Faculty of Engineering

Dean
L.M. Gillin, PhD(Cantab), MEd, MEngSc, BMetE(Melb), ASMB(Ball’t), FIEAust, FAIM, MACE, AAIP, MAIMME, MAIAA

Sub-Dean
C.P. Livitsanos, PhD(Col), MEngSc(Mon), BSc(NSW), ASMB(Ball’t), AMAIMM, MAWI

Manager, Cooperative and Continuing Education
S.H. Salem, CMfgE, MEng(VIC), BScEng(Ains), DipEd(Haw), MIEAust, SME, AIMM

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

Administrative Officer
J.E. White, AssocDipPSP(SIT)

Civil Engineering and Electrical and Electronic Engineering
M.I. Rae

Manufacturing Engineering and Mechanical Engineering
R. Kyprianou

Academic Staff

Department of Civil Engineering

Head
R.B. Sandie, MEngSc, BCE(Melb), FIEAust, MASCE, MACE

Principal Lecturers
K.J. McManus, RFD, MEngSc(Qld), BE, FIEAust, CEng
W.J. Spencer, PhD(Mon), BE(Civil), DipCE, TTTC, MIEAust

Senior Lecturers
F.H. Allen, MEngSc(Mon), BE(Civil)(WAust), DipEd(Mon), MIEAust, MACI
J. Attard, MEngSc(Melb), BSc(Eng)(Lond), CEng, MICE, MStructE
R.H. Bergen, MEngSc(NSW), BE(Civil), BA(Melb), DipCE(SIT), DipEd(SCV), MIEAust, PE
G.B. Frecker, PhD(Newcastle), BCE(Melb), CEng, MIEAust
R.A. Nicholson, BE(Syd), MIE Aust
D.I. Phillips, BE(Civil)(Melb), DipCE(SIT), EWS, MIEAust

Lecturers
K.C. Angarwal, M Tech(Struct)(IIT, Kanpur), BSc(Eng)(Civil)(Pun), MIE Aust
N.J. Arkott, BE(Civil)(Melb), DipEd(SCV), FGS
R.M. Bennett, BE(Civil)(Melb)
H.J. Calder, BAppSc(Surv)(RMIT), ARMIT, MIAust
B. Chapman, BEng(SIT)
J.T. Fowler, B Tech(Surv)(Adel), MAURISA
D.L. Giles, BE(Adel), MIE Aust
M. Hatjandreou, MEngSc(NSW), MUP(Melb), BE(Civil)(Mon)
R.A. Melchiori, BE(Civil)(Melb), GradDipT&P(Melb), DipEd(Haw), CertBuildSurv, MIE Aust, AAIBS, MHA
S.J. Mills, MEngSc(Melb), BE(Hons)(Mon), MIE Aust

Part-time Academic Staff
B.G. Cargill, MEngSc(NSW), BComm(Melb), DipCE(SIT)
J. Clark, DipCE(SIT), CertTrafficEng(NSW)
R. d’Argavelle, DipTT, BuildInspCert, TTIC
D.A. Dendle, DipTT, TTIC
I.P. Edwards, BEng(SIT)
B. Goold, MBS, FAIBS
A. Kamenev, Req. Arch., CertBuildSurv
J. Mauer, BCE(Hons), MCE(Melb), CE, EWS, AI ArbA, FIEAust
S.J. Mitchell, DipTT, TechCert
J.E. Norrish, BEng(SIT)
V. Osterlund, Dip TT, BuildInspCert
G. Schofield, MEng(RMIT), BEng(Mon), MIEAust
R.P. Ulbrick, DipTT, TTIC
C.W. Watson, ACTI
J.E. Wilson, BCE(Melb), MIE Aust
J. Xenophontos, MEng, BEng(SIT)

Laboratory Manager
S.A. Sciessere
Department of Electrical and Electronic Engineering

Head
N. Zorbas, MEngSc, MEd(Melb), BE(Hons)(WAust), MIEEE, FIEEE

Principal Lecturer
J.F. Lambert, MEngSc, BE(Hons)(Melb), MIEEE

Senior Lecturers
J.R. Alonso, MEE, MIEEE, MAIP, MIEEE; A. Cricenti, MA(Lanc), BE(Elec), MIEEE, FTSE, PE

Lecturers
B.S. Adcock, MEngSc(Mon), BEE(Melb), DipEE(PTC), MIEEE

Part-time Academic Staff
D.J. Atkinson, BE(Hons)(Mon), SMIEEE

B.C. Campbell, BEng(Stirling), BCommEng(LaT)

A. G. Harman, MEngSc, BE(Hons)(Melb), GradDipCompSc(Technology), MIEEE, IFIEEE

A. G. Hearmon, BSc(ElecEng)(LaT), DipEE, MIEEE

R. J. Owen, BE(Hons)(Melb), DipEE(FIT), MIEEE

J.A. Phillips, MEngSc, MIEEE, ITEC(TTC), MIEEE, MIEAust

R. Pritchard, BEng(Stirling), MIEEE

P. Simmonds, BSc(Eng)(Melb), MIEEE, ITEC(TTC), MIEEE, MIEAust

R. Taylor, BSc(LLD), MSc(Eng)(LLD), MIEEE, MIEAust

J. Urquhart, BE(Elec), MIEEE, MIEAust

J.M. Worley, PhD, BA(Hons)(ElecEng)(Essex), MIEEE

Laboratory Manager
S. Burrows

Department of Manufacturing Engineering

Head
J.K. Russell, MEngSc, BE(Ind)(Melb), CEng, FIProdE, MIEEE, FIEEE

Senior Staff
P.D. Stewart — Head of Materials Technology — MSc, DipEd(Melb)

Principal Lecturer
W. Thompson, MEng(VIC), BSc(Hons), DipEd(Haw), CEng, FIEEE, MIEEE, MIPredE

Senior Lecturers
D. Boyle, BSc(Hons)(Man), PhD(Man), MIEEE, MIProdE, SME

M. Maj, DipEng(Haw), CEng, MilProdE, MIEEE, SME

M. Masood, PhD(MechEng), CEng, BSc(Hons), GradDipProd(Melb), MIEEE, SME, CASA(USA)

G. Ross, MEng(VIC), BSc(Hons)(Birm), CEng, FIEEE

E. Shayan, PhD(USA), BSc(Hons)(Iran), GradDipCompSc(Melb), ASOR, IE

R.A. Wright, MAppSc(Melb), FMTC(Melb), TTTC(TTC), MIEEE

Lecturers
A. Bigdou, BE(Hons), MEngSc, CEng, MIEEE

J. Cirkis, BA(Melb), ARMIT(Mangi), SupCert(FTI), DipMechEng(LaT)

B. J. Costello, CEng, MIEEE, MIEAust

D. H. Ju, BEng(Prod)(VIC), DipEd(Haw), GradDipProd, MIEEE

E. Joenvirtti, FDipMechEng(FTI), MEng(Mech)(Mon)

H. Knaip, DipEng(Mech), CEng, MilProdE, MSAE, TTTC(Haw)

R. Nagarajah, BSc(Eng), MPhil, CEng, MEmchE, MilProdE, MIEEE

D. Nguyen, PhD(Mon), BE(Chem)(Mon)

D.J. Riddiford, MEngSc(Env)(Melb), AMTC(MechEng)(MTC)

A.L.V. Sonnenberg, BSc(Chem), TTTC(TTC)(Hons)

M.C. Sutheer, BE(Melb), DipAppChem(SIT)

S. Tavrou, BSc(Hons)(Lond), GIProdE

Part-time Academic Staff
S.D. Aldous, BA, BComm, LB

A. Bodman, MSc, CEng, MIEEE, MilProdE, AMBIM

J. Burgess, BSc(Lond), MIEEE, SME

I. Urquhart, chartered Accountant, IE(ACA)

G. Wootton, BE(Prod)

J. Zagorski, BSc(Lond), FIEAust, MIEEE, AFAIM

Chartered Eng

R. Watson, MIE

Research Associate
D. Tonichi, BE(Elec)(Hons)(Melb)

J. Underwood, BAppSc(FTI), GradDipChemEng(SIT), MRAIC

Laboratory Manager
(To be appointed)
Department of Mechanical Engineering

Head
J.H. Perry, PhD (S’ton), BSc (Tech) (NSW), MIE Aust

Principal Lecturer
I.J. Freshwater, PhD, MEngSc, BE (Mech) (Melb), AGIATech, MIE Aust
J.M. Brown, PhD, MAppSc, BSc, BE (Mech)

Senior Lecturers
J.K. Currey, BE (Mech), PDip HVAC&R (SIT), DipMechEng (CTI), TTTC (TTC), MIE Aust, MESA, FIDiaE
R.N. Catch, BE (Mech), PDip HVAC&R (SIT), DipMechEng (SIT), TTTC (TTC)
L.F. Gwyther, BE (Mech) (Melb), MIE Aust
P. M. Scanlon, BE (Mech) (Melb), MIE Aust
W.G. Teague, MEngSc, BE (Mech), BComm (Melb), DipMechEng (CTI), MIE Aust
L.P. Travis, PhD, MS, BSc (Calif), MIE Aust

Lecturers
H. Arndt, MSc (Mon), BA (Melb), DipMechEng (SIT), MIE Aust, TTTC (TTC)
V. Buxna, MEngSc, BE (Mech), DipEd (Melb), DipMechEng (SIT), GI MEME
M.D. Buley, MSc (Aston), BE (Mech) (Mon), DipMechEng (SIT), TTTC (TTC), GradE Aust
D. G. N. Clark, MEngSc (SIT), BE (Mech) (Melb), MIE Aust, FIDiaE
J. C. Harris, MSc (Mon), BE (Mech) (Qld), MIE Aust
P. G. Higgins, MEngSc, BE, BAI (Mon), MIE Aust
G. R. Hjorth, BE (Mech) (Melb), MIE Aust
R. Mierisch, BE (Mech) (SIT), MIE Aust
J. Mlynek, MEngSc, BE (Mech) (Mon), MIE Aust
J. V. Tamor, Dpecific, BSc-Mech (IT), MIE Aust
J. Voller, MEngSc (Mon), BSc (RAETC)

Part-time Academic Staff
P. C. Alscop, BEng (SIT)
M. D. Cooper, MEngSc, BE (Mech), DipEd, MIE Aust
W. M. J. Ellul, BE (Mech) (Hons), MIE Aust, MAIE
R. Fraser, BEng (SIT)
A. L. Hill, DipMechEng (SIT)
B. E. D. McDonald, DipMechEng (CTI), MIE Aust
I. McKaskill, DipMechEng (SIT)
H. Mikhail, BEng (SIT), GradDipIndMan
P. O’Connor, BE (Mech) (Hons)
T. Shi, BEng (SIT), GradDipComputerSim (SIT)

Research Officer
H. J. Mackenzie, BEng (SIT)

Laboratory Manager
V.C. Deeker

Courses offered
The Faculty of Engineering includes the departments of Civil Engineering, Electrical and Electronic Engineering, Manufacturing Engineering, and Mechanical Engineering. Professional courses offered by the Faculty and these departments are as follows:

Faculty of Engineering
Graduate Diploma in Entrepreneurial Studies
Graduate Diploma in Management
Degree of PhD

Department of Civil Engineering
Degree of Master of Engineering, by research
- Degree of Bachelor of Engineering (Civil)
- Degree of Bachelor of Engineering (Civil)/Graduate Diploma in Management

Department of Electrical and Electronic Engineering

Department of Manufacturing Engineering
Associate Diploma in Productivity
Degree of Bachelor of Engineering (Computer Integrated Manufacturing), by coursework
- Degree of Bachelor of Engineering (Manufacturing), by coursework
- Degree of Bachelor of Engineering (Manufacturing)/Graduate Diploma in Management
- Degree of Bachelor of Technology
- Degree of Bachelor of Technology/Graduate Diploma in Management

Department of Mechanical Engineering
Degree of Master of Engineering, by research
- Degree of Bachelor of Engineering (Mechanical)
- Degree of Bachelor of Engineering (Mechanical)/Graduate Diploma in Management
- Degree of Bachelor of Technology
- Degree of Bachelor of Technology/Graduate Diploma in Management

Graduate Diploma in CAD/CAM
Graduate Diploma in Chemical Engineering
Graduate Diploma in Industrial Management
Graduate Diploma in Manufacturing Technology

Department of Mechanical Engineering
Degree of Master of Engineering, by research
- Degree of Bachelor of Engineering (Mechanical)
- Degree of Bachelor of Engineering (Mechanical)/Graduate Diploma in Management
- Degree of Bachelor of Technology
- Degree of Bachelor of Technology/Graduate Diploma in Management

Graduate Diploma in Risk Management

For details of these courses see sections for the above departments:

*Cooperative courses see sections for the above departments.
† Combined courses.
Feeder courses
The Faculty of Engineering has an arrangement with the Tasmanian State Institute of Technology 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 and electronic 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
Engineering provides women with a wide choice of interesting careers. Women graduates have proved to be extremely talented and have made significant contributions to the field, both in Australia and overseas. In recent years, an increasing number of women have successfully undertaken these courses at Swinburne.

Cooperative and Continuing Education in the Faculty of Engineering
A feature of undergraduate courses offered in the Faculty of Engineering is their cooperative education format. These courses include components of paid industrial experience which form an integral part of the education program.

Cooperative Education
"One must learn by doing the thing; for though you think you know if you have no certainty until you try". Sophocles

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.

General
A feature of undergraduate courses offered in the Faculty of Engineering is their cooperative education format. These courses include components of paid industrial experience which form an integral part of the education program.

Cooperative program
Undergraduate courses offered as cooperative education programs are the degree courses in civil, electrical and electronic, computer systems, manufacturing and mechanical engineering and the diploma course in building surveying. Students are required to complete twelve months (two semesters) of approved industrial experience before becoming eligible for the award of an engineering degree. Six months (one semester) of approved industrial experience is required for the award of a building surveying diploma.

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 industrial experience).
− 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.
− industrial experience 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 industrial experience jobs 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 cooperative education section of the faculty, to determine whether the faculty has made an approach to the employer concerned.

Where all reasonable effort to find a job has been made by both faculty and students, but no placement has been found, the student may apply to the head of department to reschedule the industrial experience 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 industrial experience students are supervised by their employers and a member of the faculty’s academic staff who acts as the student’s industrial tutor.

Cooperative employers of Swinburne engineering students
The following are, or have been recently associated with courses in civil, electrical and electronic, manufacturing, and mechanical engineering:

Alcoa of Australia Ltd
AMP Ltd
Aric Soalan
ASEA Pty Ltd
Australian Standard Cables Pty Ltd
Australian Iron & Steel Pty Ltd
Australian Portland Cement Ltd
Automation Dynamics
BHP (Slab & Plate Product Division)
BHP (Coated Products Division)
Burns Bridge Australia Pty Ltd
Caterpillar of Australia
CIG Ltd
City of Box Hill
ClTRA Constructions Ltd
CMfaE
Comalco Research
Containers Packaging
Control Data Pty Ltd

Faculty of Engineering
Cooldrive Industries
Costain Australia Ltd
CPE Australia
CSIRO
CSR Gysprock
Dandenong Valley Authority
Datacraft Pty Ltd
Department of Housing, Tasmania
Dorf Industries Pty Ltd
Dow Chemical Australia Ltd
Dunklop Australia Ltd
Eaton Pty Ltd
Enertronics Pty Ltd
Fastron Pty Ltd
J. Gadsden Pty Ltd
Gannon Chrisfield & Associates
Garlick & Stewart
Gas & Fuel Corporation of Victoria
Government Aircraft Factory
Haden Engineering Pty Ltd
Holla 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. Ericsson Pty Ltd
Lange Dames & Campbell Pty Ltd
Lectrum Pty Ltd
Lewis Construction Pty Ltd
Lincole Scott Pty Ltd
LSE Electronics
Magnecon Controls
Melbourne and Metropolitan Board of Works
Mercedes Benz (Aust) Pty Ltd
Metropolitan Transit Authority
Millar & Morgan 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
Philipp 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
Repcos Ltd and its subsidiaries:
— Repco Engine Parts Pty Ltd
— 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
Ski Australia
Sontron Instruments
South Eastern Medical Complex Co
Spurway Cooke Industries Pty Ltd
State Electricity Commissionof Victoria
State Rivers and Water Supply Commission
Stephen Dunn & Associates
K.H. Stramit
Supply Logistics Ltd
Tain Electronics
Telecom Australia (Victoria Division)
TEMCO Pty Ltd
Textron
Tyree 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
Overseas placement
The faculty, cooperates with the following universities in organi
sing overseas placements:
— 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 ex-
perience.
This means:
— they are results orientated.
— they already understand and accept workplace targets,
relationships and disciplines.
— they are a year older and more mature.
— they have completed a longer course, e.g. engineers have
had three-and-a-half years full-time study with the same
teaching content of a four-year course, plus one year of
supervised paid employment.
— they also bring with them knowledge of the latest technology,
acquired in the course of their studies.
Employers alert to the ‘bottom line’ advantages will also be
interested in these further benefits:
— by employing a cooperative student for his/her training, the
employer can evaluate a potential graduate’s suitability to
the organisation.
— regular and long-term contact between employers and
faculty staff has a beneficial influence on course design and
teaching methods.
— the student promotes the image of the employer’s organis-
ation 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 Mr S.H. Salem, telephone
819 8168.
Advice to prospective students

First-year engineering degree
Secondary students considering a professional engineering course in civil, electrical and electronic, computer systems, manufacturing or mechanical engineering, 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 prior to the entrance requirements.

A feature of Swinburne's engineering degree courses is the common first-year program which enables a student commencing a course to defer making a final decision on the branch of engineering to be undertaken until the end of first year. The subjects comprising first year are intended to form a firm foundation on which studies in later years are built. Considerable emphasis is placed on the development of fundamental scientific principles and an introduction to engineering technology and techniques.

Second and later years engineering degree
Students who have completed, or partly completed, an engineering course at another tertiary institution may apply for entry to an engineering degree course at Swinburne. Applications in this case are required to be substantiated by evidence of the course studied by the applicant and the results obtained. Enquiries should be directed to the head of the engineering department concerned.

The policy of the Engineering Faculty Board regarding admission 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 Year 12 course of study with a branch of mathematics as a prerequisite subject. Recommended Year 12 subjects are physics and chemistry. 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 Panel which consists of the Dean of Faculty (or his nominee) together with a representative from each of the four engineering departments. The panel is responsible for selecting those applicants who are considered most likely to complete the course concerned satisfactorily.

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

Eligibility to apply for entry

'Standard' entry
Year 12
A course of study previously accredited by the Victorian Curriculum & Assessment Board at Year 12 level in the following Group 1 subjects: English, Mathematics A, Mathematics B, Physics and Chemistry. Within the Mathematics area, Complex Numbers and Matrices are strongly recommended. Results of Grade D or better in at least four of the subjects listed above are required. Group 2 subjects: not 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/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.

Certificate of Technology
COT courses with studies in Mathematics and Physics equivalent to the level of VCE(TOP)/Year 12, together with some years of work experience, may also be considered.

'Alternative' entry
Satisfactory completion of VCE(HSC) or equivalent, including a pass in Mathematics A, plus passes in Mathematics and Science subjects at Year 11.

Mature-age entry
Special provision is made for mature-age entry to engineering courses. The scheme is designed for applicants with less than the full entrance requirements but who have the ability to cope with their proposed course of study. This provision is not intended for students who have recently failed the Year 12 examinations.

Applicants in this category are generally people in, or beyond, their early twenties who have had some years of work experience and will be considered on their individual merits, however it is advisable that they have passed Mathematics A and Physics at Year 12 level.

Other
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. The Faculty will notify applicants if they are required to undertake such a test.

An interview may be required.

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, mature-age or other special 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 1989 entry is 16 September 1988.

Part-time
All engineering courses can be completed on a part-time basis. 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.
Mature-age and 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 1989 may apply for deferment until 1990. Applications for deferment should be made in writing and directed to the Assistant Registrar (Engineering).

Deferral will be virtually automatic for those who apply as soon as the offer of a place is made. Later applicants may be asked to give reasons for their request for 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 as part-time classes. 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) 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 coursework should be directed to the appropriate department 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 or 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 departments 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 departmental 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 head of the relevant department.

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.
Electives

Engineering degree courses (1985 syllabus) include a number of elective areas of study. Students should note that the range of electives offered in any one year depends on the number of students wishing to undertake a particular elective and on the staff and facilities available.

(a) All degree courses include provision for two general elective subjects in a non-scientific/technical area to be taken in later years. General electives of forty-five hours each are chosen from nominated Liberal Studies subjects or other approved subjects from the Faculties of Arts or Business.

A list of approved subjects will be published at the start of each year. The subjects available in 1988 were:

- AB752 Applied Psychology
- AB753 Literature and Media
- AB754 Sociology
- AB755 Law in Society
- AB756 Technology and Society
- AB757 Archaeology
- AB758 Philosophy
- BS501 Accounting and Finance
- BS502 Legal Studies
- BS503 Managerial Economics (not available for Mechanical Engineering students)
- BS504 Contemporary Macroeconomics

Students must have the approval of the head of their department before enrolling for the subject in question. Students must ensure that the subject chosen will fit into their timetable without difficulty.

The two general elective subjects are compulsory for all degree students.

(b) In later years of all courses elective subjects are available which enable students to achieve some measure of specialisation in their chosen branch of engineering. See the appropriate engineering department section for further details.

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. To assist students in determining their complete workload in any one semester, each engineering department maintains a record of the overall work program for students in each year group of a full-time course. The work program is displayed in the engineering department concerned.

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 departmental 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 1985 syllabus degree courses with the exception of final year, the duration of each academic semester will be eighteen weeks which includes subject to approved variations:

(a) fifteen weeks of teaching;
(b) a non-teaching week in the sixteenth week for revision or reflection; and
(c) formal tests/examinations in the seventeenth and eighteenth weeks.

The specific weeks devoted to these activities in 1989 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 11 1/5 hours 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 apply to courses of study undertaken from first semester 1984.

1 General

The Faculty of Engineering operates a faculty passing scheme which applies to:

(a) full-time undergraduate and graduate diploma students;
(b) part-time undergraduate and graduate diploma students whose weekly workload is ten 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 head of department concerned before becoming eligible for consideration under the faculty passing scheme.

2 Part-time students

(a) Part-time students who qualify and enter for a Faculty Pass for a group of subjects will receive a Faculty Pass result for that group and will not be required to undertake further study for subjects in the group. Results for individual subjects, however, will be unchanged. Thus, a part-time student who fails a subject but achieves a Faculty Pass for the group which includes that subject will have a fail recorded for the subject but will satisfy the course requirements for the subject.

(b) Part-time students may be admitted by Faculty Board to full-time study at such time as they become capable of entering a full-time year (or semester where applicable) without any carry over of subjects from earlier years (or semesters where applicable).

3 Full-time students

The faculty passing scheme operates for full-time students as follows:

(a) A student in any year will normally be assessed on the whole of the year’s work at the end of the second semester. A student will:

(i) pass the year by passing in all subjects (a pass outright); or
(ii) be passed by Faculty Board on the year as a whole (that is, be granted a Faculty Pass on the year); or
(iii) not pass but be permitted by Faculty Board to repeat the year’s work as a full-time student; or
(iv) not pass and be suspended from the full-time course (see paragraph 3 (b)).

(b) Students who achieve only limited success as full-time students and elect (and are permitted by Faculty Board) to enter part-time study in order to rehabilitate themselves, will be permitted to retain credit for any subjects passed as full-time students and may be re-admitted by Faculty Board to full-time study at such time as they become capable of entering a full-time year (or semester where applicable) without any carry over of subjects from earlier years (or semesters where applicable).
(c) The achievement of a Faculty Pass will not alter results in individual subjects but will obviate the necessity to repeat subjects not passed in the group considered.

Note: The authority of Faculty Boards as set down in paragraphs 2(b) and 3(b) has been delegated to the head of the awarding department.

4 Special programs of study
Applicants with ‘advanced standing’ who are admitted to full-time studies may be enrolled in special programs of study as interim measures until they can be enrolled in the normal programs of subjects. The rules of faculty passing will apply. Such special programs require approval by the head of the awarding department.

5 Formula for faculty passing
(a) The following assessment categories are used by departments in preparing subject results for submission to the Board:

HD, D, C, P, P*, N*, N.

(b) The assessment categories of P* and N* are used in determining a student’s Faculty Result, but do not form part of a student’s published record of academic achievement. A result of P* is formally published as P; a result of N* is formally published as N.

P — Marginal pass in the subject.
N — Fail. In the opinion of the subject panel the student, having submitted required assessable work, is recommended for consideration for a Faculty Pass.

(c) A Faculty Result of Pass is awarded to eligible students (see paragraph 1) who pass all subjects in the year of study.

(d) An automatic Faculty Pass is awarded to a full-time student who meets both of the following criteria:

(i) Achieves a positive aggregate rating on the formula

\[ A = \sum n_i z_i - 5 \sum n_i \]

where A is aggregate rating,

\[ n_i \]

is the number of hours per 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>1</td>
</tr>
</tbody>
</table>

(ii) Gains recommended results of N* in not more than two subject for the subjects where the total number of hours is not more than 6 hours per week per semester.

It should be noted that results in industrial experience subjects are excluded when a student’s aggregate rating is calculated.

(e) An automatic Faculty Pass is awarded to a part-time student who meets both of the following criteria:

(i) Achieves a positive aggregate rating on the formula

\[ A = \sum n_i z_i - 5 \sum n_i \]

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.

(ii) Gains recommended result of N* in not more than one subject provided the number of hours in the subject is not more than 3 hours per week per semester.

6 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 Result or not.

7 Supplementary assessment
At the discretion of the Board, a scheme of restricted supplementary assessment operates for students who have achieved poor results (below N*) in one or two subjects. In any such cases consideration of a student’s Faculty Result is deferred until the results of the supplementary assessments are available.

8 Faculty results
Students who have a workload which qualifies them for consideration under the faculty passing scheme are eligible to enter for a Faculty Result. Eligible students are responsible for checking that their statement of enrolment makes provision for a Faculty Result. Codes currently in operation are:

Civil Engineering
FX962 First-year degree — full-time
FX992 First-year degree — part-time
FC984 Second-year degree
FC986 Third-year degree
FC988 Fourth-year degree
FC989 Fifth-year degree
FC991 Part-time degree — later years (for students enrolled for semester 1 only)
FC992 Part-time degree — later years (full-year/semester 2 subjects)
FC882 Building Surveying Diploma first year
FC884 Building Surveying Diploma second year
FC886 Building Surveying Diploma third year
FC887 Building Surveying Diploma fourth year
FC889 Building Surveying Diploma part-time (for students enrolled for semester 1 only)
FC892 Building Surveying Diploma part-time later years (full-year/semester 2 subjects)

Electrical and Electronic Engineering
FX962 First-year degree — full-time
FX992 First-year degree — part-time
FC984 Second-year degree
FE986 Third-year degree
FE988 Fourth-year degree
FE991 Fifth-year degree
FE992 Part-time degree — later years (for students enrolled for semester 1 only)
FE992 Part-time degree — later years (full-year/semester 2 subjects)
FE472 Telecommunication Systems Management graduate diploma

Manufacturing Engineering
FX962 First-year degree — full-time
FX992 First-year degree — part-time
FP984 Second-year degree
FP986 Third-year degree
FP988 Fourth-year degree
FP991 Fifth-year degree
FP992 Part-time degree — later years (for students enrolled for semester 1 only)
FP992 Part-time degree — later years (full-year/semester 2 subjects)
Mechanical Engineering
FX982 First-year degree — full-time
FX992 First-year degree — part-time
FM884 Second-year degree
FM988 Third-year degree
FM988 Fourth-year degree
FM989 Fifth-year degree
FM991 Part-time degree — later years (for students enrolled for semester 1 only)
FM992 Part-time degree — later years (full-year semester 2 subjects)

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 transfer) 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 head of the student's department.

(c) Students who discontinue study without permission and who later wish to renew their enrolment at the Institute in the same course will be treated as new students but will receive such credit for the subjects previously passed as is determined by the Engineering Faculty Board on the advice of the head of the student's department.

(d) Where subjects have been discontinued since students' initial enrolment, students will be required to undertake the presently operating equivalent subjects. Information regarding superseded subject equivalents is available from the head of the student's department.

(e) As students will realise, there is often benefit in transferring from the course of study in operation at the time of enrolment to a later course of study. With the permission of the head of the student's department, students may transfer from the course of study for which they are enrolled to a later course of study but should recognise that such a transfer may involve the undertaking of some additional subjects.

Minimum hours for part-time enrolment
The normal load for part-time students is approximately half that of full-time students, and is typically between 12 and 14 hours of class contact per week.

To enable the Faculty to admit as many students as possible within its quota limits, a minimum time commitment by part-time students is necessary. This minimum commitment has been set at 8 hours per week (one-third of a normal full-time load), unless special circumstances apply. Such special circumstances include non-availability of suitable classes, graduate studies, or cases where the proposed enrolment arrangements lead into a standard full-time program. In such special circumstances, the enrolment requires the specific approval of the head of the awarding department.

Part-time students who initially enrol for 8 hours per week or more, and who subsequently withdraw from certain subjects which reduces their enrolment to below 8 hours per week, will normally be processed as a total withdrawal from the course.

Faculty of Engineering

Suspension from courses
A student who fails any subject twice and is not eligible for, or does not receive, a Faculty Pass for a group of subjects which includes a subject previously failed, will be considered for exclusion from further study in the course in which that student is enrolled.

Normally a third attempt at any subject will not be permitted. A student may repeat full-time studies on a full-time basis once only during a course, unless special approval is given by the Engineering Faculty Board.

If a Head of Department considers that a prima facie case for exclusion exists, the matter will be referred to the Engineering Courses Committee sitting as an exclusions sub-committee.

The procedure for considering engineering students recommended for exclusion is as follows:
1. Based on compliance with the faculty regulations on suspension from courses, the head of department submits a case for the possible exclusion of a student to the Engineering Courses Committee.
2. If the Engineering Courses Committee accepts that a case exists, the student is advised that his/her status in the course concerned is to be considered at a subsequent meeting of the Committee; and that he/she may attend to present information relevant to the case.
3. The Committee may co-opt representatives when hearing a case for exclusion.

Enrolment
Although the Swinburne calendar is divided into two teaching semesters, engineering students need enrol only once for the subjects they are undertaking in any one year. Where it is necessary to change the list of subjects entered for at enrolment a student must complete an Amendment to Enrolment form available from Student Administration, the Engineering Faculty Office, or engineering department offices. Students should note that they must obtain the approval of the head of their awarding department before amending their enrolment.

Applicants offered a place in an engineering course will be expected to attend for enrolment early in February. Successful applicants will be notified of enrolment times when they are offered a place.

Continuing students in engineering courses are required to present for enrolment during the times set aside for re-enrolling students in December. Students need to check Institute notice-boards for details which are made available towards the end of second semester.

Enquiries regarding courses to be followed should be directed to the head of department.

For further information regarding enrolment see the section entitled 'Enrolment regulations' in the general section of this Handbook.

Leave of absence
Students who have enrolled in a course who wish to take leave of absence with a view to re-enrolling at the end of a specified period should apply on an Amendment to Enrolment form.

Leave of absence is granted by the Dean of Faculty (or his nominee). Students who have been granted leave of absence will be notified in writing by the Assistant Registrar (Engineering). Enrolment for all subjects for the duration of the leave will be cancelled automatically.

Full-time students should note that leave of absence is normally not granted after the completion of first semester.

Applications submitted after first semester are considered on their merits and student progress reports are taken into account.
Approval and publication of results

1 General
   (a) The Engineering Faculty Board policy is that all engineering students are informed of their progress as soon as possible after any prescribed subject has been completed.
   (b) These regulations are normally applied by the Engineering Courses Committee acting as a sub-committee of the Engineering Faculty Board.
   (c) In special circumstances individual student subject results may be deferred on medical grounds or other reasons of hardship. Deferral of faculty results for supplementary assessment is covered under ‘Faculty passing regulations’. The period of deferment is determined in the light of particular circumstances.

2 Programs of study over two semesters
   (a) Results for subjects completed in first semester are approved for publication as soon as possible after the end of semester.
   (b) Where a subject continues over two semesters a mid-year progress report is released by the awarding department 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. Where appropriate, a Faculty Result is published at the same time.

Programs of study over one semester
   (a) Results for subjects completed in first semester, including industrial experience, are approved for publication as soon as possible after the end of semester.
   (b) Where a student is enrolled for first semester only, and a Faculty Result is required, the Faculty Result is approved for publication as soon as possible after the end of semester.
   (c) Where a student is enrolled in course work in one semester and industrial experience in the other semester, a Faculty Result is normally approved for publication after the end of second semester. If the student’s first semester results are unsatisfactory, the Faculty Result may be approved for publication as soon as possible after the end of first 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 15%
- 2nd year 10%
- 1st year 5%

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 department 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.

Prizes and Scholarships

W.P. Brown Medal
This is awarded by the Institution of Engineers, Australia, to the best all-round student in the final year of an engineering course. The award is a medal and a premium of $100.

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

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

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

Harold E.R. Steele Prize
This is awarded to the best student in the course leading to the degree of Bachelor of Engineering with major studies in electrical and electronic engineering.

Lysaght Scholarships
Applicants for these scholarships must be qualified to enter the second year of the manufacturing engineering degree course. The value of the scholarships vary with the year of the course and range from approximately $1000 per year up to approximately $1350 per year, together with a $300 book allowance. The scholarships also provide for work experience and vacation employment at normal rates of pay.

Molyneux Medal
A silver medal and a prize of $30 are awarded to the student in the final year of the manufacturing engineering degree, undertaking major studies in chemical engineering, who submits the best Project Thesis.

Society of Chemical Industry of Victoria Prize
A certificate and a prize of $25 is awarded to the student nominated by the Department of Manufacturing Engineering as the best student in the final year of chemical engineering.

Unilever Prize
This includes provision for an award of $25 to be made to a mechanical engineering student.

Oscar Weigel exhibitions in engineering
Applicants for these awards must be qualified to enter the second or a later year of an engineering degree course or be accepted as a candidate for the degree of Master. Value — up to $400 per year and tenable for a period not exceeding five years.

Postgraduate awards

The Commonwealth Department of Education provides awards for full-time research leading to the degree of Master. The closing date for applications is 31 October in any year. Some industrial organisations also make available awards for full-time research leading to the degree of Master. Further information may be obtained from the head of each engineering department.
Short courses
In addition to the accredited courses leading to diploma and degree qualifications the Engineering Faculty also offers a wide range of short courses. These are usually of two to three days’ duration and are designed to enable various industrial personnel to update their skills and knowledge in areas of specific interest. Typical courses offered recently include:
- acoustics, antennas, digital techniques, ergonomics, risk management, numerical modelling, metrology, manufacturing technology, micro-processors, residential raft slab design, network analysis, construction planning, urban flood detention and floodways, urban piped drainage systems.

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 and electronic, manufacturing, and mechanical engineering, have all received recognition from the Institution of Engineers, Australia, as satisfying academic requirements for corporate membership.

Students who are enrolled for engineering courses at Swinburne and are at least seventeen years of age may apply to the Institution of Engineers, Australia, to become student members. Application forms are available from engineering departmental 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/electronic engineering is recognised by the Institution of Radio and Electronics Engineers (Australia) as sufficient academic qualification for membership.

Faculty of Engineering
Y080 Graduate Diploma in Entrepreneurial Studies
This course recognises the need to train specialists in the skills required to bring an invention, original product or process from the stage of conception to that of full commercial utilisation, through innovation and enterprise.

Business and Government initiatives for future technological development should be enhanced as a result of:
- more inventions being commercialised and developed in Australia;
- 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
- 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 as employees. Students are offered a number of theoretical subjects including Technology and Innovation, Manufacturing Systems, Managing & Developing Organisations, Finance, Marketing and Innovation, Law and Venture Capital Management. In addition, to relate theoretical concepts to practice, second year students are required to prepare a complete Business Plan to an acceptable professional standard.

Admission requirements
All applicants will comply with one of the following:
- The completion of a degree or diploma in engineering, science or applied science.
- The completion of a degree or diploma in business with experience in technology enterprises.
- 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.

In selecting students for the course, the course convener shall take into consideration the balance of skills required for team participation.

For those interested in enrolling in this course, there will be an orientation evening in the weeks preceding the start of teaching. Attendance at this session is highly desirable. An interview may also be required.

Duration of course
The course consists of 405 formal contact hours over two years. The course is part-time only and is composed of two 15 week semesters per year. Each unit will occupy the equivalent of 45 hours class contact during a semester and students will be expected to spend at least the same period in private study.

Team teaching will be used in most subjects as well as extensive input from specialist industry personnel.
Enrolment details
The intake is expected to be in the range 20-25 students per year; resulting in a total enrolment in the course of 40-50 students at any one time.
Course structure (1986 syllabus)
First year
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS791</td>
<td>Marketing and Innovation</td>
<td>45</td>
</tr>
<tr>
<td>ME785</td>
<td>Technology and Innovation</td>
<td>45</td>
</tr>
<tr>
<td>BS795</td>
<td>Introduction to Financial</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Management</td>
<td>45</td>
</tr>
<tr>
<td>MP821</td>
<td>Managing and Developing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organisations</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>90</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>BS792</td>
<td>The Entrepreneur and</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>the Law</td>
<td></td>
</tr>
<tr>
<td>MP841</td>
<td>Manufacturing Systems</td>
<td>45</td>
</tr>
<tr>
<td>BS796</td>
<td>Finance and Capital</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>EF700</td>
<td>The Business Plan</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>90</td>
</tr>
</tbody>
</table>

Graduate Diploma in Management
Details will be set out in a separate brochure for 1989.

Degree of PhD
By research and thesis. Enquiries should be made to the Registrar.

Department of Civil Engineering
The department 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 department also conducts a cooperative (sandwich) diploma course in building surveying.

The undergraduate degree course leads to a professional qualification in civil engineering which is recognised by the Institution of Engineers, Australia. The graduate diploma enables graduate engineers to undertake further specialised studies in construction technology. The degree of Master provides specialist research training in a selected topic in civil engineering, usually of importance to, and funded by industry. Continuing education courses for professional engineers are provided from time to time in selected subjects by way of short courses. The building surveying diploma is a professional course which meets the academic requirements for membership of the Australian Institute of Building Surveyors.

The department 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 department also undertakes applied research and consulting. Enquiries should be directed to the head of the department or to the Swinburne Liaison Officer.

Courses offered
- C050 Degree of Bachelor of Engineering (Civil)
- C044 Diploma of Building Surveying
- C082 Graduate Diploma in Civil Engineering
- Y096 Degree of Master of Engineering

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 co-operative 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 final semester of the course when students choose electives from a range of specialisation topics available.

### Part-time study

The course can be completed by part-time study. Students may select their own program of day or evening classes, from the required subjects of the course, with the approval of the head of department.

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 first-hand industrial experience and liaison is maintained between mentor, employer, and student.

The fifth year, which consists of only one nineteen week semester, is spent at Swinburne.

#### Course structure (1985 syllabus)

**First year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Sem 1</th>
<th>Sem 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM197</td>
<td>Engineering Mathematics</td>
<td>60</td>
<td>45</td>
</tr>
<tr>
<td>SP197</td>
<td>Physics</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>SC197</td>
<td>Chemistry</td>
<td>45</td>
<td>-</td>
</tr>
<tr>
<td>MP193</td>
<td>Materials and Processes</td>
<td>60</td>
<td>-</td>
</tr>
<tr>
<td>AB151</td>
<td>Communication Skills</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>MP106</td>
<td>Engineering Drawing and Graphics</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>CE113</td>
<td>Static Systems</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>EE187</td>
<td>Electronics, Circuits and Computing</td>
<td>75</td>
<td>45</td>
</tr>
<tr>
<td>ME126</td>
<td>Energy Systems</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>EF197</td>
<td>* Introduction to Engineering</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

* Plus 15 hours in selected non-teaching periods.

**Second year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Sem 1</th>
<th>Sem 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE211</td>
<td>Structural Mechanics</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>CE231</td>
<td>Hydraulics</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>CE241</td>
<td>Surveying</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>CE251</td>
<td>Structural Design</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>CE261</td>
<td>Transport Engineering</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>CE291</td>
<td>Geoscience</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>MP282</td>
<td>Engineering Materials</td>
<td>30</td>
<td>-</td>
</tr>
<tr>
<td>SM292</td>
<td>Engineering/Mathematics</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

#### Faculty of Engineering

### Fourth Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE411</td>
<td>Structural Mechanics</td>
<td>60</td>
</tr>
<tr>
<td>CE421</td>
<td>Planning</td>
<td>30</td>
</tr>
<tr>
<td>CE431</td>
<td>Water Engineering</td>
<td>45</td>
</tr>
<tr>
<td>CE451</td>
<td>Structural Design</td>
<td>90</td>
</tr>
<tr>
<td>CE481</td>
<td>Geomechanics</td>
<td>60</td>
</tr>
<tr>
<td>SM492</td>
<td>Engineering/Mathematics</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>General Elective</td>
<td>45</td>
</tr>
</tbody>
</table>

|         | 375         |

#### Semester 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE491</td>
<td>Industrial Experience</td>
<td>24 weeks</td>
</tr>
</tbody>
</table>

*Approved subjects chosen from Arts or Business. See section entitled 'Engineering subject details' for information on general elective subjects.

### Fifth Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE505</td>
<td>Investigation Project</td>
<td>115</td>
</tr>
<tr>
<td>CE555</td>
<td>Civil Design</td>
<td>135</td>
</tr>
<tr>
<td>CE595</td>
<td>Professional Practices</td>
<td>90</td>
</tr>
</tbody>
</table>

#### Electives (3) chosen from

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE511</td>
<td>Structural Mechanics</td>
<td>135</td>
</tr>
<tr>
<td>CE531</td>
<td>Water Engineering</td>
<td>135</td>
</tr>
<tr>
<td>CE532</td>
<td>Environmental Engineering</td>
<td>135</td>
</tr>
<tr>
<td>CE552</td>
<td>Structural Design</td>
<td>135</td>
</tr>
<tr>
<td>CE581</td>
<td>Transport Engineering</td>
<td>135</td>
</tr>
<tr>
<td>CE571</td>
<td>Construction</td>
<td>135</td>
</tr>
<tr>
<td>CE581</td>
<td>Geomechanics</td>
<td>135</td>
</tr>
<tr>
<td>CE592</td>
<td>Municipal Engineering</td>
<td>475</td>
</tr>
</tbody>
</table>

*Part-time students may undertake these subjects over two semesters as syllabus content is identical to the corresponding full-time subjects.

### C044 Diploma of Building Surveying

The course which commenced in 1981, 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 Civil Engineering Department, it is interdisciplinary in nature, with a teaching input from a number of departments, including the Building Construction Department of Swinburne College of TAFE.

### 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 course has recently been re-accredited, involving only minor changes to the course structure. The revised syllabus will commence in 1987.

The Diploma of Building Surveying is structured on a co-operative (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. Students should 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
Year 12
Successful completion of a Year 12 course of study which must include a branch of mathematics. Recommended Group 1 subjects are Physics or Chemistry.

Group 2 subjects: In addition to the recommended Group 1 subjects, Group 2 subjects may be considered.

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.

Course structure (1987 syllabus)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First year</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sem 1</strong></td>
<td></td>
</tr>
<tr>
<td>AB150 Communications1</td>
<td>30</td>
</tr>
<tr>
<td>BS196 Introductory Law</td>
<td>45</td>
</tr>
<tr>
<td>CE114 Applied Mechanics</td>
<td>60</td>
</tr>
<tr>
<td>CE171 Building Practice</td>
<td>45</td>
</tr>
<tr>
<td>CE172 Building Structures1</td>
<td>60</td>
</tr>
<tr>
<td>CE191 Statutory Control 1</td>
<td>30</td>
</tr>
<tr>
<td>ME169 Building Services 1</td>
<td>45</td>
</tr>
<tr>
<td><strong>Sem 2</strong></td>
<td></td>
</tr>
<tr>
<td>MP186 Building Materials 1</td>
<td>45</td>
</tr>
<tr>
<td>SM191 Computations</td>
<td>45</td>
</tr>
<tr>
<td>SP191 Building Science</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>360</td>
</tr>
<tr>
<td><strong>Second year</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sem 3</strong></td>
<td></td>
</tr>
<tr>
<td>AB250 Behavioural Studies</td>
<td>60</td>
</tr>
<tr>
<td>CE242 Land Surveying</td>
<td>75</td>
</tr>
<tr>
<td>CE253 Structural Design 1</td>
<td>75</td>
</tr>
<tr>
<td>CE272 Building Structures 2</td>
<td>45</td>
</tr>
<tr>
<td>CE273 Practical Inspection</td>
<td>45</td>
</tr>
<tr>
<td>CE274 Scaffolding A</td>
<td>15</td>
</tr>
<tr>
<td>CE275 Scaffolding B</td>
<td>15</td>
</tr>
<tr>
<td>CE282 Geomechanics</td>
<td>60</td>
</tr>
<tr>
<td>CE292 Statutory Control 2</td>
<td>30</td>
</tr>
<tr>
<td>ME269 Building Services 2</td>
<td>45</td>
</tr>
<tr>
<td>MP286 Building Materials 2</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>360</td>
</tr>
<tr>
<td><strong>Sem 4</strong></td>
<td></td>
</tr>
<tr>
<td>CE352 Structural Design 2</td>
<td>45</td>
</tr>
<tr>
<td>CE374 Building Structures 3</td>
<td>45</td>
</tr>
<tr>
<td>CE375 Fire Engineering</td>
<td>30</td>
</tr>
<tr>
<td>CE394 Statutory Control 3</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>360</td>
</tr>
<tr>
<td><strong>Third year</strong></td>
<td></td>
</tr>
<tr>
<td>CE392 Industrial Experience</td>
<td>24 weeks</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sem 5</strong></td>
<td></td>
</tr>
<tr>
<td>AB350 Communications 2</td>
<td>30</td>
</tr>
<tr>
<td>BS389 Financial Management</td>
<td>45</td>
</tr>
<tr>
<td>CE389 Administration 1</td>
<td>45</td>
</tr>
<tr>
<td>CE393 Urban Planning 1</td>
<td>30</td>
</tr>
<tr>
<td>CE395 Structural Design 2</td>
<td>75</td>
</tr>
<tr>
<td>CE473 Land Surveying</td>
<td>75</td>
</tr>
<tr>
<td>CE474 Building Structures 4</td>
<td>45</td>
</tr>
<tr>
<td>CE475 Fire Engineering</td>
<td>45</td>
</tr>
<tr>
<td>CE482 Geomechanics</td>
<td>45</td>
</tr>
<tr>
<td>CE493 Building Law and Contracts</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>360</td>
</tr>
<tr>
<td><strong>Fourth year</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sem 6</strong></td>
<td></td>
</tr>
<tr>
<td>BS400 Administration 2</td>
<td>60</td>
</tr>
<tr>
<td>CE403 Professional Projects</td>
<td>30</td>
</tr>
<tr>
<td>CE422 Urban Planning 2</td>
<td>30</td>
</tr>
<tr>
<td>CE453 Structural Design 3</td>
<td>60</td>
</tr>
<tr>
<td>CE474 Building Structures 4</td>
<td>45</td>
</tr>
<tr>
<td>CE475 Fire Engineering</td>
<td>45</td>
</tr>
<tr>
<td>CE482 Geomechanics</td>
<td>45</td>
</tr>
<tr>
<td>CE493 Building Law and Contracts</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>360</td>
</tr>
<tr>
<td><strong>Sem 7</strong></td>
<td></td>
</tr>
<tr>
<td>BS400 Administration 2</td>
<td>60</td>
</tr>
<tr>
<td>CE403 Professional Projects</td>
<td>30</td>
</tr>
<tr>
<td>CE422 Urban Planning 2</td>
<td>30</td>
</tr>
<tr>
<td>CE453 Structural Design 3</td>
<td>60</td>
</tr>
<tr>
<td>CE474 Building Structures 4</td>
<td>45</td>
</tr>
<tr>
<td>CE475 Fire Engineering</td>
<td>45</td>
</tr>
<tr>
<td>CE482 Geomechanics</td>
<td>45</td>
</tr>
<tr>
<td>CE493 Building Law and Contracts</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>360</td>
</tr>
</tbody>
</table>

C082 Graduate Diploma in Civil Engineering Construction

This course is designed to provide practising engineers and architects with a knowledge of the latest developments in construction engineering and with the capacity to control these techniques from the financial and technical viewpoints.

The total course duration is 480 hours, usually undertaken as a two-year part-time course and requiring attendance for two nights of the week. It runs over four semesters, each of fifteen teaching weeks.

The use of case studies is emphasised in the learning program and students are expected to participate in syndicate discussion activity, especially in civil engineering areas. Parts of the course will be conducted in short periods of intensive full-time study to facilitate this syndicate discussion. During the course students are required to undertake industrially-oriented projects and are expected to be working in an engineering environment.
Practising construction engineers assist Institute staff in teaching selected parts of the course.

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</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE670 Construction Technology</td>
<td>60 (I sem)</td>
<td></td>
</tr>
<tr>
<td>CE660 Civil Engineering Project Control</td>
<td>60 (I sem)</td>
<td></td>
</tr>
<tr>
<td>CE691 Civil Engineering Management</td>
<td>60 (I sem)</td>
<td></td>
</tr>
<tr>
<td>CE692 Communications</td>
<td>60 (I sem)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second year</th>
<th>Hours</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE770 Construction Engineering</td>
<td>120 (whole yr)</td>
<td></td>
</tr>
<tr>
<td>CE771 Construction Project</td>
<td>60 (I sem)</td>
<td></td>
</tr>
<tr>
<td>CE790 Financial Project Control</td>
<td>60 (I sem)</td>
<td></td>
</tr>
</tbody>
</table>

YO96 Master of Engineering
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.

The higher degree programs currently available require the presentation of a major thesis based on original research, investigation or development work, carried out either within Swinburne or externally, providing that adequate facilities and supervision can be arranged. External work can be carried out in an approved industrial, governmental, educational or research organisation.

Copies of the Statute for the degree of Master and application forms are available from the Registrar's Office.

Department of Electrical and Electronic Engineering
Electrical and electronic engineering is concerned with any form of plant, system or device operated by electrical or electronic means, and includes specialties, such as electronics, communications, computer hardware and software, control, electrical power and machines.

The department offers courses leading to professional qualifications in electrical engineering, 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, and student design projects. A constant temperature room is provided for the maintenance of electrical standards, and a high quality screened room is available for the conduct of measurements and experimentation in an interference-free environment. A high-voltage laboratory for insulation testing up to 100 kV is also available. The new computer systems laboratory provides facilities for the computer systems engineering stream.

A mentor scheme is operated by the department 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 department 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 head of department or to the Swinburne Liaison Officer.

Courses offered

<table>
<thead>
<tr>
<th>Degree Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y057</td>
<td>Degree of Bachelor of Engineering (Electrical and Electronic)</td>
</tr>
<tr>
<td>Y097</td>
<td>Degree of Master of Engineering by research</td>
</tr>
<tr>
<td>E083</td>
<td>Graduate Diploma in Digital Electronics</td>
</tr>
<tr>
<td>E084</td>
<td>Graduate Diploma in Telecommunication Systems Management</td>
</tr>
<tr>
<td>E085</td>
<td>Graduate Diploma in Computer Systems Engineering</td>
</tr>
<tr>
<td>E092</td>
<td>Degree of Master of Engineering (Information Technology) by course work</td>
</tr>
</tbody>
</table>

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 and electronic plant and equipment.

The various fields of electrical and electronic 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 computer development and applications, and medical electronics.

The introduction of the computer systems engineering stream which commenced in 1986, will provide 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 and Electronic)  
Year enrolment codes  
Y057 Common first year  
E050 Later years (unstreamed)  
E052 Electrical Engineering Stream  
E053 Electronic Engineering Stream  
E054 Computer Systems Engineering Stream  
The degree course is a general electrical and electronic engineering program for the first three years, with a general electrical and electronic stream and a computer systems engineering stream in year four. In fifth year there are three streams offered — a computer systems engineering stream, an electrical stream and an electronics stream. All streams offer a choice of specialist electives.

Course structure (1985 syllabus)

<table>
<thead>
<tr>
<th>First year Y057</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM197 Engineering Mathematics</td>
<td>60</td>
</tr>
<tr>
<td>SP197 Physics</td>
<td>45</td>
</tr>
<tr>
<td>SC197 Chemistry</td>
<td>45</td>
</tr>
<tr>
<td>MP193 Materials and Processes</td>
<td>60</td>
</tr>
<tr>
<td>AB151 Communication Skills</td>
<td>30</td>
</tr>
<tr>
<td>MP106 Engineering Drawing and Graphics</td>
<td>45</td>
</tr>
<tr>
<td>CE113 Static Systems</td>
<td>30</td>
</tr>
<tr>
<td>EE167 Electronics, Circuits and Computing</td>
<td>75</td>
</tr>
<tr>
<td>ME126 Energy Systems</td>
<td>30</td>
</tr>
<tr>
<td>EF197 Introduction to Engineering*</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>375</strong></td>
</tr>
</tbody>
</table>

*Plus 15 hours in selected non-teaching periods.

<table>
<thead>
<tr>
<th>Second year E050</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE255 Electrical Design and Computing</td>
<td>60</td>
</tr>
<tr>
<td>EE282 Communication Principles</td>
<td>60</td>
</tr>
<tr>
<td>EE283 Electrical/Circuits and Fields</td>
<td>60</td>
</tr>
<tr>
<td>EE286 Electrical Machines and Measurements</td>
<td>60</td>
</tr>
<tr>
<td>EE287 Electronics</td>
<td>60</td>
</tr>
<tr>
<td>MP285 Materials and Environment</td>
<td>45</td>
</tr>
<tr>
<td>SM284 Engineering Mathematics</td>
<td>60</td>
</tr>
<tr>
<td>SP284 Engineering Physics</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>375</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Third year E050</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE301 Industrial Experience</td>
<td>24 weeks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fourth year Electrical and Electronic Stream E050</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE455 Electrical Design</td>
<td>45</td>
</tr>
<tr>
<td>EE475 Electrical Power and Machines</td>
<td>75</td>
</tr>
<tr>
<td>EE477 Electronics and Communications</td>
<td>75</td>
</tr>
<tr>
<td>EE489 Control Systems</td>
<td>60</td>
</tr>
<tr>
<td>MP422 Engineering Administration</td>
<td>30</td>
</tr>
<tr>
<td>SM494 Engineering Mathematics</td>
<td>45</td>
</tr>
<tr>
<td>General Elective</td>
<td>45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>375</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE401 Industrial Experience</td>
<td>24 weeks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fourth year Computer Systems Stream E054</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE455 Electrical Design</td>
<td>45</td>
</tr>
<tr>
<td>EE471 Operating Systems and Languages</td>
<td>60</td>
</tr>
<tr>
<td>EE472 System Software</td>
<td>45</td>
</tr>
<tr>
<td>EE473 Computer Electronics</td>
<td>30</td>
</tr>
<tr>
<td>EE477 Electronics and Communications</td>
<td>75</td>
</tr>
<tr>
<td>MP422 Engineering Administration</td>
<td>30</td>
</tr>
<tr>
<td>SM494 Engineering Mathematics</td>
<td>45</td>
</tr>
<tr>
<td>General Elective</td>
<td>45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>375</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE401 Industrial Experience</td>
<td>24 weeks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fifth year Electrical Stream E052</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE570 Design and Project</td>
<td>205</td>
</tr>
<tr>
<td>EE575 Electrical Power and Machines</td>
<td>90</td>
</tr>
<tr>
<td>EE576 Electronics</td>
<td>60</td>
</tr>
<tr>
<td>EE579 Control Systems</td>
<td>30</td>
</tr>
<tr>
<td>EE590 Computer Systems Engineering</td>
<td>45</td>
</tr>
<tr>
<td>EE591 High Voltage Systems</td>
<td>45</td>
</tr>
<tr>
<td>EE592 Communication Systems</td>
<td>45</td>
</tr>
<tr>
<td>EE593 Electrical Machine Drives</td>
<td>45</td>
</tr>
<tr>
<td>EE594 Electronic Systems</td>
<td>45</td>
</tr>
<tr>
<td>EE596 Operations Research in Electrical Engineering</td>
<td>45</td>
</tr>
<tr>
<td>EE599 Control Systems</td>
<td>45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>475</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE590 Computer Systems Engineering</td>
<td>45</td>
</tr>
<tr>
<td>EE591 High Voltage Systems</td>
<td>45</td>
</tr>
<tr>
<td>EE592 Communication Systems</td>
<td>45</td>
</tr>
<tr>
<td>EE593 Electrical Machine Drives</td>
<td>45</td>
</tr>
<tr>
<td>EE594 Electronic Systems</td>
<td>45</td>
</tr>
<tr>
<td>EE596 Operations Research in Electrical Engineering</td>
<td>45</td>
</tr>
<tr>
<td>EE599 Control Systems</td>
<td>45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>475</strong></td>
</tr>
</tbody>
</table>
Fifth year

Computer Systems Stream E054

| E8501 | Computer Systems Engineering | 90 |
| E8502 | Electronics | 60 |
| E8503 | Control Systems | 30 |

plus two electives from:

| E85090 | High Voltage Systems | 45 |
| E85092 | Communication Systems | 45 |
| E85093 | Electrical/Machine Drives | 45 |
| E85094 | Electronics | 45 |
| E85095 | Advanced Computer Systems | 45 |
| E85096 | Operations Research in Communications | 45 |
| E85099 | Control Systems | 45 |

Total hours 475

Selection of electives requires approval by the head of department.

E084 Graduate Diploma in Telecommunication Systems Management

This full-time course is intended to educate students in the fundamental technologies associated with the management of telecommunication systems, where management is taken to include planning, organising, and controlling.

The course provides a broad familiarisation with telecommunications and computing technologies, and how they may be used to satisfy user requirements. It also covers the organisation of the system structure, and of component systems, as they affect physical and human resources, and the control of technical standards to meet the system user requirements.

The course is designed for non-technical graduates who are, or intend to be, employed in a management role in telecommunications networks. It is particularly directed towards the needs of the Australian Army, and other organisations, where graduates who are not professional engineers occupy managerial positions in telecommunications activities.

The course is also suitable for non-technical graduates who wish to gain an understanding of the new telecommunication technologies as applied to libraries, instructional television networks, or distance teaching.

To gain admission to the course, applicants must have a degree, diploma or equivalent qualification, together with relevant experience.

The course is scheduled over one year of full-time day attendance, but evening classes may be offered if there is sufficient demand.

Course structure (1988 syllabus)

| Semester 1 | Hours |
| SM631 | Mathematics | 60 |
| E8501 | Computer Systems Engineering | 90 |
| E8502 | Electronics | 60 |
| E8503 | Control Systems | 30 |

Total hours 2725

Selection of electives requires approval by the head of department.

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. To meet the requirements of these two entry groups, the graduate diploma course has two streams, which converge to a common second year.

The two entry streams of the proposed course are intended to provide students with a satisfactory set of skills for the common second year of the course. 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. The duration will be four (4) semesters, with a total course time of 480 contact hours.

Course structure (1988 syllabus)

**First year**

| Semester | Hours |
| Stream for engineers | |
| EE641 | Fundamentals of computing | 60 |
| EE642 | Data structure | 60 |
| Stream for computer scientists | |
| EE646 | Introduction to digital systems design | 60 |
| Second year | |
| Stream for engineers | |
| EE643 | Computer systems software | 60 |
| EE644 | Computer systems design | 60 |
| Stream for computer scientists | |
| EE647 | Measurements and control | 60 |
| EE644 | Computer systems design | 60 |

**Second year**

| Semester | Hours |
| EE741 | Computer systems and software engineering | 60 |
| EE742 | Computer communications and control | 60 |
| Semester 2 | |
| EE743 | Computer systems case studies | 60 |
| EE744 | Design and Project | 60 |
Department of Manufacturing Engineering

The department offers courses leading to professional qualifications in manufacturing and production engineering. Master of Engineering degree programs are available by research in selected areas of study and by coursework in the area of Computer Integrated Manufacturing. Graduate diploma courses are conducted in chemical engineering, biochemical engineering, industrial management, and manufacturing technology.

The undergraduate courses in manufacturing engineering are cooperative programs which enable a student to gain some industrial experience during the course. For degree students the industrial experience totals twelve months.

In addition to the complete courses of study above, the department is responsible for teaching Engineering Drawing and Engineering Materials in all engineering undergraduate courses conducted by other departments. Continuing education courses are provided from time to time in selected areas.

Modern well-equipped laboratories are provided for teaching, research and testing. The department is a member of Computer Aided Manufacturing — International Inc.

A mentor scheme is operated by the department to engender contact between staff and students and to provide guidance for individual students.

Courses offered

- Associate Diploma in Productivity
- Degree of Bachelor of Engineering (Manufacturing)
- Graduate Diploma in CAD/CAM
- Graduate Diploma in Chemical Engineering
- Graduate Diploma in Industrial Management
- Graduate Diploma in Manufacturing Technology
- Degree of Master of Engineering, by research
- Degree of Master of Engineering (Computer Integrated Manufacturing), by coursework

Information available in separate brochure.

Career potential

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, including the use of computer-based systems, indicates that for many years the demand for manufacturing engineers will exceed the number available.

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
or
Chemical Engineering and Design.

The special study subjects are denoted (P) and (C) respectively in the details of the course structure.

Course structure (1985 syllabus)

<table>
<thead>
<tr>
<th>First year</th>
<th>Hours</th>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM297 Engineering Mathematics</td>
<td>60</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>SP197 Physics</td>
<td>45</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>SC197 Chemistry</td>
<td>45</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>MP183 Materials and Processes</td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>AB151 Communication Skills</td>
<td>30</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>MP106 Engineering Drawing and Graphics</td>
<td>45</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>CE113 Static Systems</td>
<td>30</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>EE187 Electronic Circuits and Computing</td>
<td>75</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>ME126 Energy Systems</td>
<td>30</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>EF197 Introduction to Engineering*</td>
<td>15</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>375</td>
<td></td>
<td>375</td>
</tr>
</tbody>
</table>

*Plus 15 hours in selected non-teaching periods.

Second year

<table>
<thead>
<tr>
<th>Hours</th>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM296 Engineering Mathematics</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>SA296 Physical Science</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>ME219 Applied Mechanics</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>AB253 Liberal Studies</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>SK296 Computer Programming</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>EE284 Electronic Circuits and Devices</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>MP281 Engineering Materials</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>MP231 Industrial Engineering</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>MP211 Manufacturing Technology (P)</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP251 Design for Manufacture (P)</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP213 Manufacturing Technology (C)</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP253 Design for Manufacture (C)</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>750</td>
<td></td>
</tr>
</tbody>
</table>

Third year

<table>
<thead>
<tr>
<th>Hours</th>
<th>Semester 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP300 Industrial Experience</td>
<td>24 weeks</td>
</tr>
</tbody>
</table>

Fourth year

<table>
<thead>
<tr>
<th>Hours</th>
<th>Semester 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Elective</td>
<td>45</td>
</tr>
<tr>
<td>SK496 Computer Applications</td>
<td>30</td>
</tr>
<tr>
<td>SM496 Engineering Mathematics</td>
<td>30</td>
</tr>
<tr>
<td>MP431 Industrial Engineering</td>
<td>45</td>
</tr>
<tr>
<td>MP421 Industrial Management</td>
<td>45</td>
</tr>
<tr>
<td>MP441 Manufacturing Systems</td>
<td>30</td>
</tr>
</tbody>
</table>

Faculty of Engineering

<table>
<thead>
<tr>
<th>Hours</th>
<th>Semester 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP411 Manufacturing Technology (P)</td>
<td>90</td>
</tr>
<tr>
<td>MP451 Design for Manufacture (P)</td>
<td>60</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>MP413 Manufacturing Technology (C)</td>
<td>90</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>MP453 Design for Manufacture (C)</td>
<td>60</td>
</tr>
</tbody>
</table>

Semester 2

<table>
<thead>
<tr>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP400 Industrial Experience</td>
<td>24 weeks</td>
</tr>
</tbody>
</table>

*Approved subjects chosen from Art, Arts or Business. See section entitled 'Engineering subject details' for information on general elective subjects.

Fifth year

<table>
<thead>
<tr>
<th>Hours</th>
<th>Semester 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP531 Industrial Engineering</td>
<td>45</td>
</tr>
<tr>
<td>MP521 Industrial Management</td>
<td>45</td>
</tr>
<tr>
<td>MP502 Manufacturing Project</td>
<td>190</td>
</tr>
<tr>
<td>and</td>
<td></td>
</tr>
<tr>
<td>MP511 Manufacturing Technology (P)</td>
<td>75</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>MP551 Design for Manufacture (P)</td>
<td>75</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>MP513 Manufacturing Technology (C)</td>
<td>75</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>MP553 Design for Manufacture (C)</td>
<td>75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hours</th>
<th>Semester 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP517 Industrial Processes and Pollution Control</td>
<td>90</td>
</tr>
</tbody>
</table>

Value 30 hours.

P060 Degree conversion program 1985 syllabus

Candidates of approved standard who already hold a Diploma of Engineering may be admitted into the degree course to undertake a special program of subjects known as the degree conversion program. Such candidates should have a performance record in their original diploma course that shows their ability to complete an engineering course at degree level.

Holders of diplomas in engineering who wish to undertake a degree program should consult the head of department for details of the course to be undertaken and exemptions that may be granted.

Usually a conversion program may be completed in two years of part-time evening study at an average of eleven or twelve hours per week. The subjects are available during the day and students may take some day and some evening classes.

P083 Graduate Diploma in Chemical Engineering

This is a part-time course intended to provide a basic knowledge of chemical engineering for graduates in either applied science or engineering. It is designed for those working or intending to work in the chemical industry.

The course offers a number of options which are appropriate to those working the bio-technology field, or concerned with environmental problems.

The course is planned to be completed in two-and-a-half years (five semesters) of study. This includes evening classes and some daytime attendance throughout the academic year of thirty weeks. Study hours range from 420 to 470 depending upon the options selected.

Available subjects are:

<table>
<thead>
<tr>
<th>Hours</th>
<th>Semester 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA411 Non-Newtonian Heat Mass and Momentum Transfer</td>
<td>90</td>
</tr>
<tr>
<td>EA491 Biochemical Engineering</td>
<td>90</td>
</tr>
<tr>
<td>ME729 Fluid Mechanics</td>
<td>45</td>
</tr>
<tr>
<td>MP517 Industrial Processes and Pollution Control</td>
<td>60</td>
</tr>
</tbody>
</table>
The course provides a sound understanding of current manufacturing technology, up-to-date techniques of acquiring information, an understanding of the latest scientific methods and training and practice in engineering communication. Candidates for admission should normally hold a degree or diploma in engineering or science. A limited number of applicants without formal qualifications may be admitted to the course provided they have substantial relevant experience in manufacturing.

Course structure (1985 syllabus)

Compulsory subjects

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP421  Applied Statistics and Operations Research</td>
<td>60</td>
</tr>
<tr>
<td>EP423  Financial Aspects of Industrial Management</td>
<td>60</td>
</tr>
<tr>
<td>EP424  Human Relations in Industry</td>
<td>60</td>
</tr>
<tr>
<td>EP426*  Management Practice</td>
<td>90</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>270</strong></td>
</tr>
</tbody>
</table>

Note: *Management Practice is taken in the final year of the course.

Optional subjects (three to be taken)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP425  Legal Aspects of Industrial Management</td>
<td>60</td>
</tr>
<tr>
<td>EP431  Production Management</td>
<td>60</td>
</tr>
<tr>
<td>EP432  Work Study</td>
<td>60</td>
</tr>
<tr>
<td>SK527  Computing Techniques</td>
<td>60</td>
</tr>
<tr>
<td>EP435  Physical Distribution Management</td>
<td>60</td>
</tr>
<tr>
<td>EP436  Environmental Studies</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>180</strong></td>
</tr>
</tbody>
</table>

Note: In any year, an optional subject may not be offered unless staff are available — and a sufficient number of students elect to enrol for the subject.

Course structure (1985 syllabus)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Subject hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP611  Production Technology 1</td>
<td>90</td>
</tr>
<tr>
<td>EP612  Production Technology 2</td>
<td>90</td>
</tr>
<tr>
<td>EP613  Production Technology 3</td>
<td>75</td>
</tr>
<tr>
<td>EP614  Systems Engineering</td>
<td>30</td>
</tr>
<tr>
<td>EP615  Instrumentation and Control</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>405</strong></td>
</tr>
</tbody>
</table>

Other elective subjects may be approved at the discretion of the head of department.

P082 Graduate Diploma in Industrial Management

This course is intended to meet the specific needs of people with a technical background who wish to pursue a management career in industry. Entrance to the course is limited to those who have completed a degree or diploma in science or engineering and have at least two years industrial experience.

It comprises four compulsory subjects and three optional subjects. Students may be granted credit for any two of the subjects offered, on the basis of prior study. Where a student has grounds for credit in EP421, 423 or 424 but has already received maximum credit, permission may be given to substitute another optional subject in lieu of the compulsory one.

Admission is determined by a selection committee and applicants are advised to complete the prescribed application form and attach details and evidence of qualifications and work experience.

This course is of approximately three years' duration, part-time.

Course structure (1985 syllabus)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Subject hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP421  Applied Statistics and Operations Research</td>
<td>60</td>
</tr>
<tr>
<td>EP423  Financial Aspects of Industrial Management</td>
<td>60</td>
</tr>
<tr>
<td>EP424  Human Relations in Industry</td>
<td>60</td>
</tr>
<tr>
<td>EP426*  Management Practice</td>
<td>90</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>270</strong></td>
</tr>
</tbody>
</table>

*Management Practice is taken in the final year of the course.

Optional subjects (three to be taken)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Subject hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP425  Legal Aspects of Industrial Management</td>
<td>60</td>
</tr>
<tr>
<td>EP431  Production Management</td>
<td>60</td>
</tr>
<tr>
<td>EP432  Work Study</td>
<td>60</td>
</tr>
<tr>
<td>SK527  Computing Techniques</td>
<td>60</td>
</tr>
<tr>
<td>EP435  Physical Distribution Management</td>
<td>60</td>
</tr>
<tr>
<td>EP436  Environmental Studies</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>180</strong></td>
</tr>
</tbody>
</table>

Note: In any year, an optional subject may not be offered unless staff are available — and a sufficient number of students elect to enrol for the subject.

P081 Graduate Diploma in Manufacturing Technology

This course is designed to increase the effectiveness of engineers, scientists and technologists who hold positions in industry or public service and find themselves ill-equipped to function efficiently in a changing manufacturing environment.
Faculty of Engineering

**Year 2**
- **MP632** Computer Based Management Systems 30
- **MP623** Computer Aided Design 3 30
- **MP625** Manufacturing Automation 2 45
- **MP617** Robotics Technology 30
- **MP616** Numerical Engineering Project 45

**300**

**Y098 Master of Engineering (By research)**

Graduates who hold a Bachelor's degree and who have shown a high standard of academic achievement in that course may be admitted to candidate for the degree of Master of Engineering, 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 and application forms are available from the Registrar's Office.

**PO91 Master of Engineering (Computer Integrated Manufacturing) (By coursework)**

The aim of the course is to prepare graduates in engineering and the physical sciences for future roles in the development and application of computer integrated manufacturing in Australian manufacturing industry. The graduates must have proven academic ability and have had some relevant work experience.

It is intended that the graduates from this course will be readily employable by those manufacturing companies which intend to adopt computer integrated manufacturing.

It is also envisaged that some graduates from the program may seek employment related to the marketing of hardware/software systems or as consultants.

**Entrance requirements**

Candidates for the degree of Master of Engineering by coursework shall:

1. Have completed, at Swinburne, the degree of Bachelor of Engineering with distinction, and shall be in employment in an area relevant to the course.

or

2. Have qualified at a university or other institution for a degree in Engineering which, in the opinion of the Engineering Faculty Board, was completed at a comparable standard to a Swinburne degree with distinction, and is a suitable preparation for study in the Masters program. Such candidates would also be required to be employed in an area relevant to the course.

or

3. Have qualifications and experience which, in the opinion of the Engineering Faculty Board, are of a satisfactory standard and are a suitable preparation for study in the Masters program.

All students shall be required to satisfy an interview panel as to their suitability for the course.

**PO91 Master of Engineering (Computer Integrated Manufacturing) (By coursework)**

The aim of the course is to prepare graduates in engineering and the physical sciences for future roles in the development and application of computer integrated manufacturing in Australian manufacturing industry. The graduates must have proven academic ability and have had some relevant work experience.

It is intended that the graduates from this course will be readily employable by those manufacturing companies which intend to adopt computer integrated manufacturing.

It is also envisaged that some graduates from the program may seek employment related to the marketing of hardware/software systems or as consultants.

**Entrance requirements**

Candidates for the degree of Master of Engineering by coursework shall:

1. Have completed, at Swinburne, the degree of Bachelor of Engineering with distinction, and shall be in employment in an area relevant to the course.

or

2. Have qualified at a university or other institution for a degree in Engineering which, in the opinion of the Engineering Faculty Board, was completed at a comparable standard to a Swinburne degree with distinction, and is a suitable preparation for study in the Masters program. Such candidates would also be required to be employed in an area relevant to the course.

or

3. Have qualifications and experience which, in the opinion of the Engineering Faculty Board, are of a satisfactory standard and are a suitable preparation for study in the Masters program.

All students shall be required to satisfy an interview panel as to their suitability for the course.

**Duration of course**

The course is designed to be completed in three years of part-time study.

Students taking the course on a part-time basis will not normally be permitted to extend their course enrolment beyond five years, except when leave of absence has been granted.

**Details of course structure**

The course will consist of three stages.

In the first stage there will be core studies in appropriate mathematical techniques: Advanced Computing, Control Systems and Devices, and Computer Integrated Manufacturing.

The second stage will encompass advanced studies in Computer Aided Design, Machines and Machine Systems, Management Systems and Design and Analysis of CIM Systems.

In the third stage of the course, students will undertake an individual research or design project, to be examined by thesis, in an area relevant to the skills of the student, the needs of industry, and the experience and equipment available within the Institute.

**Course structure**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EE901</td>
<td>Computers and Interfacing</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>MP902</td>
<td>Advanced Computing Techniques</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>ME903</td>
<td>Advanced Control Systems and Devices</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>MP904</td>
<td>Introduction to Computer Integrated Manufacturing</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>SM905</td>
<td>Advanced Mathematical Methods</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>240</strong></td>
</tr>
<tr>
<td>2</td>
<td>MP911</td>
<td>Machines and Machining Systems</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>MP912</td>
<td>Manufacturing Management Systems</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>MP913</td>
<td>Computer Aided Design</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>MP914</td>
<td>CIM Systems Design and Analysis</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>240</strong></td>
</tr>
<tr>
<td>3</td>
<td>MP921</td>
<td>Seminars on CIM</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>MP922</td>
<td>CIM Project</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>240</strong></td>
</tr>
</tbody>
</table>

**Course total**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>720</td>
</tr>
</tbody>
</table>
Department of Mechanical Engineering

The degree course provides 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 year co-ordinator scheme which operates in the mechanical engineering department provides each student with a ready source of advice on any aspect of course or career.

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 cooperative industrial experience in the course amounts to forty-eight weeks. 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 Mechanical Engineering Department gratefully acknowledges the assistance of engineers in many companies and government departments whose support has greatly enhanced the value of these periods of industrial experience.

Courses offered

- M050 Degree of Bachelor of Engineering (Mechanical)
- Y099 Degree of Master of Engineering
- M082 Graduate Diploma in Air-conditioning Engineering
- M081 Graduate Diploma in Maintenance Engineering
- M083 Graduate Diploma in Risk Management

Career potential

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.

M050 Bachelor of Engineering (Mechanical)

The degree course program combines a thorough education in the application of engineering science principles with a broad span of studies important to a professional engineer.

Streaming in later years of the course is offered through a system of technical elective subjects which allows students to select a particular emphasis for their four-and-a-half year cooperative education program.

Degree course revision

Students entering the first year of the mechanical engineering course will be enrolled in the common first year of the cooperative course first introduced in 1980, and since revised to the Bachelor of Engineering (Mechanical) 1985 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 (1985 syllabus)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First year</strong></td>
<td></td>
</tr>
<tr>
<td>SM197 Engineering Mathematics</td>
<td>60</td>
</tr>
<tr>
<td>SP197 Physics</td>
<td>45</td>
</tr>
<tr>
<td>SC197 Chemistry</td>
<td>45</td>
</tr>
<tr>
<td>MP183 Materials and Processes</td>
<td>15</td>
</tr>
<tr>
<td>AB151 Communication Skills</td>
<td>30</td>
</tr>
<tr>
<td>MP106 EngineeringDrawing and Graphics</td>
<td>60</td>
</tr>
<tr>
<td>CE113 Static Systems</td>
<td>30</td>
</tr>
<tr>
<td>EE187 Electronics, Circuits and Computing</td>
<td>15</td>
</tr>
<tr>
<td>ME126 Energy Systems</td>
<td>30</td>
</tr>
<tr>
<td>EF197 Introduction to Engineering*</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>375</td>
</tr>
</tbody>
</table>

*Plus 15 hours selected non-teaching periods.

**Second year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM298 EngineeringMathematics</td>
<td>90</td>
</tr>
<tr>
<td>SK298 Computer Programming</td>
<td>30</td>
</tr>
<tr>
<td>ME261 EngineeringPractices</td>
<td>90</td>
</tr>
<tr>
<td>ME212 Applied Mechanics (Strength of Materials)</td>
<td>105</td>
</tr>
<tr>
<td>MP284 EngineeringMaterials (Dynamics of Machines)</td>
<td>60</td>
</tr>
<tr>
<td>ME222 Energy Systems (Thermodynamics)</td>
<td>60</td>
</tr>
<tr>
<td>ME242 Ergonomics</td>
<td>45</td>
</tr>
<tr>
<td>BS294 Managerial/Economics</td>
<td>30</td>
</tr>
<tr>
<td>ME271 Design for Industry</td>
<td>90</td>
</tr>
<tr>
<td>ME232 Electronics and Measurement Systems</td>
<td>375</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>750</td>
</tr>
</tbody>
</table>

**Third year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME391 Industrial Experience</td>
<td>24</td>
</tr>
<tr>
<td>SM398 Engineering Mathematics</td>
<td>45</td>
</tr>
<tr>
<td>ME312 Mechanics and Materials</td>
<td>30</td>
</tr>
<tr>
<td>ME322 Energy Systems</td>
<td>60</td>
</tr>
<tr>
<td>ME332 Machines and Controls</td>
<td>60</td>
</tr>
<tr>
<td>MP384 Engineering Materials</td>
<td>45</td>
</tr>
<tr>
<td>ME342 Ergonomics</td>
<td>45</td>
</tr>
<tr>
<td>MP314 Manufacturing Technology</td>
<td>45</td>
</tr>
<tr>
<td>ME371 Design for Industry</td>
<td>45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>375</td>
</tr>
</tbody>
</table>

**Fourth year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Science</td>
<td></td>
</tr>
<tr>
<td>SM498 Engineering Mathematics</td>
<td>45</td>
</tr>
<tr>
<td>ME412 Mechanics of Materials</td>
<td>30</td>
</tr>
<tr>
<td>ME422 Energy Systems</td>
<td>60</td>
</tr>
<tr>
<td>ME432 Machines and Controls</td>
<td>60</td>
</tr>
<tr>
<td>Engineering Technology</td>
<td></td>
</tr>
<tr>
<td>ME442 Ergonomics</td>
<td>45</td>
</tr>
<tr>
<td>ME471 Design for Industry</td>
<td>45</td>
</tr>
<tr>
<td>ME482 EngineeringInvestigation</td>
<td>30</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td></td>
</tr>
<tr>
<td>ME461 Engineering Plant and Equipment</td>
<td>30</td>
</tr>
<tr>
<td>MP414 Manufacturing Technology</td>
<td></td>
</tr>
<tr>
<td>MP484 Engineering Materials</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>ME451</td>
<td>Technical Planning and Sales Engineering</td>
</tr>
<tr>
<td>ME491</td>
<td>Industrial Experience</td>
</tr>
<tr>
<td>ME582</td>
<td>Engineering Project</td>
</tr>
<tr>
<td>ME501</td>
<td>Engineering Science I (non-engineering elective)</td>
</tr>
<tr>
<td>ME502</td>
<td>Engineering Science II</td>
</tr>
<tr>
<td>ME503</td>
<td>Engineering Technology</td>
</tr>
<tr>
<td>ME504</td>
<td>Engineering Management</td>
</tr>
<tr>
<td>ME621</td>
<td>Air-conditioning</td>
</tr>
<tr>
<td>ME622</td>
<td>Refrigeration</td>
</tr>
<tr>
<td>ME721</td>
<td>Air-conditioning</td>
</tr>
<tr>
<td>ME722</td>
<td>Refrigeration</td>
</tr>
<tr>
<td>ME731</td>
<td>Instrumentation and System Control</td>
</tr>
<tr>
<td>ME781</td>
<td>Project and Energy Management</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 two specialised streams, in addition to a common core of studies. The streams are:

- Safety and Health Risk
- Plant, Property and Production Risk

This stream may be divided broadly into the areas of Loss Control and Maintenance Management.

Core material includes subjects in occupational health and safety management, general risk management, systems, ergonomics, people management, safe plant design and the management of plant and equipment maintenance. Streamed subject material, which comprises both compulsory and elective subjects, includes expansion of core material in relevant directions as well as more specialised subjects. Full subject details are available from the Mechanical Engineering Department.

The course will usually spread over two years with a total of 420 class hours.

**YO99 Master of Engineering**

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.

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 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 departments 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 or faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB</td>
<td>Liberal Studies (Arts Faculty)</td>
</tr>
<tr>
<td>BS</td>
<td>Business Faculty</td>
</tr>
<tr>
<td>CE</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>EA</td>
<td>Manufacturing Engineering</td>
</tr>
<tr>
<td>EE</td>
<td>Electrical and Electronic Engineering</td>
</tr>
<tr>
<td>EF</td>
<td>Engineering Faculty</td>
</tr>
<tr>
<td>EP</td>
<td>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 Studies</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.

**AB150 Communications 1**
Two hours per week for two semesters
Assessment is continuous

A first-year subject in the diploma course in building surveying. This subject introduces students to techniques for developing basic skills in written and oral communication as well as an understanding of social and urban issues relevant to building surveyors.

**References**
To be advised

**AB151 Communication Skills**
One-and-a-half hours per week for two semesters
Assessment is continuous

A first-year subject in all degree courses in engineering, which is designed to develop students’ skills in communicating through the spoken and written word. Class activities are designed to encourage students to apply these skills both individually and within a group context. A primary research activity requiring written and spoken reports gives students opportunity to assemble data from a variety of sources, solve problems encountered and present a substantial written account of their findings.

**Reference**

**AB250 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. Apart from study of the introductory psychology text, the classes are focused on experiential learning. To end active participation in classes is required. These class seminars are focused on self-awareness as a basis to communication skills, assertiveness, use of learning theories in modifying behaviour; and stress management. In stress management, areas such as relaxation, nutrition and psychological stress reduction are covered.

**Textbook**

**AB253 Liberal Studies**
Three hours per week for one semester
Assessment is continuous

A second-year subject in the degree course in manufacturing engineering. The aim of this subject is to introduce students to various concepts and processes associated with employment in an industrial society. Topics will be drawn from the following:

- communication: personal and interpersonal communication skills applied to the work situation. Psychological aspects of communication.
- behaviour of work groups: use of learning theories in acquiring new behaviours and modifying existing behaviours.
- stress management: physiological factors such as nutrition, relaxation. Psychological factors.
- industrial democracy: decision-making, worker participation, industrial conflict and the ways to resolve disputes.
- basic requirements are active participation in a seminar-type class setting and thorough knowledge of the textbook.

**Textbook**

**AB350 Communications 2**
Two hours per week for one semester
Assessment is continuous

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

**AB752 Applied Psychology**
Three hours per week for one semester
Assessment is continuous

A general elective subject in all degree courses in engineering which focuses on the learning, and on the practical application of the psychological skills used in understanding one’s own experience and behaviour and the experience and behaviour of others. The course is designed to help students in both their professional careers and their private lives.

The course includes models for understanding human behaviour; stress management; and aspects of communication.

**Textbook**

**AB753 Literature and Media**
Three hours per week for one semester
Assessment is continuous

A general elective subject in all degree courses in engineering where the objective is in developing an awareness in reading and viewing modern day literature, films and television. This subject includes the following topics: "The book of the film" — a modern day phenomenon. Differentiating between fact and fiction in documentaries and case studies. Media and authority — the influence of public attitudes through mass media. Relationship between advertising images and social change. Media images of countries, people and professions. Presentation of programs in one idiom originally designed for another. Humor — and what constitutes national humour.

**References**
Consult with the lecturer in charge.
AB745 Sociology
Three hours per week for one semester
Assessment is continuous
A general elective subject in all degree courses in engineering which is a general introduction to sociology aimed at providing the student with the tools to examine society in cross-section and over a period of time. It is a study of social structure and social action. This analysis of Australian society along with relevant comparisons made with other societies provides the student with a useful set of concepts and appropriate terminology.

References
Consult with the lecturer in charge.

AB755 Law in Society
Three hours per week for one semester
Assessment is continuous
A general elective subject in all degree courses in engineering which explores the relationships between the law and the society it purports to serve. Part of this relationship involves the nexus between changes in social attitudes and behaviour and the implementation and enforcement of the law.
Reading guides are provided.

AB756 Technology and Society
Three hours per week for one semester
Assessment is continuous
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 Victorian Archaeological Survey and the local 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

AB757 Archaeology
Three hours per week for one semester
Assessment is continuous
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 Victorian Archaeological Survey and the local 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

AB758 Philosophy
Three hours per week for one semester
Assessment is continuous
A general elective subject in all degree courses in engineering. It is designed to develop skills in philosophical analysis and reasoning and encourage the application of these skills to contemporary issues relating to science and technology. Topics include metaphysics, doubt and certainty, scientific methods, ethics and aesthetics.

References
Consult with the lecturer in charge.

AB952 Risk Social Science
One hour per week for one semester
A subject in the graduate diploma course in risk management.

Introduction to necessary principles of social science.

Principles of social and group behaviour; culture, power, group pressures, dynamics in organisations, group decision-making.

Group perceptions of, and reactions to, risk, risky shift, polarisation, opposing groups.

References
Selected papers and course notes.

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 business law. The doctrine of precedent. Statutory interpretation. Subordinate legislation. Studies of relevant case law and statutory material, nuisance and occupiers' liability.

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. Pflm., McDonald and Evans, 1977

References
Heyne, P., The Economic Way of Thinking. 4th edn, Chic., SRA, 1983

BS389 Financial Management
Three hours per week for one semester
A second-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
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 develop their understanding of management problems in organisations and ways of dealing with them.

Management and its environments.

Current management thought and its origins: scientific management, traditional organisational principles.

Consultancy, 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

BS498 Decision Analysis and Financial Management
Two hours per week for one semester
An elective subject in the fourth year of the degree course in mechanical engineering, which involves consideration of approaches available for effective management of the economic resources of an organisation. Topic coverage will include understanding financial data, prediction of cash flow, forecasting methods, resources allocation in a competitive environment, capital expenditure evaluation techniques and decision-making under varying conditions of business risk.
Throughout the unit emphasis is on problem definition, alternate solution approaches and interpretation and presentation of results. In addition, students will be introduced to computer based financial modelling packages.

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.
Objectives of this course are to give students a broad knowledge to communicate with executive business staff; understand the concepts behind any management decision; understand the link between the accounting and decision process.
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 such as the nature of law, its historical origins, the institutional setting in which it is administered and the reasoning processes employed by its practitioners, are studied. An appreciation of such matters should enable engineers to bridge 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.
Consideration is given to those economic concepts and methods of analysis that bear directly on the management of a firm.
The topics covered are drawn from: markets and resource allocation; demand; production and costs; prices and profits; investment decisions; industry economics; the structure of Australian industry and the role of industry assistance.

Textbooks
Davies, J. and Hughes, S. Managerial Economics. Plym, MacDonald and Evans, 1979
Pappas, J.L., Brigham, E.F. and Hirshey, M. Managerial Economics. 4th edn, Chicago, Dryden Press, 1983

References
H. P., The Economic Way of Thinking. 3rd edn, Chig., SRA, 1980

BS504 Contemporary Macroeconomics
Three hours per week for one semester
A general elective subject in all degree courses in engineering. It is intended to complement the unit BS503 Managerial Economics. No prior knowledge of economics is assumed.
The emphasis of this subject is to examine how the macro-economic functions and why problems such as inflation, unemployment and the like occur. In examining these factors a general framework of macro-economic analysis is established and issues such as wage determination, income distribution, economic growth, poverty, etc. will be discussed.
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 problems that economic theory illuminates.

Textbooks

BS604 Management, Organisations and People
Two hours per week for one semester
A subject in the graduate diploma course in risk management.
This unit aims to develop a systematic awareness of organisational processes and problems and a managerial perspective in students. Theoretical models are applied to problems in order to strengthen the skills of impartial analysis of organisational issues.
The understanding of human behaviour in organisations and the development of interpersonal skills is stressed as a crucial element in this learning experience. Students should be able to apply their learning as organisation members in the workplace, both in their roles as managers (now or in the future) and as support staff for management.

References

BS620 Financial Management
One hour per week for one semester
A subject in the graduate diploma course in risk management.
Introduction to financial data, cash for forecasting methods, capital expenditure evaluation and resource allocation. Decision-making under varying conditions of business risk.

References
Gole, V.C. Fundamentals of Financial Management in Australia. 3rd edn, Butterworths, Melbourne

BS622 Insurance
One hour per week for one semester
A subject in the graduate diploma course in risk management.
Brief history and concepts of insurance. Principles of insurance contracts, 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. Catastrophic loss insurance: contract types and administration.

References

BS625 Health and Safety Law
One hour per week for one semester
A subject in the graduate diploma course in risk management.

References

BS791 Marketing and Innovation
Three hours per week for one semester
A subject in the graduate diploma course in entrepreneurial studies.
The discipline of marketing in the context of a business unit cannot be considered a separate function, like production or finance. Rather it should be seen as the control dimension of the entire business. Such a radical concept requires a completely different approach to thinking about a business. The key objective of this unit is to enable students to view marketing and entrepreneurship as functions that should co-exist in organisations of all sizes and types. This objective becomes ever more critical in the context of an entrepreneurial environment where new products, ideas and markets need to be approached from the point of view of their final result — the end user.

Teaching method
Emphasis is shared between theoretical considerations and practical problems. There are 15 x 2½ hour classes involving lectures, films, case studies, tutorial exercises and class discussion. An additional 7% hours of workshop activity will also take place during which students will be required to develop a business venture and make formal verbal and written presentations to their peers.

Textbook
Other references will be prescribed or supplied when appropriate in lectures.

BS792 The Entrepreneur and the Law
Three hours per week for one semester
A subject in the graduate diploma course in entrepreneurial studies.
The purpose of this unit is to consider the legal environment facing the entrepreneur and in particular to:
(a) provide the graduate with an awareness of the legal controls over business activities in general;
(b) provide the graduate with an awareness as to how the law affects the steps involved in bringing an invention, original product or process from the stage of conception to that of full commercial utilisation;
(c) illustrate how the law can be used to best advantage in establishing a business and in protecting one's proprietary rights, and how to avoid legal pitfalls. The subject will illustrate how the law both promotes and controls business activities, and how such factors can be provided for in the preparation of a business plan.

Instructional emphasis will be upon the practical use of the law. It is proposed to involve some outside specialists to impart their knowledge in some fields, and an emphasis will be placed on the workshop approach in teaching some topics, e.g. registering a trade mark, forming a company, registering a design, registering a patent, registering a business name, drafting agreements, etc.

Textbook
Class material booklet will be prepared by the course convener.

BS794 Legal Studies
One hour per week for one semester
A subject in the graduate diploma course in risk management.
The nature of law, its historical origins, the institutional setting in which it is administered.
Common Law.
Statutory Law.
Liability (Tort and Contract)
References

BS795 Introduction to Financial Management
Three hours per week for one semester

A subject in the graduate diploma course in entrepreneurial studies.

The general objective of the unit is to provide students with an understanding of concepts and methods employed in accounting and finance that assist management in decision making, planning and control.

The unit will initially look at how accounting information can help a company achieve all its goals. One role of accounting is the measurement of performance, and it is in this area that the strengths and limitations of accounting information discussed.

In particular, the unit will focus on:
- Accounting reports for performance evaluation and the assumptions implicit in their compilation.
- Financial performance evaluation.
- Profit planning and fund flow analysis.
- Forecasting, planning and control.
- Cost-volume-profit analysis.
- Discounted cash flow analysis.
- Working capital management.

Textbook

BS796 Finance and Capital
Three hours per week for one semester, prerequisite BS795 Introduction to Financial Management.

A subject in the graduate diploma course in entrepreneurial studies.

The objectives of the unit are:
- To develop the analytical skills of students with respect to the application of analytical techniques required to solve various problems in financial management.
- To focus on the venture capital practices in Australia and overseas and analyse the various sources of long and short-term finance available, the methods used in making venture capital decisions and the taxation implications related to venture capital.

Textbook
Reference will be made to various textbooks and journal articles, combined with guest speakers for specific topics of interest.

CE113 Static Systems
Two 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 develop in students an understanding of the basic principles of statics and to extend these concepts to the behaviour of loaded members, simple systems and structures.

Basic concepts: forces and force components, loads, reactions, equilibrium, internal forces, determinacy, superposition. Applications to pin-jointed trusses, beams and simple frames. Shear force and bending moment diagrams.

Stress and strain: general load-deflection and stress-strain behaviour including elastic, plastic, strain hardening, brittle, non-linear and viscous behaviour. Mocke’s Law. Linear elastic parameters (EG and Poisson’s ratio).

Values for common building materials including metals, timber, rock, concrete, common plastics. Common tests to measure properties.

Behaviour of simple structural members: stresses and deformations of tension members and short centrally 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.

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 in: carpentry and joinery, welding, plumbing, brickwork and masonry, electrical trades, fabrication and construction techniques in timber, concrete and steel.

CE172 Building Structures I
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 communications skills and problem-solving abilities in this area.

The principles of construction of single- and double-storey residential buildings: basic structural systems, introduction to building trades, properties of 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 linings, roof plumbing, joinery, fireplaces and chimneys, services, tiling, glazing, painting and decorating, builders’ 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 I
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 law and operation of local government. The role of building surveyors and building inspectors. Other responsibilities and liabilities. The building surveyor as Manager including communications skills, office organisation, 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 requirements and an overview of these requirements relating to building applications, approvals, construction and demolition. General knowledge of related acts, regulations, codes and standards and their general applications.
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. After completing the subject students should be competent to analyse statically determinate planar structures and statically indeterminate beams.
Stress and strain.
Biaxial loading, principal stresses, Mohr's circle for stress and strain, relationships between stress and strain, St. Venant's principle and stress concentrations.
Performance of loaded members.
Torsion: elastic and inelastic stresses and deflections for circular and thin-walled closed-tube sections. Bending: internal actions, flexural stresses, shear centre, skew bending, composite sections, inelastic bending, beam deflections (DE, moment area, virtual work).
Columns: short columns, long columns (Euler and secant equations).
Statically determinate structures: stability, determinacy, compound structures, trusses, simple frames. Influence lines for beams.
Statically indeterminate structures: compound bars, continuous beams (force and slope-deflection methods).

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. At the end of the course students should be able to analyse a wide range of simple water engineering problems.

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.
Leveling: 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 methods, setting out of works.
Computations: computation techniques and electronic calculator use. Computations related to traverse reductions, missing parts determination, subdivision of land, road intersections and areas of various figures, circular curves, setting out, using deflection angles and tangent offsets.
Practical work: exercises related to all aspects of theory, in particular, levelling and theodolite use.

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 measurements, levelling and measuring, setting out.

CE251 Structural Design
Four 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.
Basic studies: the design process, considerations affecting design, design codes.
Structural loads: types of loads, loading codes.
Reinforced concrete: elastic and ultimate strength theories for rectangular beams, one-way slabs, tee beams, columns, footings.
Steel: properties, fabrication, erection, codes, structural elements and assemblies, ties, beams, columns, connections.
Timber: properties, codes, design of members and connections.
Masonry: properties, codes, design of plain and reinforced masonry.
Design studies: applications of theory and design codes to the design of structural members, connections and simple assemblies.

CE253 Structural Design 1
Five hours per week for first semester and four hours per week for second semester
A second-year subject in the Diploma of 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.
Structural behaviour: tension 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.

CE261 Transport 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: drawings for roadworks. Widths of all elements, crossfall, cross-sections, grades, vertical and horizontal curves, drainage structures.
Traffic engineering: basic studies, analysis of speed surveys, traffic control devices.
Construction of roads: Roadmaking materials and tests, clearing, ripping, drilling and Blasting, quarrying, earthmoving, compaction, trimming, bituminous surfacing, stabilisation, erosion control, including types and uses of machinery.

CE272 Building Structures 2
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  
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, including inspection and approval procedures. Practical erection of scaffolding. Safety in the use of scaffolding.

CE275 Scaffolding B

CE281 Geoscience
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 to apply these to simple applications in engineering.

Geology
Significance of geology in civil engineering; principles of mineralogy, petrology and palaeontology; structural geology, including deformed rocks; geomorphology, including ground water; outline of Victorian stratigraphy; elementary applications of the above topics to civil engineering; practical work on mineral and rock identification, geological mapping and determination of sequence of geological events; excursions.

Soil mechanics
General soil type, classification, compaction, soil stresses and chemistry. Soil hydraulics including permeability and flow nets; shear strength of sands and clays, Mohr's circle, direct shear and triaxial shear testing; earth pressure including active, passive and at rest, rigid and flexible walls.

CE282 Geomechanics 1
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 earthworks, properly.

Types of soil and rock.
Stresses in soils: geostatic, load-induced, hydrostatic.
Strength of soils: behaviour of clays, sands and mixed soils.
Field and laboratory tests.

CE293 Statutory Control 2
Two hours per week for two semesters
A second-year subject in the Diploma of 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, procedure for effective g of duties relating to statutory instrument management principles. Acts and regulations: understanding of regulations; detailed principles and application of major regulation parts. Basic understanding of Building Control Act, it's functions and major areas of control. Application of individual regulation parts to various building examples.

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' skills in the elastic analysis of statically indeterminate structures. Statically indeterminate structures. Elastic analysis of forces and deflections (virtual work, strain energy, moment distribution); approximate analysis. Matrix analysis of structures: introduction to force and displacement methods. Elastic stability: fundamentals; stability of members (columns, lateral buckling of beams, beam-columns); framed structures.

CE323 Urban Planning 1
Two hours per week for one semester
A third-year subject in the diploma course in building surveying, which introduces students to problems involved in planning development in urban and rural environments. The planning process: purpose of planning, historical development of urban settlements, sociological effects of the built environment. Administrative planning schemes. Residential planning standards. Basic surveys of planning. The use of remote sensing in urban planning. Introduction to data bases for planning purposes.

CE331 Water Engineering
Three hours per week for one semester
A subject in the third year of the degree course in civil engineering which teaches students the theory relating to water engineering systems. On completion, students should be able to analyse or design the components of these systems.

Pump theory: use, selection and performance.
Channel flow: steady, non-uniform phenomena.
Pipe systems: pressure conduits, equivalent pipes, reticulation networks, Hardy-cross analysis, water hammer.
Hydrology: rainfall and runoff, 0-index, Rational formula, unit graph method. Irrigation principles.

CE341 Surveying
Five hours per week for one semester
A subject in the third year of the degree course in civil engineering which extends the basic survey theory and shows how surveying is used in engineering projects. Control surveys: trigonometrical and horizontal control surveys; introduction to map projections and the Australian map grid; precise surveys, transition surveys.

Photogrammetry: introduction to the use of photogrammetry in engineering.

Engineering surveys: introduction to cadastral surveying; topographic surveys using conventional and EDM and total station techniques for the production of computer generated detail plans; volume measurement and computation.

Practical work.

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 design in concrete and steel and gives them practice in the application of these principles.

Design theory (45 hours)
Design principles: planning and choice of structural type; stability, rigidity, economic considerations.
Concrete: material properties; mix design; limit states design in reinforced concrete.
Steel: properties; failures modes; elastic design of elements and assemblies; connection design.
Fabrication and economics of fabrication methods.

Design practice (45 hours)
Exercises in structural steel and reinforced concrete design.

Computer programs are used to assist the design process where appropriate.

CE352 Structural Design 2
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 metal structures and the principles underlying the main clauses in the codes of practice for metal structures. Steel structures code; high strength structural bolting code, cold formed steel structures code, aluminium structures code, other codes.

Checking of computations for metal structure.
CE361 Transport Engineering
Four hours per week for one semester
A subject in the third year of the degree course in civil engineering which treats in depth: traffic engineering, pavement design, road geometry, and the civil engineering aspects of railway engineering.
Traffic engineering: design, analysis and presentation of results for 12 types of traffic surveys. Highway capacity, uncontrolled intersection capacity, saturation flow for signalised intersections. Design of at grade intersections. Human performance and vehicle characteristics.
Flexible pavements: principles and structural design, design of sprayed seal, design of asphalt mixes.
Road geometry: speed parameters, sight distance, length of vertical curves.
Railway engineering: track, geometry, trackwork, track design, rubber-tired railways, high speed railways.

CE374 Building Structures 3
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 general 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 Engineering
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 3
Four hours per week for one semester
A third-year subject in the Diploma of Building Surveying, intended to extend students’ understanding of the principles underlying the various Regulations, Acts, codes and their application to major projects, and of the functions of a building surveyor.
Administration and law: building surveyor’s duties and higher legislative responsibilities. Legislative requirements affecting building approval and construction: Building Surveyor’s legal proceedings. Functions, consultative role of the Building Surveyor in Council and private practice. Delegation of responsibilities and monitoring process. Control of entire building process, liaison, communication, and record functions.

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 communications 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.

CE411 Structural Mechanics
Four hours per week for one semester
A subject in the fourth year of the degree course in civil engineering which develops further students’ understanding of the principles of mechanics and their applications to structural analysis.

Faculty of Engineering

CE421 Planning
Two hours per week for one semester
A subject in the fourth year of the degree course in civil engineering which introduces students to the role of the engineer in urban and regional planning.
Town planning: purpose and function of planning; history of planning; neighbourhood planning; regional planning; physical and socio-economic surveys in both urban and regional planning; structure of planning in Victoria.
Transport planning: introduction to transport planning; public transport systems; transportation systems management.

CE422 Urban Planning 2
Two hours per week for one semester
A final-year subject in the diploma course in building surveying which further develops students’ understanding of the planning process.
Planning law: Acts and legislation governing town planning.
Planning appeals: preparation for an appeal and participation in the appeals system.
Urban landscaping concepts relating to permit applications.
Possible developments of the approval of permits (BADAC and Bains Reports).

CE431 Water Engineering
Three hours per week for one semester
A subject in the fourth year of the degree course in civil engineering which introduces students to water engineering practice. On completion of the course, students should be able to apply water engineering principles to the design of distribution and disposal systems, and should have an understanding of water quality criteria and treatment methods.
Town water supplies: quantity and pressure requirements, supply mains, balancing storage, reticulation.
Storm-water drainage: urban drainage systems, retarding basins, culvert hydraulics.
Irrigation: methods, soil-water relationships, quantities.
Water quality: physical, chemical and bacteriological parameters.
Potable water treatment: methods, theory of sedimentation and filtration.
Waste water treatment and disposal: methods and their application, loading rates.

CE451 Structural Design
Six hours per week for one semester
A subject in the fourth year of the degree course in civil engineering which extends students’ knowledge of the principles of structural design in steel, timber and concrete and gives students practice in the application of these principles.
Design theory (45 hours)
Steel: plastic design of elements and assemblies, connections, fatigue, brittle fracture, non-destructive testing. Timber: properties, design methods, design of elements, connections.
Concrete: prestressed and partially prestressed flexural members, plastic design in flexural members.
Design practice (45 hours)
Exercises in prestressed concrete, steel and timber design. Computer programs are used when appropriate.

CE452 Structural Design 3
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 timber 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: prestressed concrete, structural brickwork.
Structural failures: case histories chosen to illustrate design criteria.
Practical work: checking of selected structural designs.

CE474 Building Structures 4
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-influenced structures, high-rise post-tensioned structures, etc.
Crane 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 formulas, minor losses, pump selection.

CE475 Fire Technology
Three hours per week for one semester
A fourth year subject in the Diploma of Building Surveying, designed to provide students with an appreciation of fire engineering.
Performance of structural materials, structural members and structural system 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.

CE481 Geomechanics
Four hours per week for one semester
A subject in the fourth year of the degree course in civil engineering which enables students to investigate and design simple foundations considering both soil shear strength and settlement characteristics and which gives students an awareness of the various soil factors which control the stability of a given slope.
Settlement: soil stresses, consolidation, settlement.
Foundations: bearing capacity, shallow foundations (single, group, combined, rafts), deep foundations, settlement considerations.
Site investigation-planning, sampling methods, in situ tests.
Slopes: cohesionless soils, cohesive soils, total and effective stress analysis, stability chart, residual strength.

CE482 Geomechanics 2
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.

CE493 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.
Preparing a case for litigation and courtroom procedure. Properly law.
Contracts: types and conditions of contracts and tenders.
Specifications.

CE505 Investigation Project
One hundred and fifteen hours over nineteen weeks
A subject in the fifth year of the degree course in civil engineering which 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 one area of civil engineering.
Projects are chosen by students, after consultation with staff, from a list developed by staff. Projects are usually associated with departmental research interests, or are proposed by cooperative employers, but can be suggested by students. They are chosen to develop students' technical knowledge, self-educative skills and initiative, and may be limited by available departmental resources.
Each project requires a literature survey, and a theoretical and/or experimental investigation. Results, conclusions and recommendations are presented in a written report, and an oral report may also be required.

CE511 Structural Mechanics
Three hours per week for one semester
An elective subject in the fifth year of the degree course in civil engineering which extends the analytic abilities of students in some important areas of modern structural mechanics.
Selected topics in structural mechanics such as:
Matrix analysis of continua, finite element methods of stress analysis.
Finite difference methods: solutions for beams on elastic foundations, column buckling and plate-bending problems.
Structural dynamics: free and forced vibrations for beams and framed structures.
Emphasis will be given to the formulation of these problems for computer solution.

CE531 Water Engineering
Three hours per week for one semester
An elective subject in the fifth 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 retarding basin design, reservoir yield analysis methods, ground-water flow, pressure surges in pipe systems, river engineering, ocean engineering.
Emphasis is on the use of computer analysis of problems.

CE532 Environmental Engineering
Three hours per week for one semester
An elective subject in the fifth year of the degree course in civil engineering. The subject develops an appreciation of environmental issues and the role of the civil engineer in pollution control and provides the student with advanced skills in relation to water quality, pollution and treatment.
Environmental issues: global ecology, conservation versus development, resources and recycling.
CE555  Civil Design
One hundred and thirty-five hours over nineteen weeks

A subject in the fifth year of the degree course in civil engineering, which is designed to develop further students' design skills.

Students undertake a range of design assignments, both structural and non-structural, chosen to develop students' ability to apply theoretical knowledge developed in earlier years of the course to practical design situations, and to enhance their understanding of codes and regulations and of design procedures. Assignments which require creative solutions are included.

Students may be required to provide answers in the form of oral reports, written reports, design computations, drawings or models, as appropriate.

CE561  Transport Engineering
Three hours per week for one semester

An elective subject in the fifth year of the degree course in civil engineering which aims to ensure that all the important aspects of highway and traffic engineering, and civil engineering aspects of other modes of transport have been presented to graduating students.

Freight transport: shipping, cargo containers, inland waterways, air freight, ore handling, belt conveyors, solids pipelines, freight terminals, capacity, selection of mode.

Passenger transport: fixed guide way, A.P.T. proposals, metro, airports, air traffic control, airport capacity, ferries, selection of mode.

Road engineering: flow models, applications of queuing theory, selection of traffic surveys, capacity and signal timing, freeway geometry, concrete pavements.

Transport planning and administration.

Revision and extension: Extended or up-to-date aspects of topics nominally covered in CE261, CE361.

CE571  Construction
Three hours per week for one semester

A elective subject in the fifth year of the degree course in civil engineering which introduces students to engineering practice in a range of construction projects and gives students a concept of cost of projects.

Introduction: plant, materials, labour.

Safety: equipment loss, temporary works, safety of labour.

Civil engineering works: fundamental principles, construction methods, cost.

Building works: fundamental principles, construction methods, cost.


CE581  Geomechanics
Three hours per week for one semester

An elective subject in the fifth year of the degree course in civil engineering which extends students' knowledge of geology and soil mechanics; introduces them to rock mechanics, and gives students some appreciation of the high level of experience and 'art' required to practicise in the area of geomechanics.

Earth pressure problems, braced excavations, tie-back walls and soil anchors, introduction to soil dynamics; introduction to rock mechanics; selected topics in soil engineering; further aspects of engineering geology.

CE592  Municipal Engineering
Three hours per week for one semester

An elective subject in the fifth year of the degree course in civil engineering which develops in students an understanding of the structure, function and operation of local government, and the ability to apply basic engineering principles to the types of work typically carried out by municipal engineers.

Municipal engineering responsibilities for new developments, roads and traffic, traffic management, street design, road maintenance, parking requirements and control, property and equipment, solid waste, recreation, including consideration of financial planning and constraints.

Planning: aspects of planning and building control relevant to local government.
CE770    Construction Engineering
Four hours per week for two semesters
A subject in the graduate diploma course in civil engineering construction reviewing construction techniques for civil engineering projects. Constructions to relevant equations of motion, precedes the work on non-Newtonian flow, viscosity, 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
A subject in the graduate diploma course in chemical engineering. Requirements for growth in biological material; variations in microorganisms; fermentation pathways. Enzyme reaction kinetics and absolute reaction rate theory; continuous fermentation, aeration and agitation. Mass transfer theories. Bubble and mechanical aeration: scale up, operation and control. Biological water treatment — BOD, COD. Mathematical modelling for the design of activated sludge plants, trickling filter and sludge digesters. Nitrification, eutrophication and river modelling.

References

Ideal circuit elements: resistance, capacitance, inductance, energy sources.
Linear circuit analysis: mesh and node equations, superposition, Thévenin and Norton Theorems.
Transients: response of two network elements to non-sinusoidal excitation.
Sinusoidal circuit analysis: concepts of reactance, impedance, susceptance and admittance. Peak, r.m.s., and average values. Complex notation series and parallel combinations of circuit elements.
Digital systems and microcomputers: binary and hexadecimal number systems, Arithmetic and logic operations. Concept of digital processing.
Simple assembly language programs.
Energy transfer and utilisation: power calculations, transformers, motors, power generation and distribution.
Computing: operating system familiarisation, test editor familiarisation, programming philosophy — PASCAL, programming language.

References

EE255    Electrical Design and Computing
Four hours per week for first semester and three hours per week for second semester
A second-year subject in the degree course in Electrical & Electronic Engineering.

Electrical 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 I.C. regulators. 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.

Computing
PASCAL, advanced PASCAL, TURBO PASCAL, records, files, algorithms, internal sorting, recursion, stack and queues, tree structures, introduction to databases and compilers.

References
Comer, D.J. Modern Electronic Circuit Design. Reading, Massachusetts : Addison-Wesley, 1976

A second-year subject in the degree course in electrical and electronic engineering.

Communication systems: guided and unguided transmission systems, measures of channel performance, modulation techniques and spectrum management.
Analogue modulation techniques: AM, SSB, FM, PM, stereo broadcast.
Noise and fidelity.
Digital modulation techniques: PAM, PWM, PCM, Delta-M. Multiplexing. Noise and error rates. FSK and PSK.
Information theory: selection of efficient codes for data transmission.

References
Comer, D.J. Modern Electronic Circuit Design. Reading, Massachusetts : Addison-Wesley, 1976

A second-year subject in all engineering degree courses. Fundamental concepts: engineering units and prefixes, energy, power, charge, Ohm’s and Kirchhoff’s Laws.
EE283 Electrical Circuits and Fields
Four hours per week for two semesters
A second-year subject in the degree course in electrical and electronic engineering.
Circuit elements, linear and non-linear.
Steady state circuit analysis: mesh and nodal analysis.
Circuit theorems.
Electrostatic field: Gauss law, electric flux, displacement: Gauss theorem. Poisson and Laplace equations: methods of images, field plotting; calculation of capacitance for simple geometries; dielectrics, dipoles, polarization, displacement current; forces in electrostatic systems.
Natural response of circuits: first and second order circuits; classical and Laplace methods.
Two part networks: parameters and interconnections.
Non-sinusoidal waveforms: Fourier analysis.
Network topology.
Electromagnetic fields: conduction; resistivity; current density and electric field in conductors; magnetic induction, magnetic flux and flux linkage; Ampere law, Stokes theorem, magnetic field intensity; mutual and self inductance; calculation of inductance; energy and forces in magnetostatic systems.
Analogous systems: analogies between electrical, mechanical, incompressible fluid and thermal systems.

References
Kraus, D.J. Electromagnetics. 3rd edn. McGraw-Hill
Madu, S. Linear Circuit Analysis. N.J., Prentice-Hall, 1988

EE284 Electronic Circuits and Devices
Two hours per week for two semesters
A second-year subject in the degree course in manufacturing engineering.
Modern devices: operational amplifiers, operation and applications.
Analogue and digital integrated circuits: A/D, D/A converters, logic gates, binary arithmetic, combinational and sequential logic.
Counters, shift registers, clocks, flip-flops, arithmetic units.
Applications.
Introduction to microprocessors: programming.
Overview of transducers: interpretation of output data.
Classroom demonstrations and practical work.

Reference

EE286 Electrical Machines and Measurements
Four hours per week for two semesters
A second-year subject in the degree course in electrical and electronic engineering.
Introduction to electromechanical energy conversion: voltage-current, energy storage and force/torque expressions for singly- and doubly-excited transducers. Means of torque production.
Introduction to rotating machinery: construction and principles of operation of three-phase induction machines, direct current machines and synchronous machines.

References
Bell, D.A. Electronic Instrumentation and Measurements. Reston, 1983

EE287 Electronics
Four hours per week for two semesters
A second-year subject in the degree course in electrical and electronic engineering.
Solid state electronics and PN junctions.
PN junction diodes, Zener diodes applications.
Field effect transistors: structures and operation of MOSFET and JFET, application as simple switches and CS amplifiers. Bipolar junction transistor: saturating switch and basic CE amplifier.
Amplifier circuits, frequency response.
Negative feedback: principle, analysis and applications to op amp circuits.
Logic circuits: basic IC gates and technologies (TTL, CMOS, ECL, MOS), Boolean algebra.
Combinational logic circuits: SSI and MSI multiplexing, coding, comparators, arithmetic ROMs, PLAs, design techniques.
Sequential logic circuits: analysis and synthesis of sequential circuits.
Finite state machines, clocked and unclocked, state diagrams and tables, ASM charts. Analysis and design of synchronous sequential circuits, state minimisation and assignment, next state equation and realisation. Sequential IC units, shift registers, counters, debouncers, controllers. Designing using MSI, registers and ROMs/PLAs.
Register transfer logic: system description using register transfer, notation, data flow and control flow, conditional and unconditional transfers. ALU control, bus structures. Logic sequencers — programmable and PLA.

References

EE357 Electrical Design
Three hours per week for one semester
A third-year subject in the degree course in electrical and electronic engineering.
Digital hardware: design to objectives and specifications, working from block diagram, information sources, operation amplifier packages, environmental conditions, decoupling and shielding, diagnostics (systematic fault finding), family characteristics, timing and wave shaping.
Analogue hardware design: design for objectives and specifications, working from block diagrams, information sources, operation amplifier packages, environmental conditions, decoupling and shielding, diagnostics (systematic fault finding). Component tolerancing, design around operational amplifiers, effect of power supplies, transistors as power devices.
Software structure design: software specifications, structural programming, state diagrams, structured analysis, software reliability, software testing, procedural versus declarative programming.
General design topics: quality control and sampling, reliability, human engineering, man/machine interfacing.

References
### EE383 Electromagnetic Fields

Two hours per week for one semester

A third-year subject in the degree course in electrical and electronic engineering.

Static and quasi-static electric and magnetic fields: fields in materials; boundary conditions in dielectric, magnetic and conductive materials; solutions of boundary value problems by image methods, finite difference; multiple conductor systems, partial and total capacitance, self and mutual inductance.

Electromagnetic wave propagation: Maxwell's equations, Helmholz equations and solutions for perfect dielectric and ideal conductor; TEM plane waves, wave impedance, phase and group velocity, Poynting theorem and Poynting vector; plane wave penetration in good conductors; reflections and refraction of plane waves at boundaries between dielectric and dielectric, dielectric and conductor, lossless transmission lines.

Characteristic impedance, phase and group velocity, reflections at mismatches, terminations and discontinuities in lines, impedance matching; TEM waves between parallel perfect conducting planes, introduction to waveguides.

**References**

- Kraus, J.D. Electromagnetics. 3rd edn, Singapore, McGraw-Hill, 1984

### EE385 Electrical Power and Machines

Five hours per week for one semester

A third-year subject in the degree course in electrical and electronic engineering.

Introduction to power systems. Transmission line parameters; line hardware and insulation; cables; symmetrical and unsymmetrical lines; parallel lines; line representation; circle diagram; power system representation; single line diagrams; per unit methods; voltage regulation.

Three-phase transformers; transformer connections; harmonic phenomena; synchronous machines; steady state analysis; cylindrical rotor and salient pole characteristics; two axis theory, transient and subtransient reactances, equivalent circuits; capability diagram; interconnected machines, induction machines; equivalent circuit; performance characteristics; effect of rotor resistance; starting and speed control.

**References**

- Say. M.G. Alternating Current Machines. 5th edn, Lond., Pitman, 1983

### EE387 Electronics and Communications

Five hours per week for one semester

A third-year subject in the degree course in electrical and electronic engineering.

Analogue electronics including operational amplifiers, D/A, A/D conversion, data acquisition, active filters.

Digital electronics including LSI devices, microcomputers and digital signal processing.

Communications electronics with an emphasis on the electronics of quantification of signals, compression and expansion of signals, PCM and DM systems, mixers and modulators.

**References**

- Smol. G. *Telecommunication Systems*. Units 5 and 6, Milton, Keynes, The Open University, 1976

### EE389 Linear Control Systems

Four hours per week for one semester

A third-year subject in the degree course in electrical and electronic engineering.


The 2nd order system. Time domain and frequency response methods. Stability of linear systems. State variables and the state model.

Introduction to feedback control systems. Analysis of simple systems using time domain and frequency response methods. Examples of electro-mechanical and hydraulic control systems.

**References**

- Dorf, R. Modern Control Systems. 4th edn, Mass., Addison-Wesley, 1986

### EE455 Electrical Design

Three hours per week for one semester

A fourth-year subject in the degree course in electrical and electronic engineering.

Electromagnetic compatibility: interference sources and suppression, shielding, filtering, and earthing practices, interference standards and measurements.

Illumination engineering: principles of lighting quantities, luminance and illumination calculations, commercial and floodlighting designs.

Computer-aided design and optimisation: an overview of the use of computers in design including the use of graphics. Introduction to optimisation. Calculus techniques for unconstrained functions. Lagrange multiplier, Gradient search methods. Basis for linear programming. Introduction to dynamic programming and simulation techniques.

Project work involving class seminars and written reports.

**References**


### EE471 Operating Systems and Languages

Four hours per week for one semester

A fourth-year subject in the computer systems engineering stream of the degree course in electrical and electronic engineering.

Computer languages: sequence control, data control, storage management, introduction to translation, language selection for applications.

Operating systems: operating systems introduction, process management, system management, file systems, operating systems software.

**References**


### EE472 Software Engineering

Three hours per week for one semester

A fourth-year subject in the computer systems engineering stream of the degree course in electrical and electronic engineering.

Software engineering: system programming techniques, input/output programming techniques, introduction to software design and engineering, software tools.

**References**

EE473 Computer Electronics
Two hours per week for one semester
A fourth-year subject in the computer systems engineering stream of the
degree course in electrical and electronic engineering.

Digital systems design, basic machine organisation, control unit im-
plementation, interrupts and asynchronous I/O processing.

References
Booth, T.L. Introduction to Computer Engineering: Hardware and Soft-

EE475 Electrical Power and Machines
Five hours per week for one semester
A fourth-year subject in the degree course in electrical and electronic
engineering.

Part A
Power systems
Node elimination using matrix partitioning. Load flows: load characteris-
tics, uses of load flow studies. Gauss-Siedel and Newton-Raphson
methods. Economic operation of a system. Symmetrical fault studies:
bus impedance matrix, mesh elimination. Unsymmetrical faults: sym-
metrical components and sequence networks.

Part B
Electrical machines
Direct current machines: transient response, transfer functions. Single
phase AC machines: induction motors, communicator motors, variable
reluctance and hysteresis motors; construction, analysis, operating
characteristics. Stepper motors: variable reluctance and permanent,
magnet types; construction and operating characteristics. Linear induc-
tion motors: machine forms and characteristics.

Part C
Power electronics
Semiconductor devices for switching large currents. Characteristics and
rating methods of the SCR Triac, GTO, and power transistor. Character-
istics of trigger devices such as the Programmable Unijunction Transis-
tor. Turn on and turn off techniques DC choppers. Power rectification:
fully controlled and partly controlled single phase and three phase
rectifiers.

References
McGraw-Hill, 1968
Stevenson, W.D.J. Elements of Power System Analysis. Vol. IV, Tokyo:
McGraw-Hill, 1982

EE489 Control Systems
Four hours per week for one semester
A fourth-year subject in the degree course in electrical and electronic
engineering.

Advanced analysis: State space and the state model. Solution of state
model and eigen values. Relationship between state model and transfer
function matrix. Introduction transformation and controllability. Non-
linear systems and effect of non-linearities. Small signal linearisation and
describing function analysis.

Design of linear single input/output systems: Time domain frequency
response specifications as a basis to design. Overview of advanced
specifications. Design to meet steady state error and load compliance
criteria. Frequency domain techniques. Bode design and use of Nichols
charts. Compensating networks. General techniques face system com-
ensation: design using the root loci. Pole-zero location and relationship
to time response. Importance of pole dominance and eigen values.

Design projects.

References
Hostetter, et al. Design of Feedback Control Systems. N.Y., Holt,
Rinehart and Winston, 1982
Kuo, B. Automatic Control Systems. 2nd edn, Englewood Cliffs, N.J.:
Prentice-Hall, 1967
Nagrath, I.J. and Gopal, M. Control Systems Engineering. N.Y., Wiley,
1982
Ogata, K. Modern Control Engineering. Englewood Cliffs, N.J., Prentice-
Hall, 1970
Raven, F. Automatic Control Engineering. 2nd edn, N.Y., McGraw-Hill,
1968

EE560 Design and Project
Two hundred and five hours over nineteen weeks
A final-year subject in the computer systems engineering stream of the
degree course in electrical and electronic engineering.

Systems engineering principles.
Economic, environmental, and social aspects of design, cost benefit
analysis, design case studies.

Project work involving design, experimentation, investigation, testing,
and presentation of thesis. Student seminars on project topics.

References
Beishon, J. Systems. Milton, Keynes: The Open University, T100 1, 1971
Cheekland, P.B. "Towards a Systems-Based Methodology for Real
Layard, P.R. Cost Benefit Analysis. 2nd edn, Harmondsworth: Penguin,
1974
McCull, G.D. The Economics of Electricity Supply in Australia. Carlton :
Melbourne University Press, 1976
Thomas, A. Human Activity Systems. Milton, Keynes: The Open
University, T242/3, 1974

EE561 Computer Systems Engineering
Six hours per week for one semester
A final-year subject in the computer systems engineering stream of the
degree course in electrical and electronic engineering.

Operating systems: interactive computation, protection.
Computer architecture: introduction to computer architecture, computer
organisation, computer architecture survey, software influence on archi-
tecture, advanced topics in computer architecture.

Interfacing and communications: introduction to interfacing and data
communications, buses and memory peripheral connections, parallel
interfaces, serial interfaces, analog interfaces, human interfaces.

Faculty of Engineering

References
Allen and Sanchez-Sinencio. Switched Capacitor Circuits. Van Nos-
trand, Reinhold, 1984
Fletcher, W.I. An Engineering Approach to Digital Design. Englewood
Gray, P.E. and Sebeste, C.L. Electronic Circuits – Analog and Digital.
N.Y., Wiley, 1978
Sinnema, W. Electronic Transmission Technology. N.J., Prentice-
Hall, 1979
References
Deitel, H.M. An Introduction to Operating Systems. 2nd edn, New Jersey: Addison-Wesley, 1984

EE562 Electronics
Four hours per week for one semester
A final-year subject in the computer systems engineering stream of the degree course in electrical and electronic engineering.
Digital electronics: techniques for high speed digital circuits, electrical characteristics of IC logic, speed, interfacing, noise behaviour, grounding, line driving and receiving, reflection. Programmable logic devices, applications. Logic family characteristics, limitations and applications. Single chip microprocessors, applications. Analog electronics: phase-locked loops.

References
National Semiconductor Interface Databook. Santa Clara: 1986

EE569 Control Systems
Two hours per week for one semester
A final-year subject in the computer systems engineering stream of the degree course in electrical and electronic engineering.
Digital control and data acquisition: outline of elements of digital based systems, applicability of sampling theory, interfacing techniques, microprocessor based systems. Digital control algorithms.

References

EE570 Design and Project
Two hundred and five hours over nineteen weeks
A final-year subject in the computer systems engineering stream of the degree course in electrical and electronic engineering.

EE572 Design and Project
Two hundred and five hours over nineteen weeks
A final-year subject in the electronic stream of the degree course in electrical and electronic engineering.
Systems engineering principles.
Economic, environmental, and social aspects of design. Cost-benefit analysis, design case studies.
Project work involving design, experimentation, investigation, testing, and presentation of thesis. Student seminars on project topics.

References
Beshon, J. Systems. Milton, Keynes, The Open University, T100 1, 1971
Thomas, A. Human Activity Systems. Milton, Keynes, The Open University, T242 3, 1974

EE575 Electrical Power and Machines
Six hours per week for one semester
A final-year subject in the electrical stream of the degree course in electrical and electronic engineering.

References
Jones, C.V. The Unified Theory of Electrical Machines. Lond.. Butterworths, 1967
Kovacs, P.K. Transient Phenomena in Electrical Machines. N.Y., Elsevier, 1984

EE576 Electronics
Four hours per week for one semester
A final-year subject in the electrical stream of the degree course in electrical and electronic engineering.
Single chip microcomputers and their applications in power engineering (e.g. protection) (0501 family).
Analogue instrumentation and signal transmission practices.
Analog to digital conversion, A/D conversion, and digital data processing. Data communications and interfacing. Basic serial data transmission standards. line driving and receiving.

References
Intel Microcomputer Handbook 1983. Intel Corporation, Santa Clara, CA
Ramshaw, R.S. Power Electronics: Thyristor Controlled Power for Electric Motors. Lond., Chapman and Hall, 1973
EE577 Electronics
Six hours per week for one semester
A final-year subject in the electronics stream of the degree course in electrical and electronic engineering.

Analogue electronics: non-linear circuits and applications; phase locked loop characteristics, performance and applications; noise performance of electronic systems.

Digital electronics: single chip and 16 bit microcomputers and applications support; mixed logic and dependency notation; programmable logic devices; systematic design of digital systems; techniques for high speed complex logic.

References
Gardner, F.M. PhaseLock Techniques. 2nd edn, N.Y., Wiley, 1979

EE578 Communications
Four hours per week for one semester
A final-year subject in the electronics stream of the degree course in electrical and electronic engineering.

Data transmission: modern modulation methods, interfacing, line conditioning, multiplexers and concentrators, switched and leased lines, DSL, CCITT standards, protocols, bit and byte oriented protocols: BSC, HDLC, SDLC, ISDN, models, public networks, synchronous digital hierarchy, CCITT recommendations.

Antennas and propagation: linear dipole HF, array VHF and aperture microwave antennas. Propagation characteristics from HF to microwave.

Filter analysis and synthesis: filter approximations. Butterworth, Chelychev, maximally flat, and Chebychev and elliptic functions, impedance and frequency scaling, introduction to active filter synthesis.

References
CCITT recommendations

EE579 Control Systems
Two hours per week for one semester
A final-year subject in the degree course in electrical and electronic engineering for students who have completed EE489 Control Systems.

Sampling and discrete data: nature of sampling as a modulation process. Data holds. Introduction to difference equations and Z transforms. Stability of discrete data systems.

Process control: survey of process control; PLC, process loop control, instrumentation, automatic control of process systems.

Digital control: control systems: block diagram representation, root locus, Nyquist stability criterion, Bode plots, compensation, design, feedback, transfer functions, control design, control system analysis and design.

References

EE590 Computer Systems Engineering
Three hours per week for one semester
A final-year elective subject in the degree course in electrical and electronic engineering for students in the electrical and electronic engineering streams.

Packaged computer user interface: standard features, facilities for custom packages; busy logic devices, buses, input/output interfaces, human interface, architecture, and their characteristics; networking concepts and techniques; programming languages for dedicated computers; design of computer-based products.

References
Murphy, J.D. Thyristor Control of AC Motors. Oxford, Pergamon Press, 1971
AS1359 General requirements for Rotating Electrical Machines. Standards Associationof Australia
EE594  Electronic Systems
Three hours per week for one semester
A final-year elective subject in the degree course in electrical and electronic engineering.
Principles of microelectronics (CMOS). Introduction to CMOS, MOS transistor theory, processing technologies, design rules, symbolic layout, CMOS circuit and logic design, clocking strategies. CMOS subsystem design, circuit characteristic and performance estimation.
CMOS technology for analog signal processing, analog building blocks in CMOS, analog sampled data concepts, implementation of basic signal processing operation, switched capacitor Z-domain filters, non-filtering applications of switched capacitor networks.
References

EE595  Advanced Computer Systems
Three hours per week for one semester
An elective subject in the final year of the degree course in electrical and electronic engineering for students in the computer systems engineering stream.
Topics offered: computer communication networks, advanced operating systems, software engineering, database systems.

References
Sommerville, I. Software Engineering. 2nd edn, Reading, Mass.: Addison-Wesley, 1985

EE596  Operations Research in Electrical Engineering
Three hours per week for one semester
A final-year subject in the electrical power stream of the degree course in electrical and electronic engineering. This subject is conducted jointly by the Department of Electrical and Electronic Engineering and the Department of Mathematics.
A selection of topics from: linear programming, Markov processes, queueing theory, dynamic programming, network analysis, simulation. Case studies in the application of operations research techniques to electrical engineering.
References

EE599  Control Systems
Three hours per week for one semester
A final-year elective subject in the electrical and electronic engineering stream for students who also undertake EE579 and who have completed EE499.
Further State Model: Controllability, observability, state feedback design, MIMO Systems.
Non-Linear Analysis: Phase plane and Liapunov analysis.
Optimality: Static and dynamic optimisation, Lagrange Multiplier, Principle of Maximum, Linear quadratic control.
Discrete Data Models: Follows on from sampling in EE579. Shift operator and difference equations: Discrete state space models, I/O models, disturbance models, model identification.
Design of Computer controlled systems: Adds to work in EE579. Analog redesign, bilinear transformation (Digital filters), Pole placement methods, dead beat control, minimum variance control. Specialisation of digital control systems.
Computer based process control: Adaptive and self tuning control, configurable controllers, distributed control, case studies, commercial systems.
Specialised Hardware: Sensors, transmitters, actuators, valves.

References
Franklin and Powell, Digital Control of Dynamic Systems. Massachusetts, Addison-Wesley, 1980

EE631  Electrical Power and Electronics
Six hours per week for one semester
A subject in the graduate diploma course in telecommunication systems management.
Electrical energy sources. Electrical circuit elements. AC and DC circuit theory and measurements.
Electronic devices: diode as rectifier, switch, simple logic device. LED, Zener diode; BI, FET devices, use as simple amplifier, logic device; integrated circuit devices, analogue amplifiers, digital devices.
Basic amplifiers: operational (O) amplifiers, use as amplifiers, summers, integrators, reference course.
Electronic power supplies: half- and full-wave rectification, filters, Zener diode regulators, electronic regulators.

References

EE632  Administrative Practice
Four hours per week for one semester
A subject in the graduate diploma course in telecommunication systems management.

References
Commonwealth of Australia, Report of the Committee of Inquiry into Telecommunications Services in Australia. 3 Vols, Canberra, AGPS, 1982
EE633 Telecommunication Principles
Six hours per week for one semester
A subject in the graduate diploma course in telecommunication systems management.
Principles of telephony, electromechanical and electronic switching.
Spectrum allocation and licensing procedures. ITU, WARC.
Modulation: amplitude modulation. Suppressed carrier, SSB, ISB techniques.
Frequency and phase modulation. Pulse modulation techniques.
PCM, Companding. Frequency and time division multiplex.
Introduction to digital communications: frequency shift keying. PSK.
DPSK, Machine telegraphy.
Radio communication: transmitters and receivers.
Power amplifiers. Superheterodyne principles.
Introduction to noise and its effect on communications.
Owning directional antennas. Directional antennas. Impedance matching.
Transmission lines. VSWR. Ionospheric propagation. Frequency and space diversity.
Broadcasting and television: broadcasting and television standards.
Television receiver principles. FM stereobroadcasting.
Microwave and co-axial transmission: guided EM waves. Waveguides and co-axial transmission.

References

EE641 Fundamentals of Computing
Four hours per week for one semester
A subject in the graduate diploma in computer systems engineering.
By the end of this unit the student should be able to:
- use the concepts of top-down design and modular programming.
- use the features of a good programming language.
- use a standard disk operating system.
- top-down design process, algorithm specification, and structured programming.
- definition and use of a good programming language (e.g., PASCAL).
- Operating system services, file systems, process and system management.
- Translation, compilers, interpreters. Review of major languages and their applications.

References
Graham, N. Introduction to Computer Science: A structured Approach.
2nd edn. West, 1982

EE642 Data Structures
Four hours per week for one semester
A subject in the graduate diploma in computer systems engineering.
By the end of this unit the student should be able to:
- use a variety of data structures, design and analyse algorithms to manipulate data structures, recognise common file and database schemes.
- Data representations and structures, algorithms for operating on data structures, file systems, introduction to database systems.

References
Aho, A.V., Hopcraft, J.E. and Ullman, J.D. Data Structures and Algorithms. Addison-Wesley, 1983

EE643 Computer Systems Software
Four hours per week for one semester
A subject in the graduate diploma in computer systems engineering.
Students will be expected to develop an understanding of the following:
- the principles of machine instruction sets and assembly language programming.
- The use of various computer systems software utilities, viz. editors, assemblers, linkers, loaders and debuggers. The use of system programming languages.

Faculty of Engineering


References

EE644 Computer Systems Design
Four hours per week for one semester
A subject in the graduate diploma in computer systems engineering.
By the end of this unit the student should have gained a cross-disciplinary appreciation of some computer systems components. Common small system software and hardware technology such as: Communication packages. Printer/plotter interfaces, buffers and spooling graphics software and hardware. Circuit analysis and simulation packages (e.g., VLSI, gate array. Programmable Logic Device design); High speed arithmetic chips and hardware accelerators. Vision and speech input and output. Disk interfaces.

EE645 Semiconductor Electronics
Four hours per week for one semester
A subject in the graduate diploma in computer systems engineering.
By the end of this unit the student should be able to:
- analyse and design simple analog and digital circuits and anticipate the electrical behaviour of digital interfaces.

References

EE646 Introduction to Digital Systems Design
Four hours per week for one semester
A subject in the graduate diploma in computer systems engineering.
By the end of this unit the student should be able to:
- analyse simple combinational and sequential systems; synthesise simple combinational and sequential functions; perform functional testing on digital systems hardware.
- Combinational logic functions, notations and devices; arithmetic combinational logic; sequential logic functions, notations and devices; time and state representations of sequential behaviour; finite state machines, controllers, and data modules; digital system specification and synthesis.

References
Ercogovic, M.D., Lang, T. Digital Systems and Hardware/Firmware Algorithm. John Wiley and Sons, 1985

EE647 Measurements and Control
Four hours per week for one semester
A subject in the graduate diploma in computer systems engineering.
Students will be expected to develop an understanding of the following:
- the theoretical principles of feedback control systems; various mathematical techniques in modelling control systems and in their analysis: various techniques and devices used in measuring and controlling physical variables present in systems.

References

Appropriate text books and publications relevant to each section.

EE731 Electronics

Four hours per week for one semester

A subject in the graduate diploma course in telecommunication systems management.

Introduction to microcomputers for on-line dedicated control and monitoring applications in telecommunications.

BoS5 based dedicated microcomputers, hardware and software.

Input/output for microcomputers, analogue/digital interface, communications.

Survey of available software support, memory devices, development systems and 8/16/32 bit processors.

Introduction to optoelectronic intercommunications.

Telecommunication test equipment.

References


The 8086 Microprocessor. Short Course notes, SIT, October, 1983

EE733 System Planning and Control

Six hours per week for one semester

A subject in the graduate diploma course in telecommunication systems management.


Ergonomics in choice of display, terminals, consoles and communication layout.

Reliability: introduction to probabilistic reliability theory.

Redundancy, MTBF, Failure rate data.


Troubleshooting, self-diagnostic systems.

Design for maintenance. Spares allocation policy.


Electromagnetic compatibility: source of EMI.

Control and suppression techniques: EMC measurements and standards.


Computer packages for CPM and job scheduling.


Specifications and testing: user requirements. Technical specifications. Turn-key projects.

References


McComick, E.J. Human Factors in Engineering and Design. 5th edn, N.Y., McGraw-Hill, 1982

Selected Australia, British, DEF (Aust) and MIL Standards. CCITT Standards.

EE741 Computer Systems and Software Engineering

Four hours per week for one semester

A subject in the graduate diploma course in computer systems engineering.


Error detection and correction: introduction to coding theory. Forward acting EDC. ARQ systems.


Space segment characteristics. Transponders. TWT amplifiers. Multiple access. Downlink power budget. Earth segment characteristics. Figure of merit. Internsat system. Australiandomestic satellite system.

References


EE734 Telecommunications Systems

Six hours per week for one semester

A subject in the graduate diploma course in telecommunication systems management.


Error detection and correction: introduction to coding theory. Forward acting EDC. ARQ systems.


Space segment characteristics. Transponders. TWT amplifiers. Multiple access. Downlink power budget. Earth segment characteristics. Figure of merit. Internsat system. Australiandomestic satellite system.

References


EE735 Elective Subject

A subject in the graduate diploma course in telecommunication systems management.

Technical elective or project appropriate to the student’s interest or employment, taken continuously for 3 weeks at end of semester.

Note:

This time may be extended up to a maximum of 6 weeks to enable completion of projects or approved special electives.

EE741 Computer Systems and Software Engineering

Four hours per week for one semester

A subject in the graduate diploma course in computer systems engineering.

Students will be expected to develop an understanding of the following: the various computer architectures that exist today and their principal characteristics. The operation of a computer system and its peripherals with respect to its hardware. The principles of software engineering with respect to program specification, development, implementation and maintenance.


References

Appropriate text books and manufacturers’ publications relevant to each section.
EE742 Computer Communications and Control
Four hours per week for one semester
A subject in the graduate diploma in computer systems engineering.
Students will be expected to develop an understanding of the following:
- A variety of ways in which computers can be interfaced to the outside world and to each other; including analog, digital, parallel and serial interfacing; the principles of digital control systems and how they are implemented practically in process control.

EE743 Computer System Case Studies
Four hours per week for one semester
A subject in the graduate diploma in computer systems engineering.
- By the end of the unit the student should be able to: demonstrate detailed knowledge of some specialist computer system problems and show perseverance in pursuing unfamiliar problems.
- Topics such as the following will be included: computer accommodation and installation practice; human factors; work station design; security; reliability; performance standards; documentation, specification and tendering, maintenance contracts.
- Emphasis will be given to the practical problems of specifying, designing, installing and/or maintaining real systems, and to applications of interesting new technology.

EE744 Design and Project
Four hours per week for one semester
A subject in the graduate diploma course in computer systems engineering.
- By the end of the unit the student should be able to implement and document a computer system design.
- The student may choose any appropriate computer systems engineering project subject to the convenor’s approval.
- Emphasis is placed on successful completion of the project, to a specification agreed on commencement. Group projects are encouraged to present realistic engineering management problems.

EE795 Introduction to Electrical Engineering
One hour per week for one semester
A subject in the graduate diploma course in industrial management.
- Principles of electrical circuits (DC, AC, single and three phase); voltage, current, resistance, inductance, capacitance, power factor.
- EMR: measurement, propagation.
- Principles of electrical isolation.

EE901 Computers and Interfacing
Three hours per week for one semester
A first-year subject for Master of Engineering (CIM).
- Small computers are emphasised, and their interfacing to the real world and to other computers.
- Microcomputers and microprocessors — architecture and hardware structure; methods of interfacing microcomputers and peripherals; software systems for microcomputers; networking; data acquisition, methods and devices.

References
Ephrick, M.S., ed. Microprocessor Basics: Selected from Electronic Design
Sinimiska, Digital Analogue and Data Communication. Boston, VA, 1982

EF197 Introduction to Engineering
One hour per week for two semesters plus fifteen hours in selected non-teaching periods
A first-year subject in all degree courses in engineering which provides an introduction to a professional engineer’s role and responsibility in the community, an appreciation of the roles and ethical practice of members of the engineering workforce, and some practical experience in basic process skills.

Reference
The Institution of Engineers, Australia. Code of Ethics. IE Aust., 1981

EF700 The Business Plan
Ninety hours over two semesters
A subject in the second year of the Graduate Diploma in Entrepreneurial Studies. Normally, students undertaking this subject must have satisfactorily completed all first-year subjects and be undertaking the standard second-year program.
- This unit aims to provide the entrepreneur with an appreciation of a business plan in: raising venture capital, defining the potential risks and problems in a venture, testing and building the entrepreneur team and planning the operation of a business.
- Self-selected teams will choose an invention or product as a basis for a business opportunity and will develop an appropriate business plan.
- Generally the teams will work independently and will be tutored by staff on specialist areas. Some lectures by external consultants in business plan evaluation will be held and time will also be scheduled for the developing presentations.

Textbook

References
As advised during the course

EP421 Applied Statistics and Operational Research
Two hours per week for two semesters
Assessment by test and class assignment
A subject in the graduate diploma course in industrial management.
- An overview of probability theory and statistics; quality control. Operational research: origins and history of general principles and techniques as applied to management; modelling; mathematical programming; linear programming; inventory control techniques; queuing theory; simulation; replacement theory; network analysis.

Textbook
To be specified by department

EP422 Engineering Administration
Two hours per week for two semesters
Assessment by test and class assignment
An introductory subject in the graduate diploma course in industrial management.
- Microcomputers and microprocessors — architecture and hardware structure; methods of interfacing microcomputers and peripherals; software systems for microcomputers; networking; data acquisition, methods and devices.
EP423 Financial Aspects of Industrial Management
Two hours per week for two semesters
Assessment by examination and class assignments

A subject in the graduate diploma course in industrial management.


References


EP424 Human Relations in Industry
Two hours per week for two semesters
Assessment by examination and class assignments

A subject in the graduate diploma course in industrial management.

General psychology and the individual: awareness and interpretation of the environment; motivation and behavioural patterns. Industrial psychology: individual differences; selection and training of employees; physical conditions of work. Social psychology of groups; behaviour patterns; morale; group leadership. Industrial relations machinery; trade unions; employees' associations; group decision; collective bargaining. Job enrichment and participation.

References


EP425 Legal Aspects of Industrial Management
Two hours per week for two semesters
Assessment by a three-hour examination

An optional subject in the graduate diploma course in industrial management.

Introduction; industrial law and its relation to general law; Australian law and its relation to English law, powers and organisation of Australian courts, contract law as it applies particularly to employment, selling and to industrial projects. Commercial and company law as it applies particularly to principal and agent, insurance, negotiable instruments, taxation, company formation, etc. Factory law and allied topics. Conciliation and arbitration law. Restrictive trade practice.

Textbooks


EP426 Management Practice
Three hours per week for two semesters
Assessment: there will be no examination in this subject but the work done by students throughout the course will be assessed for examination purposes. Several assignments are submitted.

A subject in the graduate diploma course in industrial management which is designed to draw together the benefits gained from the fundamental management topics. It also aims to develop further each student's understanding in the fields of personal relationships, thinking, research and communications with the use of case histories, lecture notes, management games, etc. Present management practices and some likely future trends are discussed. This subject is taken in the final year of the course. Emphasis is on marketing and personnel aspects not covered in the course.

References

- Selected references — Harvard Business Review

EP431 Production Management
Two hours per week for two semesters
Assessment by examination and class assignment

An optional subject in the graduate diploma courses in industrial management and manufacturing technology.

The subject covers the manufacturing system, establishing objectives and standards, relation of production to other functions in the company, application of analytical techniques relevant to production management, inventory control, industrial safety, quality, productivity, production planning and control.

Textbook

EP435 Physical Distribution Management

Two hours per week for two semesters

An optional subject in the graduate diploma course in industrial management which covers the planned scientific approach to decision-making in the areas of site selection, distribution, packaging, materials handling, etc.

Operations research techniques are applied to warehousing, inventory systems, forecasting systems, ordering systems. Evaluation of materials handling plant. Comparison of transportation systems.

Textbook

References
Alford, P.R. Planning a Distribution System. London: Gower Press, 1971

EP436 Environmental Studies

Two hours per week for two semesters

Assessment by project and test

An optional subject in the graduate diploma course in industrial management and manufacturing technology.

Ecology and the effects of environmental imbalance. A detailed examination of the managerial implications of air, water and earth pollution, noise and waste legislation. Preventive measures. A large segment of the course is devoted to the completion of an appropriate project.

References
Meadows, D. Limits to Growth. London: Earth Island, 1972

ME169 Building Services I

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.

Contents:
Ventilation and heating: general principles, heating loads, equipment, inspection and maintenance, regulations and standards, AS1668/2. Fluid flow: introduction to incompressible flow in ducts and pipes, Bernoulli equation.
Hot water services: distribution systems, heaters and boilers, steam lines. Solar heating. Inspection and maintenance regulations.
Personal movement systems: lifts, escalators, walkways.
Ergonomics: effects of features of building services on human performance and comfort, special arrangements for the physically handicapped, system effects of various services, noise protection.
Fire protection: human behaviour in fires, cause of fires and the way 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-amperes.

References
Relevant Australian and Victorian Standards and Codes

ME212 Applied Mechanics

Three and a-half hours per week for two semesters,

A second-year subject in the degree course in mechanical engineering consisting of two parts: mechanics of materials and dynamics of machines.

Mechanics of materials
One and half hours per week for two semesters.

Thermodynamics

Engineering dynamics
A first course in the elementary theory of dynamics with application to the mechanics of machines.


Introduction to mechanical engineering
Aspects of mechanical engineering presented by a selection from lectures, films, equipment demonstrations and competitions.

References
Joel, R. Basic Engineering Thermodynamics. 3rd edn, London: Longmans, 1971

Faculty of Engineering
ME232  Electronics and Measurement Systems

Two hours per week for two semesters

A second-year subject in the degree course in mechanical engineering.

The subject is taken in two parts: electronics, and instrumentation and measurement systems, both of which run for two hours per week for one semester.

Electronics

A continuation of the first-year subject EE187 Electronics, Circuits and Computing.

The syllabus deals with digital electronics and microcomputers. Basic digital devices — logic gates, combining logic gates; flip-flops and latches; multiplexers and demultiplexers; semiconductor memories; introduction to microcomputers; simplified microcomputer operation. Linear amplifiers — introduction to BJT amplifiers; characteristics of amplifiers; input/output resistances; multistage amplifiers; cascading; operational amplifiers. Transducers — active and passive transducers; thermocouple, piezo-electric, photoelectric, optical, resistive, capacitive, inductive. Communications - modulation — amplitude, frequency and pulse code. Motors — DC motors, AC motors and stepper motors.

References


Smith, R.J. Electrical Devices and Systems, 3rd edn, N.Y., Wiley

Instrumentation and measurement systems

A laboratory/tutorial intensive course in the principles and application of instrumentation for the measurement of physical parameters in engineering.

The syllabus deals with the principles of measurement of displacement, time, velocity, force, pressure, flow-rate, density, and temperature. Transducing elements for conversion among mechanical, thermal and electrical quantities, including analysis of the performance of electro-mechanical, capacitance, piezo-electric, resistive, inductive, and thermo-electric transducers.

Analysis of the performance of electro-mechanical transducers; input/output characteristics of transducers; compatibility of transducers, amplifiers, measuring circuits and recorders in measuring systems.

References

Kulhawy, J. Transducers and Measurements, Tektronix, USA


ME242  Ergonomics

Two hours per week for two semesters including lectures, laboratory work and industrial training

A second-year subject in the mechanical engineering degree course.

It involves study of the characteristics, development and evaluation of people, machine, environment systems. Review of research concerned with the effects of: sound, light, heat, exertion and acceleration on work output and health.

References

Difffent, N., etal. Human Scale 1, 2, 3, 4, 5, 6, 7, 8, 9. Cambridge, MIT Press, 1974-81

Grandjean, E., Milton. The Task to the Man. 3rd edn, Lond., Taylor and Francis, 1982

McCormick, E.J. and Sanders, M.S. Human Factors in Engineering and Design. 5th edn, N.Y., McGraw-Hill, 1982


ME261  Engineering Practices

Three hours per week for two semesters, including lectures, workshop and industrial visits

A second-year subject in the degree course in mechanical engineering.

This course involves treatment of the role of trades and practices, industrial safety, machine shop, welding and fabrication, plumbing and sheetmetal, electrical systems. An introduction is given to the mechanical engineering industry.
ME269 Building Services 2

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 comfort requirements and of equipment used to achieve these. Thermal equipment and human loads. Insulation. Smoke control, AS1668/1. Specialties 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

ME271 Design for Industry

Three hours per week for two semesters, including lectures and practical work

A second-year subject in the degree course in mechanical engineering. This course is designed to introduce students to mechanical engineering design and to develop the abilities of engineering analysis and synthesis of components and systems in context. Graphical techniques and applications, design methodology, modelling of design systems, design of components, features and application of design systems. Component selection, analysis and specification. Static and fatigue failure. Australian standards and codes.

References


Deutschman, A.D., Michies, W.J. and Wilson, C.E. Machine Design — Theory and Practice. N.Y., Macmillan, 1975


ME312 Mechanics of Materials

Two hours per week for one semester


References


ME319 Applied Mechanics

Three hours per week for one semester, including lectures, laboratory and tutorial work

A third-year subject in the degree course in manufacturing engineering with an emphasis on aspects of solid mechanics and dynamics relevant to studies in design, technology and systems engineering.

Faculty of Engineering

Machines

Introduction to vibrations (1 degree of freedom), energy method, frequency response; multi-degree of freedom. Dunkerley, Rayleigh and Holber methods; balancing and whirling; mechanisms.

Solid mechanics

Theories of elastic failure, unsymmetrical bending, plasticity, experimental stress analysis.

References


ME322 Energy Systems

Four hours per week for one semester

A third-year subject in the degree course in mechanical engineering which provides a foundation in the physical laws governing thermal energy transfer and fluid dynamics. This subject comprises: Thermodynamics — three hours per week for one semester. Fluid mechanics — one hour per week for one semester. Dimensional analysis and similarity. Convective heat transfer. Radiation. Combustion. IG engine characteristics. Laminar and turbulent flow.

References


ME329 Fluid Mechanics

Three hours per week for first semester, including lectures and laboratory/tutorial work

A third-year subject in the degree course in manufacturing engineering. This subject provides a study of fluid mechanics appropriate to the chemical engineering stream of manufacturing engineering. Review of fluid properties: fluid statics and dynamics; measuring devices; boundary layer concepts; flow and pressure drop in pipes. Valve characteristics, pipework systems; characteristics of pumps and fans, effect of blade orientation, cavitation. Net positive suction head, positive displacement machines; methods of control.

References


ME332 Machines and Controls

Four hours per week for one semester, including lectures, and laboratory/tutorial work

A third-year subject in the degree course in mechanical engineering designed to foster students' ability to apply basic principles of mechanics to the analysis of engineering systems. The course is in two equal parts:

Mechanisms and machines


Dynamics and controls

Mathematical modelling of engineering physical systems: representation of components and systems by block diagrams. Application of the Laplace transform and transfer function H(s). Transient response and initial conditions. Inverse transform and time domain response, steady
state error. Poles and zeros of H(s), characteristic equation, S plane, stability and root locus. Harmonic response H(jω), amplitude and phase, representation by Bode and Nyquist plots. Applications to lower order linear systems.

References

ME422 Energy Systems
Four hours per week for one semester
A fourth-year subject in the degree course in mechanical engineering. The course is in two equal parts: thermodynamics and fluid mechanics, designed to provide a foundation in the physical laws governing energy transfer and conversion, and to provide students with a logical explanation of established and developing plant and equipment. Gas and vapour flow in nozzles and diffusers. Turbo expanders and compressors. Mixtures and psychrometry. Similitude laws. Fluid drag. Momentum and thermal boundary layers. Wake flow.

References
Shapiro, A.H. Shape and Flow. Lond., Heinemann, 1970

ME432 Machines and Controls
Four hours per week for one semester, including lectures and laboratory/tutorial work
A fourth-year subject in the degree course in mechanical engineering. The course is in two equal parts:

Dynamics
Vibrations of systems with multiple degrees of freedom. Review of damped forced vibrations, transient vibrations, transmissibility of force and motion, vibration isolation. Modes, modal fractions, principal coordinates and coupling, tuned absorbers. Torsional vibrations, equivalent systems. Discrete models of physical systems, analysis by matrix methods, concept of modal analysis for linear systems and structures.

Industrial controls
Analysis and design of single variable control systems of arbitrary order by classical methods. Open and closed loop transfer functions, steady state error and stability criteria. Performance criteria; system design and compensation techniques. State space techniques; state variables and equations of state, relation to the transfer function and system stability. Polynomial approximations to forcing functions, Leverrier algorithm and the transition matrix.

References
Church, A.H. Mechanical Vibrations. 2nd edn, N.Y., Wiley, 1963
Rao, S.S. Mechanical Vibrations. Addison-Wesley, 1986

ME442 Ergonomics
Three hours per week for one semester, including lectures, laboratory and tutorial work
Coursework in this subject covers information theory; psychophysics, signal detection theory, choice reaction time, skills and task analysis, job analysis and redesign, industrial motivation, work satisfaction, industrial democracy, employee specification and training, influence of organisational structure, factors influencing interpersonal communication, credibility, power and leadership.
ME451 Technical Planning and Sales Engineering
Two hours per week for one semester, including lectures, laboratory and tutorial work

An elective subject in the fourth year of the degree course in mechanical engineering designed to introduce the student to marketing and sales, within a traditional business organisation. Fundamentals of marketing and consumer behaviour, buying processes, technical planning associated with sales. Particular emphasis on technical communication skills for both sales and internal engineering management purposes. Advanced applications and techniques of traditional technical planning.

References

ME461 Engineering Plant and Equipment
Two hours per week for one semester, including lectures, laboratory and tutorial work, with site visit(s) to industry as appropriate

A four-year elective subject in the degree course in mechanical engineering.
This course involves the formation and operation of complex mechanical engineering plant systems composed of machinery, control and interfacing sub-systems. Practical mechanical systems are considered for a wide range of Australian industrial conditions. The performance, monitoring, improvement and management of systems are covered throughout the life cycle of the systems.

References
Collacott, R.A. Mechanical Fault Diagnosis and Condition Monitoring. Lond., Chapman-Hall, 1977
Proper and Economical Use of Plant. Technical Bulletin No. 34, Melb., Road Construction Authority, 1986

ME471 Design for Industry
Three hours per week for one semester, including lectures, project and tutorial work

A fourth-year subject in the degree course in mechanical engineering designed to improve the students' ability to specify engineering objectives, design original equipment and select commercial equipment to form complex engineering systems, and develop the necessary skills to perform the project design function to industry.

Design analysis of complex mechanical systems including advanced fluid power systems with closed-loop feedback control.

Mechanical reliability and maintainability principles applied to the safety and maintenance of advanced mechanical systems.

Application of computer-aided design, commercial computer packages and computer simulation of design characteristics of mechanical systems. Consideration of plant and project management systems for scheduling, controlling and allocating resources to engineering projects, including cost evaluation.

Overview of design optimisation techniques and the project engineering function.

References
Rohner, P. Industrial Hydraulic Control. 2nd edn, Melb., Educa Press, 1986

Faculty of Engineering


ME482 Engineering Investigation
Two hours per week for one semester

A fourth-year subject in the degree course in mechanical engineering designed to familiarise students with the correct procedures to be followed when undertaking an engineering project or investigation.

The program covers a literature search, feasibility study and preliminary technical report indicating technical feasibility, costing and time restraints. Where appropriate the work should be continued under the fifth-year subject, engineering project.

ME501 Engineering Science 1
Four hours per week for one semester

A subject in the fifth year of the degree course in mechanical engineering. Four 30-hour units are offered: advanced mathematics, advanced gas physics, energy systems and thermo-fluid mechanics. Students must take two of the four alternatives offered.

Advanced mathematics
Two hours per week of integrated instruction and practice for one semester.

A selection of topics will be made from the following list: advanced finite difference methods; classical optimisation; linear programming and queuing theory; solution of partial differential equations using Laplace equations; Fourier transforms; calculus of variations and Lagrangean dynamics; regression methods.

References
Craiggs, J.W. Calculus of Variation. Lond., George Allen and Unwin, 1973

Energy systems
Two hours per week for one semester, including lectures, laboratory work and tutorials.

This unit provides an overview of energy conversion processes along with work on established and developing thermal plant and equipment.

Available energy. Nuclear engineering. Solar radiation and applications. Topics selected from: direct energy conversion, advanced heat transfer, turbocharging IC engines and alternative automotive power units.

References
Watson, N. and Janots, M.S. Turbo-charging the IC Engine. Lond., Macmillan, 1982

Thermo/fluid mechanics
Two hours per week for one semester, including lectures, laboratory work and tutorials.

Three topics selected from: turbulence theory, flow of an ideal fluid, unsteady and compressible flow, low Reynolds number flows, free surface flows.

References
Cameron, A. Basic Lubrication Theory. Lond., Longman, 1971

ME502 Engineering Science 2
Four hours per week for one semester

A subject in the fifth year of the degree course in mechanical engineering. Three 30-hour units are offered: materials, vibrations and acoustics, and instrumentation and systems controls. Students must take two of the three units offered.

Mechanics of materials
Two hours per week for one semester.
The subject deals with advanced strength of materials. Beams on elastic foundations; local bending in shell structures. Deformation symmetrical about an axis; thick walled cylinders, stresses due to interference fits, rotating discs of variable profile, thermal stresses in turbine discs. Finite element methods in stress analysis.

References
Timoshenko, S. Strength of Materials I and II. N.Y., Van Nostrand, 1966

Vibrations and acoustics
Two hours per week for one semester.

The syllabus deals with advanced vibration analysis and acoustics. Vibrations: multi-degree of freedom systems, inertia, stiffness and damping; matrix representation. Modal analysis, parameter estimation, complex residues and poles, synthesis of the system transfer function $H(s)$, frequency response function $H(w)$ from experimental measurements, interpretation of the modal analysis function components. Analysis of periodic and random signals, measurements, signal processing and associated errors, transducer calibration techniques. Acoustics, sound source characteristics, sound fields, sound generation by vibration, transmission noise control and reduction.

References
Church, A. M. Mechanical Vibration. 2nd edn, N.Y., Wiley, 1963
Rao, S.S. Mechanical Vibrations. Addison-Wesley, 1986

Instrumentation and systems control
Two hours per week for one semester.

An advanced course in control applications to industrial systems and processes. Control algorithms with application to industrial and process control systems. Advanced control techniques for large-scale multivariable systems. Distributed digital systems for instrumentation and control hardware and software aspects of microprocessor-based controls. Introduction to non-linear behaviour: linearisation, the describing function method of analysis, stability analysis and compensation of non-linear systems.

References

ME504 Engineering Management
Four hours per week for one semester

A subject in the fifth year of the degree course in mechanical engineering. Three 30 hour units are offered: decision making, risk engineering, computer packages, robotics, plant specification and tendering, and emerging technologies. Specific emphasis will be placed on strategic planning as it relates to the design process.

References

Numerical continuum mechanics
Three hours per week for one semester including lectures, laboratory and tutorial work.

This subject introduces students to the application of advanced numerical methods. Accuracy of the modelling technique, degree of difficulty, computing time and cost effectiveness are compared with experimental techniques and data for specific applications: heat transfer, vibration analysis of structures, stress analysis, and fluid mechanics.

References

ME503 Engineering Technology
Six hours per week for one semester

A subject in the fifth year of the degree course in mechanical engineering. Three 35 hour units are offered: ergonomics, advanced design and numerical continuum mechanics. Students must take two of the three alternatives offered.

Ergonomics
Three hours per week for one semester including lectures, laboratory and tutorial work.

The syllabus covers measurement techniques including physiological measures, scaling and data analysis, questionnaires and interviews: aspects of the socio-technical system application of ergonomic principles to transport, buildings, computer systems, and control systems. Students are expected to undertake a study in depth and to present an oral report to the class.

References
Grandjean, E. Fitting the Task to the Man. Lond., Taylor & Francis, 1980
Keats, J.A. An Introduction to Quantitative Psychology. Syd., Wiley, 1977

Advanced design
Three hours per week for one semester including lectures, project work and excursions.

Topics will be selected from: reliability and maintainability, risk engineering, computer packages, robotics, plant specification and tendering, and emerging technologies. Specific emphasis will be placed on strategic planning as it relates to the design process.

References

Plant information systems
Two hours per week for one semester including lectures and tutorial work.

The syllabus covers law and engineering organisations including regulatory and environmental laws, contract and patent laws, and professional and product liability, and marketing, the prediction of marketing trends, planning business actions, marketing policies and use of appropriate technologies.

References

Decision analysis and financial management
Two hours per week for one semester including lectures and tutorial work.

The syllabus is designed to develop further modern concepts and techniques used in the management of engineering resources. Fundamentals of management, planning, systems, reporting, quantitative decision methods, problem analysis, system models and inclusion of more quantitative/decision factors such as industrial relations.

References

Plant information systems
Two hours per week for one semester including lectures and tutorial work.

The syllabus is designed to develop expertise in modern methods of handling information to do with engineering plant and equipment. Acquisition, documentation, filing, processing, analysis, prediction and decision-making techniques associated with information concerning engineering plant, equipment and related personnel. Applications include procurement, operation, reliability, maintenance, updating and disposal of equipment and related personnel/resource management.

References
ME582 Engineering Project

One hundred and sixty hours over nineteen weeks

A fifth-year subject in the degree course in mechanical engineering which develops skills necessary to select, integrate, and apply appropriate knowledge, concepts and techniques to bring projects to successful conclusion.

The project may take various forms in which technology, research and development, design, experimental work and business acumen vary in their relative significance. Where possible the planning phase should be covered in the fourth-year subject, Engineering Investigation, with project execution in this project period. This will enable the student to experience between fourth and fifth years to be used as a gestation period for the students, and enable equipment to be ordered or constructed.

ME621 Air-conditioning 1

Four hours per week for two semesters
Lecture/Tutorial 100 hours
Laboratory and field work 20 hours
Assessment. Laboratory and assignments Two x 2 hour tests

A subject in the graduate diploma in air-conditioning.


Humidifying by steam and water

Ventilation. Natural and forced infiltration and exfiltration. Stack effect.

Human comfort requirements. Metabolic rate, latent and sensible heat rejection. Aur movement, temperatures, moisture content and thermal radiation relationships for comfort.

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. Solar air temperature, lag and attenuation as a function of zone aspect and construction, cooling load characteristics, continuous and intermittent operation, instantaneous heat gain, instantaneous cooling load.

Domestic installations.


Boilers and heat generation: revise fundamentals, package boiler units, flue-gas 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. Published by this Society, Atlanta, GA, USA.


Australian Institute of Refrigeration, Air Conditioning and Heating (Journal).

ME651 Risk Philosophy

One hour per week for one semester

A subject in the graduate diploma course in risk management.

Concepts and definitions: pure and speculative risk, the parameters of risk (probability, exposure and consequence value) and the risk diagram, scales of measurement for risk parameters, uncertainty, objective and subjective assessment of risk parameters. The risk estimation model.

Risk Evaluation: The evaluation process, factors affecting evaluation, who evaluates?, evaluation methodology, societal perception of risks, risk references and risk acceptance criteria.

References


ME652 Occurrence Analysis

One hour per week for one semester

A subject in the graduate diploma course in risk management.

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

Bound volume of papers from the literature (with input from BCAE).

ME661 Risk Engineering I

Two hours per week for one semester

A subject in the graduate diploma course in risk management.

Definitions and distinctions between risk and reliability engineering.

Monte Carlo analysis principles and applications to risk and reliability systems: synthesis and analysis techniques (event, fault tree, failure mode and effect).

Application of reliability mathematics to the assignment of probabilities of success. Emphasis on qualitative and graphical approach.

Sources of failure: probability and reliability data.

Review of Software applications packages.

References
Browning, R.L. (1980). The Loss Rate Concept in Safety Engineering. N.Y.: Dekker, USA

ME662 Risk Engineering II

Four hours per week for one semester

A subject in the graduate diploma course 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:

— prevention — 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 potentials — basic design for minimisation of loss potential fire walls, space separation, bundling etc.

Planning for emergencies, private and public fire brigades.

References

ME663 Risk Management

Two hours per week for one semester

A subject in the graduate diploma course in 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 — function and activities models

Risk control: principles and practices (loss retention, reduction and transfer, including pre- and post-loss).

Risk control decision-making principles and practices.

Systemic risk control and risk management systems, organisational and national structure for risk management, crisis management, assessment of organisational effectiveness (MORT).

Risk management practices and case studies.

References


ME674 Maintenance Engineering

Four hours per week for one semester

A subject in the graduate diploma course in risk management.


Maintenance operations selection of maintenance strategies based on management decisions, maintenance planning, work planning, resource analysis and allocation, plant inventory, maintenance control, plant analysis.

Stores and spares inventory: scientific inventory control, Inventory analysis and strategies, stores and spares management policy assessments.

Work measurement in maintenance: method study, work improvement, work sampling in maintenance. Just-in-time programs.

References
Cunningham, C.E. and Cox, W. Applied Maintainability Engineering. N.Y.: Wiley Inter-Science, 1972
Dhillon, B.S. and Reiche, H. Reliability and Maintainability Management. N.Y.: Von Nostrand Rheinhold, 1985
Moss, M.A. Designing for Maintainability. London: Butterworths

ME676 Property and Production Risk Management

Two hours per week for one semester

A subject in the graduate diploma course in risk management.

Loss Forecasting

Loss estimate methods: 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

Miscalculation perils, flood, windstorm, hail etc.

Property Insurance

Purpose, definitions and concepts

Brief history, e.g. Lloyds, Factory Mutual, Australian experience

Levels of cover, deductibles, reinsurace, self insurance, limits of cover, perils, business interruption, construction exclusions.

Role of parties, insured, agent or broker, insurer and reinsurer; government.

Risk and Maintenance Financing

Financing Models

Relationship between risk and maintenance.

Terotechnology: life cycle costing including use of risk.

References
ME678 **Health and Safety Management**

Two hours per week for one semester

A subject in the graduate diploma course in risk management.

**Occupational Health and Safety**

Historical precepts in injury control: pre 20th Century, the industrial revolution, the factory inspectors, Heinrich, Haddon, Wrigglesworth.

H&S program objectives and strategies. The application of risk management principles to H&S management; risk identification and quantification (data, surveys, group input, computerised data bases), evaluation criteria and methods (standards and regulations, technical specialists’ role, committees and unions), implementation of control measures and control measure hierarchy, Rehabilitation and Claiming Management.


Organisational design for effective implementation and maintenance of a program; role, responsibilities, reporting points, program audit.

Sources of information: risk and control information.

Public and Product Health and Safety

Risk assessment for public and product risks: methods, criteria and program elements, incident reporting, design & disposal screening.

Public health and safety program design and management.

Product guarantees, warranties and usage information, recall procedures, incident reporting system.

**References**


ME721 **Air-conditioning 2**

Four hours per week for one semester

Lecture/tutorial: 40 hours

Laboratory and field work: 20 hours

Assessment: assignment

A subject in the graduate diploma course in air-conditioning.

Fluid flow principles: air flow in ducts, water flow in pipes, distribution systems, duct design philosophies, equal friction, constant velocity, static regain, index runs, system characteristics, distribution and mixing of air streams; registers and diffusers, AGA design, system characteristics and components, cooling and heating coil connections, control valves.

Fans and pumps: types, characteristics, construction, system matching, energy consumption, part-load fan operation.

Noise and vibration: background theory, NR curves, noise and vibration sources, effect of duct and pipe velocities, sound attenuators in lined and unlined ductwork, sound attenuators, vibration isolation of rotating equipment.

Air conditioning systems: reheater, perimeter induction, variable volume, dual duct, multi-zone and others, e.g., IPCC storage systems, typical layout, advantages and disadvantages, capital and running costs, commissioning, balancing of air and water systems, measurement methods. Health and safety aspects, smoke and fire control. AS1668 Pt 1, open cooling towers and alternatives. Legionnaire’s Disease, water treatment, fresh air intakes, ducts and air contaminants.

**References**


American Society of Heating, Refrigerating and Air Conditioning Engineers. ASHRAE Handbooks Fundamentals, Systems, Applications and Equipment Volumes. Published by this Society, Atlanta, GA, USA.


International Institute of Refrigeration. Thermodynamic and Physical Properties P12, also for P22. Published by this Institution, Paris, 1981


Australian Institute of Refrigeration, Air Conditioning and Heating (Journal)

ME722 **Refrigeration 2**

Three hours per week for one semester

Lecture/tutorial: 30 hours

Laboratory work: 15 hours

Assessment: Assignments and Laboratory

One x 2 hour test

A subject in the graduate diploma course in air-conditioning.

Vapour compression cycle.

Centrifugal compressors. Isentropic and actual operation.

Pressure coefficient and isentropic efficiency. Dimensionless 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 uncharacteristics.

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 restricted tubes.

Capacity control applied to all types of compressors. Hot gas bypass.

Analysis of thermal storage and storage mediums.

Time dependent considerations. Heat sources and sinks.


Some aspects of solar boosted and driven heat pumps.

**References**

American Society of Heating, Refrigerating and Air Conditioning Engineers. ASHRAE Handbooks Fundamentals, Systems, Applications and Equipment Volumes. Published by this Society, Atlanta, GA, USA.


International Institute of Refrigeration. Thermodynamic and Physical Properties P12, also for P22. Published by this Institution, Paris, 1981


Australian Institute of Refrigeration, Air Conditioning and Heating (Journal)

ME725 **Applied Fluid Mechanics**

One hour per week for one semester

A subject in the graduate diploma course in risk management.

Energy equation.

Friction and other losses.

Applications to air systems: ventilation.

Applications to liquid systems: branch pipe work, nozzles, pumpfluid characteristics, system matching.

**References**


Various Australian Standards & Codes

ME729 **Fluid Mechanics**

Three hours per week for one semester, including lectures and laboratory/tutorial work

A subject in the graduate diploma course in biochemical engineering and chemical engineering.

This subject provides a study of fluid mechanics appropriate to chemical engineering.

Review of fluid properties; fluid statics and dynamics; measuring devices; boundary layer concepts; flow and pressure drop in pipes.

Valve characteristics; pig work systems; characteristics of pumps and fans; effect of blade orientation, cavitation. Net positive suction head; positive displacement machines; methods of control.

**References**


ME731  **Instrumentation and System Control**  
Three hours per week for one semester  
Lecture/tutorial: 35 hours  
Laboratory work: 10 hours.  
Assessment: Assignments and Laboratory  
One x 2 hour test  

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 collierters. Broad understanding of pneumatic, electric and electronic control systems, relative merits, overview of controller types and 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 ME751.

**References**


**ME742  Health and Hygiene**  
Four hours per week for one semester  

A subject in the graduate diploma course in risk management.  

Toxicology: routes of entry, dose-response relationships. Threshold limit values and other measured applied to chemicals, noise and vibration and radiation.  
Particular chemical hazards and their effects: solvents, dusts, welding fumes, heavy metals, sensitisation, cancer, respiratory and other system effects.  
Medical monitoring programs: principles and practices.  
Respiratory protection (dusts, mists and vapours): types of equipment, effectiveness in use, program requirements for successful implementation.  
Ventilation system design practices (extraction and dilution).  
Noise and vibration: effects on human beings, damage risk criteria, practical control measures. Hearing protection devices: types, effectiveness, selection, program requirements for successful implementation.  
Thermal condition. Thermoregulatory mechanisms, effects of high and low temperatures, measurement of thermal condition (WBGT, ET, HSI), risk zones and criteria, policies and standards, control of thermal condition.  
Radiation (ionising and non-ionising): uses and applications, damage-risk criteria, control methods.  
Biological hazards legionnaire’s disease, zoonoses, AIDS, bacterial infections — principles and controls.  
Stress (physical, psychological and social stressors and stress effects), principles of the stress reaction, identification of stress effects, control strategies.

**References**

NIOSH (1980). The Industrial Environment, Its Evaluation & Control

**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 use of machinery and tools (e.g. power presses, woodworking, metalworking, construction)  
grinding wheels  
compressed fluids  
vehicles (fork lift trucks, mobile equipment, trucks)  
cranes, slings, hoists  
stairs, steps, ladders, platforms

Personal protective equipment: selection, implementation and use (eye, face, head, hand, feet).  
Emergency equipment and procedures: breathing apparatus use, gas and smoke detection equipment, procedures and maintenance.  
Particular industry practices (to suit needs of students).

**References**

Various Government industries association and union publications.  
Australian standards and codes of practice.  

Papers from the literature.

**ME761  Risk Engineering III**  
Three hours per week for one semester  

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/criticality analysis

Use of historical databases

Use of insurance criteria

**References**

Browning, R.L. (1980). The Loss Rate Concept in Safety Engineering. N.Y.: Marcel Dekker  

**ME763  Risk Engineering IV**  
Four hours per week for one semester  

A subject in the graduate diploma course in risk management.  

Risk identification and quantification methods for simple tasks: analysis of historical data, hazard surveys.  

Risk identification and quantification for more complex machinery and equipment: application of morphological methods to typical machinery and equipment.  
Assigning priorities to risk control tasks: principles and practical measures.  

Scheduling of risk control tasks.  

Engineering risk control for external energy sources; passive and active controls, mobility of energy source and recipient.  

Machinery safeguarding design: principles, standards, design processes, guard failures, case studies.  

Isolation procedure and work permit system: principles and design methods.  

Electrical safety: injurious effects of electricity, control of risk in electric circuits.  

Fire and explosion: overview of principles of risk assessment and control.  

**References**

Various Standards on machine safeguarding  
ME764 Risk Control Practices and Technology
Four hours per week for one semester
A subject in the graduate diploma course in risk management.
Particular skills, hardware and codes with applications to particular hazards.
Fire: flame-detection, heat detection, smoke detection, extinguishing systems: water, CO2, dry chemical, foam and Halon.
Australia & US standards.
Explosion: detection and suppression devices, boilers and pressure vessels, gas trains.
Flammable substances: handling and storage.
Other Perils.
References

ME769 Vibration and Acoustics
One hour per week for one semester
A subject in the graduate diploma course in risk management.
Vibrations: systems with multiple degrees of freedom, transient response, transmissibility of force and motion.
Acoustics: sound source characteristics, sound fields, noise control and reduction principles.
References
Allyn and Bacon, 1981.

ME774 Maintenance Practices and Technology
Four hours per week for one semester
A subject in the graduate diploma course in risk management.
Diagnostic and analytical methods with applications to plant and equipment, for condition and system performance monitoring.
Vibration and noise: measurement methods, analysis methods.
Oil analysis methods: Interpretation of atomic absorption spectrographic methods, development of inspection and trend analysis techniques.
Wear debris: methods of determination and interpretation, thermography.
Thermography: monitoring of equipment, interpretation of malfunction through temperature measurements.
Application of diagnostic methods to machine health monitoring, setting up inspection procedures, record keeping, trend monitoring, life curves.
References

ME775 Maintenance Engineering II
Three hours per week for one semester
A subject in the graduate diploma course in risk management.
Information management: technical and management database assessment and management (search, retrieval, assessment and consolidation).
Computer applications: software for maintenance, evaluation of commercial packages.
References

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 risk management.
Project management: Contract law, scheduling, costing, optimisation, maintenance programme development.
Energy management: Including energy source selection and life cycle costing, system optimisation.
Field project: The project should be of a practical nature linking the course elements of air conditioning, refrigeration and system control and preferably 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

ME782 Major Project
Four hours per week for one semester
A subject in the graduate diploma course in risk management.
Use of library, definition of computer search keyboards, 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 student’s employment experience and shall address a real problem in industry.

ME783 Minor Project
Two hours per week for one semester
A subject in the graduate diploma course in risk management.
Use of library, definition of computer search keyboards, 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 student’s employment experience and shall address a real problem in industry.

ME785 Technology and Innovation
Three hours per week for one semester
A subject in the graduate diploma course in entrepreneurial studies.
A study of the elements of technological development of an invention to a commercial product, covering the following stages: information sources; evaluation of a potential innovation, including need, market, financial feasibility and social implications; research methodology: product design and development.
References
ME795 Maintenance Engineering Science
One hour per week for one semester
A subject in the graduate diploma course in risk management.
Equipment deterioration mechanisms, failure, reclamation and repair strategies.
Corrosion detection, treatment and prevention methods.

References

ME798 Management Systems
One hour per week for one semester
A subject in the graduate diploma course in risk management.
Application of information systems for decision-making in organisations.
Identification of decision requirements.
Effectiveness, social implications and feasibility of systems.

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.
Dynamics of controlled systems: state-space concepts, solutions to state-space equations, systems stability, Laverger algorithm and conversion to Laplace domain, relations of state-space to classical controls.
Discrete state-space theory.
Programmable control of industrial logic (PLC).
Hybrid computing and control. Hybrid computers in closed loop systems, systems simulation, Advanced control systems.
Microprocessors and microcomputers in control systems.

Textbooks

MP106 Engineering Drawing and Graphics
Three hours per week for two semesters
Assessment by assignments and examination
A first year subject in all engineering degree courses.
Basic studies cover the fundamental principles of engineering drawing — standards, conventions, practices and procedures — applicable to the general field of engineering. Studies and exercises cover principles, use of correct lines, orthographic projection, assembly and detail drawings, material lists, sectioning, use of scales, dimensioning and specification.
Graphic solution of engineering problems, load and stress diagrams.
Developments and intersections, curves and surfaces in 3D.
Computer-aided draughting.
Studies extend to cover drawings and standards used in Mechanical, Civil, Electrical and Manufacturing Engineering. Assembly and detail drawings incorporating these features.

Textbook
Australian Engineering Handbook. The Institution of Engineers, Australia

References
Relevant Australian Standards

MP183 Materials and Processes
Four hours per week for one semester
Assessment by laboratory, assignments and examination
A first-year subject in all engineering degree courses.
Solid state: effects of bonding and atomic structure on mechanical properties of solid materials.
Deformation and forming: elastic, plastic and viscoelastic, relationship of manufacturing processes to properties of final product.
Fracture: ductile, brittle, creep, fatigue and stress corrosion.
Equilibrium: solidification and structure, equilibrium diagrams, corrosion.
Mechanical testing: commonly used testing methods.
Case studies: several case studies will be considered involving manufacturing processes, quality and reliability, measurement and instrumentation, value engineering.

Textbook

References

MP186 Building Materials
Three hours per week for one semester
Assessment by laboratory, 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 structure's, silicate structures.
Equilibrium: phase relationships and equilibrium diagrams.
Mechanical properties: deformation and fracture, non-destructive testing.
Concrete and concrete: constituents, setting and hardening, admixtures.
Corrosion and deterioration: causes, prevention and minimisation.

Textbook
Betterley, P.J. Building Materials. Four hours per week for one semester
Assessment by laboratory work, tests and assignments
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 structure's, silicate structures.
Equilibrium: phase relationships and equilibrium diagrams.
Mechanical properties: deformation and fracture, non-destructive testing.
Concrete and concrete: constituents, setting and hardening, admixtures.
Corrosion and deterioration: causes, prevention and minimisation.

References
Betterley, P.J. Building Materials. Four hours per week for one semester
Assessment by laboratory work, tests and assignments
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 structure's, silicate structures.
Equilibrium: phase relationships and equilibrium diagrams.
Mechanical properties: deformation and fracture, non-destructive testing.
Concrete and concrete: constituents, setting and hardening, admixtures.
Corrosion and deterioration: causes, prevention and minimisation.

References
Betterley, P.J. Building Materials. Four hours per week for one semester
Assessment by laboratory work, tests and assignments
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 structure's, silicate structures.
Equilibrium: phase relationships and equilibrium diagrams.
Mechanical properties: deformation and fracture, non-destructive testing.
Concrete and concrete: constituents, setting and hardening, admixtures.
Corrosion and deterioration: causes, prevention and minimisation.

References
Betterley, P.J. Building Materials. Four hours per week for one semester
Assessment by laboratory work, tests and assignments
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 structure's, silicate structures.
Equilibrium: phase relationships and equilibrium diagrams.
Mechanical properties: deformation and fracture, non-destructive testing.
Concrete and concrete: constituents, setting and hardening, admixtures.
Corrosion and deterioration: causes, prevention and minimisation.

References
Betterley, P.J. Building Materials. Four hours per week for one semester
Assessment by laboratory work, tests and assignments
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 structure's, silicate structures.
Equilibrium: phase relationships and equilibrium diagrams.
Mechanical properties: deformation and fracture, non-destructive testing.
Concrete and concrete: constituents, setting and hardening, admixtures.
Corrosion and deterioration: causes, prevention and minimisation.

References
Betterley, P.J. Building Materials. Four hours per week for one semester
Assessment by laboratory work, tests and assignments
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 structure's, silicate structures.
Equilibrium: phase relationships and equilibrium diagrams.
Mechanical properties: deformation and fracture, non-destructive testing.
Concrete and concrete: constituents, setting and hardening, admixtures.
Corrosion and deterioration: causes, prevention and minimisation.

References
Betterley, P.J. Building Materials. Four hours per week for one semester
Assessment by laboratory work, tests and assignments
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 structure's, silicate structures.
Equilibrium: phase relationships and equilibrium diagrams.
Mechanical properties: deformation and fracture, non-destructive testing.
Concrete and concrete: constituents, setting and hardening, admixtures.
Corrosion and deterioration: causes, prevention and minimisation.

References
Betterley, P.J. Building Materials. Four hours per week for one semester
Assessment by laboratory work, tests and assignments
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 structure's, silicate structures.
Equilibrium: phase relationships and equilibrium diagrams.
Mechanical properties: deformation and fracture, non-destructive testing.
Concrete and concrete: constituents, setting and hardening, admixtures.
Corrosion and deterioration: causes, prevention and minimisation.
Textbooks

MP213 Manufacturing Technology (C)
Three hours per week for two semesters
Assessment by examination and practical assignments
A second-year subject in the degree course in manufacturing engineering.
Introduction to chemical engineering: history and development of the chemical process industries; origins, flowsheets and process descriptions of chemical processes exemplifying the inorganic chemical industry and the organic chemicals industry (including both natural and mineral sources).
The role of the chemical engineer and a general outline of the broad areas of study of chemical engineering.
Thermodynamics and physical chemistry. First law of thermodynamics, ideal gas law, equations of state, compressibility, fugacity, enthalpy and entropy. Second law of thermodynamics, refrigeration and other compression and expansion processes.
Physical equilibrium, bubble and dewpoint relations, phase diagrams, activity, activity coefficients, Gibbs-Duhem equation. Chemical reaction equilibria, heats of reaction and mixing, concentration, temperature, and pressure dependence of rate of reaction, batch, plug flow and backmix reactors; adsorption and catalysis, electrochemistry.
Textbook

MP231 Industrial Engineering
Two hours per week for one semester
Assessment by tests and class assignments
A second-year subject in the degree course in manufacturing engineering.
History, theory and practice of methods study and work measurement principles, definitions, symbols and terminology.
Introduction to charting techniques; time study; improvement procedures.
Elements of activity sampling and predetermined motion time systems for work measurement — work factor, MTM, MSD, Modaps; analytical estimating, work value ratings, human factors in work study management and supervisor involvement.
Standard performance and reward concepts. Applications of work study to manufacturing. Labour, office labour, etc.; method study, work simplification and improvement.
Textbook

MP251 Design for Manufacture (P)
Three hours per week for two semesters
Assessment by assignments, project work and tests
A second-year subject in the degree course in manufacturing engineering.
Introduction to design: methodology, decision-making criteria of design: functionality, reliability — precision strength and endurance. Component design to suit manufacturing processes. Assembly drawings and design documentation.
Basic MC tool design; drives, kinematic design — design features of typical machines.
Tolerances and production standards: systems of tolerancing, gauges and inspection, geometrical tolerancing statistical tolerances.
Basic machine elements design; joining elements, transmission elements. Applications of Australian and overseas standards to design of special products.
Computer aided design: 3D modelling, wireframe, solids.
Textbook

References
A list of references is supplied by the department.

Faculty of Engineering

MP253 Design for Manufacture (C)
Three hours per week for two semesters
Assessment by examination
A second-year subject in the degree course in manufacturing engineering.
Chemical engineering computations. Exercises in the application to a variety of chemical engineering situations of dimensional analysis, treatment of experimental data, nomographs and graphical techniques.
Basic design techniques: mass and energy balance calculations; flowsheets; stoichiometry calculations involving bypass, recycle and purge; combustion and heat engine calculations.
General design considerations. Concepts of layout, and the safety and health aspects thereof; air and water pollution control; methods of costing.

Textbooks

MP281 Engineering Materials
Three hours per week for two semesters
Assessment by assignments and examination
A second-year subject in the degree course in manufacturing engineering.
An extension of the work done in first year materials to consider the science and technology of some materials as a basis for later work in manufacturing technology and design for manufacture.
Structure, properties and treatment of metals, ferrous and non-ferrous; polymers, thermoplastic, thermosetting; ceramics — crystalline and non-crystalline; composite systems. Welding and joining systems. Tribology.
Textbook

References

MP282 Engineering Materials
Two hours per week for one semester
Assessment by assignments and examination
A second-year subject in the degree course in civil engineering.
Examines the work covered in first year materials to the characteristics of materials of particular importance in civil engineering.
Textbook

References

MP284 Engineering Materials
Three hours per week for one semester
Assessment by assignments and examination
A second-year subject in the degree course in mechanical engineering.
Examines the work covered in first year materials to the characteristics of materials of particular importance in mechanical engineering.
Textbook


References
Van Vlack, L. Materials for Engineering. Reading Addison Wesley, 1982

MP411 Manufacturing Technology (P) Six hours per week for one semester Assessment by laboratory work, assignments and tests A fourth-year subject in the degree course in manufacturing engineering. Mathematical analysis of forming equilibrium analysis of common working processes, e.g. wire drawing, forging, rolling. Redundant work, friction and lubrication. Nomograms for solution of forming problems. Deformation mechanics: slip line field applied to cutting and forming problems — metal flow. Polymers: moulding — description of VARIOUS moulding processes; design of injection moulding machines; mould design; mathematical analysis of flow in extruders; mathematical analysis of flow in the injection moulds. Quality control — application of modified gas law to shrinkage of material in moulds; effect of crystallization process on final dimensions of products. Fibres and composite materials — effect of fibre orientation on final properties; description of fibre properties and application design of composite materials, application of solid mechanics in fibre reinforcement. Welding and sealing — introduction to theory of bonding between materials description of modern technology in bonding of materials. Polymer laboratory work.

Textbook As for MP351

MP413 Manufacturing Technology (C) Six hours per week for one semester Assessment by examination and laboratory assignments A fourth-year subject in the degree course in manufacturing engineering. Review of the relevant parts of thermodynamics and heat transfer (first year), namely: conduction heat transfer, Fourier equation, natural and forced convection, Newton’s law of cooling, overall coefficients. Prediction of coefficients of heat transfer by the mechanisms of natural and forced convection, film dropwise condensation, nucleate and film boiling. Radiation heat transfer including Stefan Boltzmann and Planck equations; emissivity and absorptivity. Finite element technique applied to multi-dimensional transient heat transfer, LMTD, FT and C-NTU methods to define temperature driving forces. Thermal rating of shell and tube exchangers. Heat transfer equipment: description and characteristics of shell and tube exchangers and alternative geometries such as corrugated plate and close tube arrangements, extended surfaces. Boilers, condensers, tube stills, furnaces, etc. with examples of their application in the chemical industry.

Textbooks

MP421 Industrial Management Three hours per week for one semester Assessment test and assignments A fourth-year subject in the degree course in manufacturing engineering.
Accounting
Introduction to accounting, original transactions, balance day adjustments, profit determination.

Psychology
The personnel management function, problems and practices; personality studies -- conditioning (classical and operant), assertiveness, training and self-esteem; values, defence mechanisms, Sexuality and sexism; the use of conceptual models; listening; relaxation. Change and conflict -- their constructive uses.

Managerial economics
Supply and demand, elasticity, pure competition, monopoly and oligopoly; microeconomics of cost, profit, marginal concepts, profit maximisation, pricing, cost of capital; macroeconomic fundamentals, banking system and credit, government controls; inflation; national accounts; GDP; international competition; application of DCF to leasing.

References

MP422 Engineering Administration
Two hours per week for one semester
Assessment by test and assignments

Textbook

References

MP431 Industrial Engineering
Three hours per week for one semester
Assessment by test and assignments
A fourth-year subject in the degree course in manufacturing engineering. Plant layout design, systematic layout planning: material handling; methods, tools, line balancing; project management structure, CPM/PERT, management, formulation by linear programming, queuing theory applied in design of manufacturing systems; site visits, computers and packages used for topics, computer aided layout design. Mathematical models useful in design and operation: transportation, assignment, travelling salesman problems.

References

MP441 Manufacturing Systems
Two hours per week for one semester
Assessment by test and assignments
A fourth-year subject in the degree course in manufacturing engineering. Introduction to modern manufacturing systems and techniques: forecasting; operations planning; inventory and planning control; operations scheduling; dispatching and progress control. Simulation and modelling techniques for testing production; management policy decisions; computer simulation languages -- concepts and techniques; systems dynamics applied to industrial problems.

References
Monden, Y. Applying Just In Time. IE, 1986
Monden, Y. Toyota Production System. IIE, 1983

MP451 Design for Manufacture (P)
Four hours per week for one semester
Assessment by examinations, assignments and projects
Computer Aided Design: CAD Systems, processing and techniques, NC programming, kinematics and robotics.

References
As for MP251 and MP351 plus
Maj, M. Application of Semi-Graphical Solution in Multi-ring Design. Short course on Cold Forging of Metals, Melb. -- Swinburne Press, 1982
Selected Australian and British Standards
Thomas, L.F. The Control of Quality. Lond., Thanes and Hudson, 1965

MP453 Design for Manufacture (C)
Four hours per week for one semester
Assessment by examination and laboratory assignments

Textbook

MP484 Engineering Materials
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. Welding and joining of ferrous and non-ferrous materials, treatment of structures of welds, welding processes, weld testing, non-destructive testing, fracture mechanics, Beer's law.
Faculty of Engineering

MP502 Manufacturing Project
One hundred and ninety hours over nineteen weeks
Assessment by laboratory, assignments and tests

A fifth-year subject in the degree course in manufacturing engineering. This subject is the major individual research project in the course. At the end of the fourth-year academic period, each student is given, or allowed to select, a research project related to manufacturing engineering. The student is expected to make all preparations, designs, literature surveys, during the fourth-year Industrial training session. At the beginning of the final semester of the course, the student gives short oral presentation of the aims, objectives and experimental method to be followed.

MP511 Manufacturing Technology (P)
Five hours per week for one semester
Assessment by examination


Textbooks
As for MP311.

MP513 Manufacturing Technology (C)
Five hours per week for one semester
Assessment by examination


Textbooks

MP517 Industrial Processes and Pollution Control
Four hours per week for one semester

A subject in the Graduate Diploma Course in Chemical Engineering. Undertakes process flow diagram. Simple process calculations (stoichiometry, combustion, heat and mass balances). Distillation and dispersal of effluents, 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, dioxin, dumping of toxic waste).

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 employees, employer (abilities; 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.

Textbook

References

References
Design for Manufacture (C)

A five-year subject in the degree course in manufacturing engineering.


Examples of solid, liquid and gaseous fluids associated with chemical manufacturing and other industries: methods of treatment and disposal; ecological considerations, legal requirements.


Design for Manufacture

Production Technology 1

Sheet metal work: rheology — mathematical description of non-Newtonian fluids; flow on non-Newtonian liquids in a pipe; derivation of Mooney-Rabinowitsch equation and temperature dependence of viscosity described by Arhenius equation: introduction to visco-elastic solids; application of visco-elastic models to constant and cyclic stressing; definition of complex moduli and loss tangents; thermal fatigue of polymers. Compounding — thermodynamic effect of miscibility; effect of compounding on final properties of the material; chemical corrosion of material and environmental fracture process; statistical theory of mixing. Extruders and extrusion — description of extrusion process and extruder design; energy consumption; mathematical description of melt fracture and die swell; rheology of die flow; mathematical process of flow blowing and fibre spinning.


Production Technology 2

Sheet metal work: rheology — mathematical description of non-Newtonian fluids; flow on non-Newtonian liquids in a pipe; derivation of Mooney-Rabinowitsch equation and temperature dependence of viscosity described by Arhenius equation: introduction to visco-elastic solids; application of visco-elastic models to constant and cyclic stressing; definition of complex moduli and loss tangents; thermal fatigue of polymers. Compounding — thermodynamic effect of miscibility; effect of compounding on final properties of the material; chemical corrosion of material and environmental fracture process; statistical theory of mixing. Extruders and extrusion — description of extrusion process and extruder design; energy consumption; mathematical description of melt fracture and die swell; rheology of die flow; mathematical process of flow blowing and fibre spinning.


Textbooks

As for MP311.

Production Technology 3

A subject in the graduate diploma course in manufacturing technology.

Automation and automated assembly: CAM, CAD, manufacturing systems. NC robots feeding/orientation/placement.


Metalworking laboratory: polymer processing — selection and costing — optimising the use of materials with respect to material properties, moulding and cost. Calendering and coating — development of mathematical model for flow between rollers; application of model in predicting the power consumption of process; mathematical description of melt flow in wire coating.

Textbooks

As for MP311.

Systems Engineering

Two hours per week for one semester

Assessment by assignments, tests and laboratory work

A subject in the graduate diploma course in manufacturing technology.

Basic control theory, definitions, open and closed-loop systems. Regulator and servo problems. Analysis of linear systems using classical, s-plane and frequency response methods. Laplace transform techniques; block diagrams and transfer functions; system stability and performance criteria; Nyquist, Bode and Nichols plots. Compensation techniques. Applications to engineering problems.

Textbook


Instrumentation and Control

Two hours per week for one semester

Assessment by assignments, tests and laboratory work

A subject in the graduate diploma course in manufacturing technology.

Measurement and control of variables in production processes: forces, flow, stresses, distance, speed, acceleration, vibration, pressure, temperature, etc. Electrical, hydraulic and pneumatic control devices: signal amplification, recording and readout.

Textbook


Numerical Engineering Project

Two hours per week for one semester

Assessment by reports

A subject in the graduate diploma course in manufacturing technology.

Individual or group projects involving coordinate measuring machines and CAD/CAM

Robotics

Two hours per week for one semester

Assessment by reports

A subject in the graduate diploma course in manufacturing technology.

Robot geometry and kinematics, kinematic equations. Motion trajectories, joint motion, control techniques, microprocessors and interfacing to computers. Programming robots, sensing devices.
MDP61 Computer Aided Design I
Two hours per week for 15 weeks, semester 1
Lectures, tutorials and project
Assessment: Assignments and project, written test

A subject in the graduate diploma course in CAD/CAM.

CAD and its relationship in a totally integrated manufacturing process.

Geometric data base considerations, Development of CAD systems — wireframe, sculptured surfaces, polygonal schemes, solid modelling (constructive solid geometry and boundary types) 2D, 2.1/2D, 3D modelling, Interfacing considerations, Hybrid schemes.

Development and capabilities of CATIA 3D modelling package. Configuration of IBM system. "Hands-on" CATIA system including file maintenance, function keyboards, image manipulation (zoom, translate, rotate etc.) screens and windows. Creation of wireframe models using points, lines, arcs and curves. 2D and 3D mode. Use of erase, transform and limit functions. Face and volume creation for mass properties. Creation of solid modelling primitives — Boolean operations.

Manipulation of prepared models in kinematics, robotics and numerical control simulation. 2D drafting.

Demonstration of CATIA plot protocols; ISO operation.

Discussion of geometric tolerances, ATC NC 3i, 4 axis NC machine controller.

References

MDP62 Computer Aided Design II
Three hours per week for 15 weeks, semester 2
Prerequisite MDP61 Computer Aided Design I
Lectures, tutorials and project
Assessment: Assignments and project, written test

A subject in the graduate diploma course in CAD/CAM.


References

MDP63 Computer Aided Design III
Two hours per week for 15 weeks, semester 1
Lectures, tutorials and case studies
Assessment: Assignments and project, written test

A subject in the graduate diploma course in CAD/CAM.


Reference

MP641 Manufacturing Automation I
Three hours per week for one semester
Lectures, tutorials and laboratory
Assessment: Assignments, laboratory reports and examination

A subject in the graduate diploma course in CAD/CAM.

Conventional Automation
Pneumatic systems and circuits, Electrical, Electronic, Hydraulic, Mechanical andHybrid systems, P.L.Cs and their applications.

Automated Machining Systems
Flow line systems, Automatics and Semi Automatics, Copy and turret machines.

Introduction to Numerical Control (N.C.)
History, development and concepts of NC, CNC, CNC, DDNC, Configuration of, and programming methods for NC machines and equipment. Classification of NC machines (2D to Millaxis), Open, Closed loop and adaptive control. Elements of machines and system hardware. Control system features. Overview of general economic considerations Involved in NC Programming NC machines
Tape Codes: I.S.O. and E.I.A., part programming languages and computer assisted part programming, A.P.T., New standards, CAD/CAM, C.S. Data, B.T.R. technology, Practical exercises and laboratory work (8 hr pracs).

Textbook

MP625 Manufacturing Automation II
Three hours per week for one semester
Lectures, tutorial and laboratory work
Assessment: Assignments, reports (Lab) and examination

A subject in the graduate diploma course in CAD/CAM.

Justification and Economics of NC
Factors to be considered in NC — tangible and intangible benefits, economic comparison with other machining methods. Economics of placing work on existing NC machines. Economic analysis of complexity and batch size. Break even studies.

Flowlines and Flowline balancing
Terminology, analysis of flow lines, discussion of computer simulation, flowline balancing.

Systems Integration
Elements of a Computer Integrated system: Robots, NC, CAD, co-ordinate measuring machines, guided vehicles, F.M.S., C.I.M.

Machineability Data
In sources, consideration of tool materials, tool angles, machining methods, cutting fluid optimization, cutting conditions.

Expert and knowledge based systems
Discussion of relevance of and characteristics of knowledge based or expert systems for C.A.M.

Laboratory
Practical work relating to programming and using: C.N.C. machining centres, CNC lathes, robots and co-ordinate measuring machines.

Textbook

EE626 Computer Interfacing and Digital Electronics
Three hours per week for one semester
Aim: To introduce entry level students to the hardware and software of small computers, and their interface to external measurement and control equipment. Hands-on work is emphasised.

Prerequisites: Nil

A subject in the graduate diploma course in CAD/CAM.

Electronics: Digital signals, logic gates, flip-flops, buffers, registers, and counter. Number systems; binary, hexadecimal. BCD, two’s complement ASCII.

Programming: Introduction to a small computer, and to using a high level language such as PASCAL, Language constructs, and use of language data input, output and manipulation.

Interfacing: Parallel and serial interfacing methods and standards.

MDP61 Management of CAD/CAM
Technology
Two hours per week for one semester
Lectures, tutorials, case studies, role plays, problem solving exercises, seminars, visiting speakers
Assessment: Assignments and project, written test

A subject in the graduate diploma course in CAD/CAM.
Introducing technological change in the enterprise, the opportunities, benefits and disadvantages of CAD/CAM and related technology to the enterprise and the nation. CAD/CAM project planning, cost and feasibility studies, project management. The CAD/CAM vendors and their products, who to contact, dealing with vendors, evaluating alternatives, contracts, maintenance agreements etc. Installation and commissioning. Impact of CAD/CAM on the organisation and the organisation structure, the impact on traditional job roles, implications for work organisation and job design, involving and motivating people. Industrial relations implications of CAD/CAM, consultative processes, union attitudes. Implications of CAD/CAM for awards and agreements. Ergonomics and occupational health and safety issues relating to CAD/CAM.

Training for CAD/CAM; selection of personnel to be trained, approaches to CAD/CAM training, dealing with resistance if staff cannot cope, individual learning styles. Training facilities, TAFE and CAE courses, commercial training services. Typical training problems. Government initiatives relating to CAD/CAM; research grants, tax benefits, regional development and federal and industry projects, etc. (e.g. heavy engineering project). Support organisations, consulting services; CIM Centre, VCCAD/CAM Network, AMTEC etc.; assistance from professional bodies (ProCIE, ACADS, SME, IE Aust etc.). Interest and user groups.

References

In addition to the above, the student will be referred to journal references and software handbooks, manuals and brochures.

MP651 Production Design 1
Four hours per week for one semester
Assessment by projects, tests and assignments

Textbooks
As for MP651 and MP451.

MP652 Production Design 2
Two hours per week for one semester
Assessment by projects, tests and assignments
A subject in the graduate diploma course in manufacturing technology. Design of tools for metalworking; product and tooling for diecasting — diesets for diecasting. Critical components: punches, dies. Calculations, design and analysis of processes parameters, sequences. Design of multiningles for cold forging. Project work: 30 hours of effective work. Product design to suit forging or diecasting and a layout of a diesets for a selected operation.

Textbook

References
Selected Australian and British Standards.


MP653 Production Design 2B
Two hours per week for one semester
Assessment by projects, tests and assignments
**MP711 Mass Transfer**

Four hours per week for one semester

Assessment by examination and laboratory assignments

A subject in the graduate diploma course in chemical engineering.

Mass transfer theory, fick diffusion equation, theory of diffusion, gas, liquid, solid interphase diffusion, boundary layer theory, film and overall coefficients, penetration theory, absorption with chemical reaction. Concepts of HTU and NTU, experimental determination of mass transfer coefficients, wetted wall and disc columns.

**Textbooks**


**MP712 Unit Operations**

Four hours per week for one semester

Assessment by examination and laboratory assignments

A subject in the graduate diploma course in chemical engineering.

Chemical manufacturing techniques: basic fluid particle systems, hydraulic classification, hindered settling, thickening. Flow through packed beds, sand filters, fluidisation, pneumatic and hydraulic conveying, filtration and centrifuging.

Powder technology: handling and transport of powders, powder mixing, crushing, grinding and screening.

Non-Newtonian fluid dynamics: Newtonian and non-Newtonian fluid dynamics with examples drawn from plastics processing industry.

**Textbook**


**MP721 Chemical Engineering Design 1**

Three hours per week for two semesters

Assessment by examination

A subject in the graduate diploma course in chemical engineering.

Exercises in the application to a variety of chemical engineering situations of dimensional analysis, treatment of experimental data, nomographs and graphical techniques.

Mass and energy balance calculations; flow sheets; stoichiometry calculations involving bypass, recycle and purge; combustion and heat energy calculations.

**Textbooks**


**MP722 Stagewise Processes**

Six hours per week for one semester

Assessment by examination

A subject in the graduate diploma course in chemical engineering.

Design of mass transfer equipment.

Selection of required number of stages: 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-Savant methods, batch and continuous operation.

Performance characteristics: behaviour of plate and packed columns, characteristics of packings, bubble caps, weir and downcomers, floodings, hold-up and pressure drop, selection of optimum column diameter.

Chemical manufacturing techniques: 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.

**Textbook**


**MP723 Heat Transfer**

Six hours per week for one semester

Assessment by examination and laboratory assignments

A subject in the graduate diploma course in chemical engineering.


Finite element techniques applied to multi-dimensional and transient heat transfer, LMTD, FT and e-NTU methods to define temperature driving forces. Thermal rating of shell and tube exchangers.

Heat transfer equipment: description and characteristics of shell and tube exchangers and alternative geometries such as corrugated plate and close tube arrangements, extended surfaces. Boilers, condensers, tube stills, furnaces, etc., with examples of their application in the chemical industry.

**Textbooks**


**MP724 Chemical Engineering Design 2**

Five hours per week for one semester

Assessment by examination

A subject in the graduate diploma course in chemical engineering.

Computer graphics including flowsheet and layout preparation: exchangers in preparation of computer solutions to problems in momentum, heat and mass transfer.

Duhring and Cox charts, boiling point elevation, single and multi-effect evaporator systems, thermal and mechanical recompression, operation, control and economics of evaporations systems.

Examples of solid, liquid and gaseous effluents associated with chemical manufacturing and other industries; methods of treatment and disposal; ecological considerations, legal requirements.

**Textbooks**


**MP731 Physical and Chemical Equilibria**

Three hours per week for one semester

Assessment by examination and laboratory assignments

A subject in the graduate diploma course in chemical engineering.

Students with a qualification in engineering are required to study the following material which forms the Semester 2 content of MP713, namely: physical equilibrium, bubble and dewpoints, phase diagrams; activity, activity coefficients, Gibbs-Duhem equation, chemical reaction equilibria, heats of reaction and mixing; concentration, temperature and pressure dependence of rate of reaction; batch, plug flow and backmix reactors; absorption and catalysis, electrochemistry.

**Textbook**


**MP751 Design Applications**

Five hours per week for one semester

Assessment by examination

A subject in the graduate diploma course in chemical engineering.

Mechanical design: pressure vessels, heat exchangers, safety mechanisms (safety valves, bursting discs, flame traps, etc.). Routing and support of pipes, expansion loops and joints, coupling methods; gland sealing methods on pumps and valves, valve styles; lining of pipes, valves and vessels. Fixed and variable speed drives for pumps, fans and compressors. Reinforced concrete; foundations; resilient mountings and methods of holding down. Causes of failure.

**Textbooks**


MP821 Managing and Developing Organisations
Three hours per week for one semester
A subject in the graduate diploma course in entrepreneurial studies. This subject is intended to provide basic knowledge and skills to successfully establish an entrepreneurial organisation and manage the organisation through its development to maturity.
Topics include: approaches to organisation structure, characteristics of successful innovative organisations, theories of selection, appraisal, counselling, training and developing, motivation, job design and job satisfaction, performance of human groups, managerial styles, negotiation skills and industrial relations (as it impacts on the new enterprise).
In addition, experiential exercises will be used to assist in the development of management and group skills. Students will also be required to visit entrepreneurial-type organisations and to report as requested.

Textbook

References

In addition, relevant journals will be cited as required.

MP841 Manufacturing Systems
Three hours per week for one semester
A subject in the graduate diploma course in entrepreneurial studies. This subject is intended to provide the knowledge and skills required to:
   — Identify the systems required to support the management and control of a factory.
   — Design basic systems relevant to a small manufacturing enterprise.
   — Specify the requirements for more complex systems.
Topics include: forecasting, production planning and scheduling, inventory control, facilities planning, quality and reliability, maintenance, and budgetary analysis and control.

Textbook

References

In addition, reference will be made to appropriate journals for specific topics.

MP902 Advanced Computing Techniques
Two hours per week for one semester plus one hour per week for one semester
Assessment by assignment and test
A subject in the master of engineering CIM course.

Introduction to modern high level languages: FORTRAN, APL, ADA, Prolog.
Operating systems design and extension designs.
Data structures: stacks, queues, dequesues, linked lists, arrays, enclosed arrays, trees, networks, files.
Algorithms: sorting, merging, connectivitiy, minimal path, reliability, convergence, stability.
File structures: sequential, random files, workspaces, shared variables, auxiliary processors, module linkage for programs, relocated and executable files.
Communications and protocols: handshaking, assembler structures, programming, C and P.L/M, SNA, SDLC, BSC, Ethernet and other network architectures, implementation of networks.

References
A list of references will be supplied by the lecturer.

MP904 Introduction to Computer Integrated Manufacturing
Two hours per week for one semester
Assessment by assignments, presentations and test
A subject in the master of engineering CIM course.


References
A list of references will be supplied by the lecturer.

MP911 Machines and Machining Systems
Three hours per week for one semester plus two hours per week for one semester
Assessment by assignments, projects and test
A subject in the master of engineering CIM course.

Basic concepts in machining. Economics of machining. Tool life investigation.
Robot programming. Joint, world, object and objective levels of programming. Development of robot programming languages. Integration of robot programming and C.A.D.
Flexible Manufacturing Systems (F.M.S.)—their design and operation. Simulation of F.M.S.
Expert systems in relation to machining and machining systems.

References
A list of references will be supplied by the lecturer.

MP912 Manufacturing Management Systems
Three hours per week for one semester plus two hours per week for one semester
Assessment by project and assignments
A subject in the master of engineering CIM course.

This subject covers the development of the systems required to support the management and control of a factory with integration into a total computer based manufacturing management system.
Topics include the design of systems and algorithms required to: forecast future demand, control inventory, analyse stock movement, process orders, plan materials procurement, plan manufacturing processes, develop work schedules, monitor product quality, plan maintenance strategies, allocate maintenance resources, predict plant failure and control manufacturing costs. Emphasis will be given to the use of operational research and simulation techniques where appropriate. Use of artificial intelligence and expert knowledge systems for process planning will be discussed.

References
A list of references will be supplied by the lecturer.
SA296  Physical Science
Two hours per week for two semesters
Assessment is by a semester examination and reports
A second-year subject in the degree course in manufacturing engineering.
A selection of six ten-hour units is made from a range of units offered in
physics and chemistry. Students may select six physics units, six
chemistry units or three of each.
Students in the Production Technology stream are required to take at
least three physics units.
Students in the Chemical Technology stream are required to take six
chemistry units.
Physics units: a. Scientific instrumentation A and B, physical optics sys-
tems, physics of non-destructive testing, acoustics, solid state physics,
nuclear physics, nuclear energy, biophysics, biomechanics, quantum
mechanics, relativity.
Chemistry units: water, energy and fuels, instrumental analysis, indus-
trial visits, practical work (a double unit).
Textbooks
There is no prescribed text

SC197  Chemistry
Three hours per week for one semester
A first-year subject in all degree courses in engineering.
This subject provides students with an appreciation of the chemistry
underlying engineering principles and practice. The course has a
strongly practical basis.
Review of preliminary principles (periodic tables, electronic structure of
the atom, chemical bonding, states of matter, stoichiometry): thermo-
chemistry, thermodynamics and chemical equilibria; acids and bases,

SC582  Biochemistry
Three hours per week for two semesters
A subject in the graduate diploma course in chemical engineering.
Chemistry of biological compounds (carbohydrates, lipids, proteins,
nucleic acids); kinetics of enzymic reactions, catalytic pathways and
energy pathways. Biochemical techniques (especially chromatographic
techniques, spectroscopy). Mitochondrial formation of ATP, anaerobic
pathways. Biosynthesis of porphyrins, steroids. Biosyntheses of nucleic
acid and proteins. Regulation of metabolism.
References
Conn. E.E. and Stumpf, P.K. Outlines of Biochemistry. 4th edn, New
York: Wiley, 1976
1981

SC583  Physical Biochemistry
Two hours per week for one semester
A subject in the graduate diploma course in chemical engineering.
Kinetics of bi-substrate enzymes. Analytical ultra centrifugation, fluores-
cence, nuclear magnetic resonance, mass spectrometry, electron spin
resonance. Optical rotary dispersion, circular dichroism, X-ray analysis
of crystals.
Reference
Van Holde, K.E. Physical Biochemistry. 2nd edn, Englewood Cliffs, New
Jersey: Prentice-Hall, 1985
SC791 Introduction to Hazardous Materials Chemistry
One hour per week for one semester
A subject in the graduate diploma course in risk management. Chemical principles of hazardous materials, toxic, corrosive, caustic, non-respirable, flammable, reactive materials. Vapour cloud characteristics and behaviour.

References
To be advised by lecturer at commencement of course.

SK296 Computer Programming
One hour per week for one semester
A second-year subject in the degree course in manufacturing engineering which provides practical programming experience of BASIC and FORTRAN and application to simple problems in production engineering. Students will be expected to complete several programming assignments. These will involve writing programs and using or modifying existing programs.

SK298 Computer Programming
One hour per week for two semesters
A second-year subject in the degree course in mechanical engineering which instructs students in languages and procedures relating to computer usage so that subsequently they may use computers as engineering tools for computations and simulations. Instruction and practice in a high level language, FORTRAN; other languages: simulation packages; use of pre-programmed libraries, discussion of data base management systems, low level languages.

SK390 Computer Programming
One hour per week for one semester
A third-year subject in the degree course in civil engineering which extends students' knowledge of the application of computers in solving engineering problems.

SK496 Computer Applications
Two hours per week for one semester
A fourth-year subject in the degree course in manufacturing engineering which is intended to develop skill in writing programs in APL, BASIC and/or FORTRAN, of increasing levels of difficulty. Use of packages relevant to production engineering, and interpretation of results. Use of on-line programs and modifying them to suit individual problems. Simulation of machining operations and manufacturing processes.

SK527 Computing Techniques
Three hours per week for two semesters
Practical programming work. Assessment by progressive assignments and major project
Introduction to some business oriented applications, such as word processing, spreadsheets, etc.

SM197 Engineering Mathematics
Four hours per week for first semester and three hours per week for second semester
A first-year subject in all degree courses in engineering which covers the basic mathematical knowledge considered to be minimally essential for an adequate understanding of the concurrent first-year studies in engineering.
The subject presents some additional material relevant to later engineering studies which will enable those students with ability and interest to develop further their mathematical knowledge and skills.
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. Sample statistics.

References
Ryan, B.F., Joiner, B.L. and Ryan, T.A. Minirev Handbook. 2nd edn, Boston, Duxbury Press, 1985
Thomas, G. and Finney, R. Calculus and Analytic Geometry, Mass., Addison-Wesley, 7th edn, 1988

SM198 Mathematics Alternate
Seven hours per week for first semester, four hours per week for second semester, excluding the first and final two weeks which will be seven hours per week
A first-year mathematics subject for the Special Entry program.
The subject covers the basic mathematical knowledge considered to be minimally essential for an adequate understanding of the concurrent first-year studies in engineering, but also covers the mathematical groundwork of Year 12 Maths B.
The subject presents some additional material relevant to later engineering studies which will enable those students with ability and interest to develop further their mathematical knowledge and skills.
Function, 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. Sample statistics.

Textbook
SM292 Engineering Mathematics

Four hours per week of integrated instruction and practice for two semesters

A second-year subject in the degree course in civil engineering.


References
Spiegel, M.R.

SM294 Engineering Mathematics

Four hours per week of integrated instruction and practice for two semesters

A second-year subject in the degree course in electrical engineering.

Multiple Integration and co-ordinate systems, Laplace transforms, Fourier series, Fourier transforms, vector fields, special functions, partial differential equations, probability and statistics.

Reference
Kreyszig, E.

SM296 Engineering Mathematics

Four hours per week of integrated instruction and practice for two semesters

A second-year subject in the degree course in manufacturing engineering.


References
Mendenhall, J.W. and Scheaffer, R.L.

SM392 Engineering Mathematics

Three hours per week of integrated instruction and practice for one semester

A third-year subject in the degree course in civil engineering.

Numerical solution of linear and non-linear algebraic equations. Introduction to finite difference methods for ordinary and partial equations, applications. Linear programming and transportation.

Prescribed course material
Hausler, E.P.

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. Discrete mathematics — mathematical logic, counting methods, recurrence relations, applications.

Prescribed course material
Steiner, J.M. and Clarke, G.T.

SM396 Engineering Mathematics

Four hours per week of integrated instruction and practice for one semester

A third-year subject in the degree course in manufacturing engineering.

Statistics: linear regression, correlation, analysis of variance, linear programming, numerical methods — numerical solution of linear and non-linear algebraic equations, introduction to finite difference methods for ordinary and partial differential equations, applications.

Prescribed course material
Hausler, E.P.

References
Burden, R.L., Faires, J.D., and Reynolds, A.C.

Faculty of Engineering

Vector calculus — scalar and vector fields, gradient of a scalar field, potential, surface integrals, flux of a vector field, Gauss divergence theorem, continuity of fluid flow, line integrals, curl, Stokes theorem, introduction to fluid flow.

Linear algebra — orthogonal matrices, eigenvalues, real symmetric matrices and applications.

Textbook
Ryan, B.F., Joiner, B.L., and Ryan, T.A.

SM292 Engineering Mathematics

Four hours per week of integrated instruction and practice for two semesters

A second-year subject in the degree course in civil engineering.


References
Spiegel, M.R.

SM294 Engineering Mathematics

Four hours per week of integrated instruction and practice for two semesters

A second-year subject in the degree course in electrical engineering.

Multiple Integration and co-ordinate systems, Laplace transforms, Fourier series, Fourier transforms, vector fields, special functions, partial differential equations, probability and statistics.

Reference
Kreyszig, E.

SM296 Engineering Mathematics

Four hours per week of integrated instruction and practice for two semesters

A second-year subject in the degree course in manufacturing engineering.


References
Mendenhall, J.W. and Scheaffer, R.L.

SM392 Engineering Mathematics

Three hours per week of integrated instruction and practice for one semester

A third-year subject in the degree course in civil engineering.

Numerical solution of linear and non-linear algebraic equations. Introduction to finite difference methods for ordinary and partial equations, applications. Linear programming and transportation.

Prescribed course material
Hausler, E.P.

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. Discrete mathematics — mathematical logic, counting methods, recurrence relations, applications.

Prescribed course material
Steiner, J.M. and Clarke, G.T.

SM396 Engineering Mathematics

Four hours per week of integrated instruction and practice for one semester

A third-year subject in the degree course in manufacturing engineering.

Statistics: linear regression, correlation, analysis of variance, linear programming, numerical methods — numerical solution of linear and non-linear algebraic equations, introduction to finite difference methods for ordinary and partial differential equations, applications.

Prescribed course material
Hausler, E.P.

References
Burden, R.L., Faires, J.D., and Reynolds, A.C.
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.

SP197 Physics
Three hours per week for first semester and two hours per week for second semester

A first-year subject in all degree courses in engineering.

Linear and rotational mechanics; waves in elastic media; optics; electricity and magnetism; gravitation, fluid mechanics; kinetic theory of gases; atomic physics.

The practical course is comprised of fourteen experiments on dynamics, wave motion, electricity and magnetism, physical optics and atomic physics.

Textbooks

SP294 Engineering Physics
Two hours per week for two semesters

A second-year subject in the degree course in electrical and electronic engineering.

Relativity: inertial frames, covariance, Michelson-Morley experiment; special relativity, space-time, mass and energy.

Quantum mechanics. Quantum phenomena, wave-particle duality, probability and wave functions; Schrodinger’s equation and applications; tunneling; Heisenberg uncertainty principle.

Solid state physics: many-body quantum mechanics and quantum statistics, conduction in metals; zone and band theories; intrinsic semiconductors, extrinsic semiconductors and devices.

Electromagnetic radiation: Maxwell’s equations; continuity and wave equations; boundary conditions; propagation, reflection and transmission of radiation; lasers and holography.

Nuclear physics, nuclear structure, properties, stability, reactions and chain radiation; fission, fusion and nuclear power.

Textbook

SP419 Occupational Health and Safety
Four hours per week for one semester

A subject in the graduate diploma course in Chemical Engineering

Environmental hazards (21 hours)

Accident prevention. Work-related injuries including musculoskeletal, back and muscle injuries. Relationship of physical defects to employee safety. Stress in the workplace, measurement and alleviation.


Toxicology (15 hours)

Toxic substances, mechanisms of action and pathogenic effects (carcinogenesis, mutagenesis, teratogenesis). Use of mammals and sub-mammalian systems in predicting and assessing toxic effects in man.

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 (15 hours)


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

Law and administration (9 hours)

Principles of occupational health and safety laws. Role of industrial tribunals and the courts.

Employers’ liability. Court decisions concerning industrial injury and compensation.

Industrial relations law. Safety issues as part of Award Log of Claims.

SP740 Anatomy and Physiology
One hour per week for one semester

A subject in the graduate diploma course in risk management.

Introduction to anatomy of human skeletal and muscular systems.

Physiology of cardio-vascular, neural and neuro-muscular systems.

Anthropometry related to workspace and task design and evaluation.

Biomechanics of work tasks.

References

SP750 Radiation Physics
One hour per week for one semester

A subject in the graduate diploma course in risk management.

Introduction to electronic particle radiation: particle types, measurement of energy, decay, sources.

References
To be advised by lecturer at commencement of course.
INDEX

Academic Board......................................................... IT2
Academic Statements.................................................. IT5
Access Education...................................................... G10
Accident Insurance..................................................... G14
Accommodation, Student.............................................. G8
Accounting
   Bachelor of Business.............................................. BS3, 5
   Graduate Diploma................................................. BS3, 10
Administration, Student.............................................. IT5
Admission (see Entrance Requirements)

Air-conditioning (Graduate Diploma).............................. EN25

Air Conditioning (see also Regulations)
   Undergraduate.................................................. IT4
   Postgraduate..................................................... IT4

Applied Chemistry (Bachelor of Applied Science)............. AS4, 8
Applied Colloid Science
   Graduate Diploma............................................... AS5, 11
   Master of Applied Science.................................... AS5, 13
Applied Psychology (Graduate Diploma)........................ AT29

Applied Science Courses........................................... AS3
   Faculty.......................................................... AS2
   Subject details................................................. AS14

Art Courses.................................................................... AR2
   Faculty.......................................................... AR2
   Subject details................................................. AR5

Arts Courses.................................................................. AT3
   Faculty.......................................................... AT2

Assessment Regulations.............................................. IT7

Assistance Schemes, Student.......................................... G9

Audiovisual Services (see Information Technology Services)

Austudy........................................................................ G9

Awards (see also Scholarships and Awards)
   Applications for degrees and diplomas....................... IT5
   Postgraduate..................................................... G9

Bachelor of Business/Bachelor of Arts (Japanese) (Double Degree).................. AT2B, BS3, 5

Biochemistry/Chemistry (Bachelor of Applied Science)........ AS3, 4, 8

Biomedical Instrumentation (Graduate Diploma).................. AS3, 11

Biophysics/Instrumental Science (Bachelor of Applied Science).................. AS4, 9

Bookshop...................................................................... G12

Building Surveying (Diploma)......................................... EN15

Business Courses....................................................... BS3
   Faculty.......................................................... BS2
   Subject Details................................................ BS15

Business Administration (Graduate Diploma)...................... BS3, 10
Business Forecasting (Graduate Diploma)........................ BS3, 11
Business Information Technology
   (Graduate Diploma)............................................. BS3, 12

CAD/CAM (Graduate Diploma)...................................... EN22

Calendar - Important dates (see inside front cover)

   Campus
      Geographic location,.......
      Map (see inside back cover)

   Car Parks (see Parking)

   Careers Information Centre....................................... G8

   Catering Department.............................................. G10

   Centres
      Child-care,................................................ G10
      Computer.................................................. G10
      Conference................................................. G12
      Short Course.............................................. G12

   Centres (Research and Consulting) (see Swinburne Centres)
      Chaplain..................................................... G9
      Chemical Engineering (Graduate Diploma)................ EN21
      Chemistry (see Applied Chemistry; Biochemistry/Chemistry).................................................. G10
      Child-care Centre.......................................... G10
      Civil Engineering
         Bachelor of Engineering.................................... EN14
         Construction (Graduate Diploma)......................... EN16

   Clubs and Societies............................................... G14

   Colloid Science (see Applied Colloid Science)

   Commercial Enterprises, Swinburne................................ G12

   Community Services (see Social and Community Service Courses)

   Compensatory Education........................................ G10
   Computer Centre................................................ G10

   Computer Integrated Manufacturing (Master of Engineering).................................................. EN23

   Computer Science
      Graduate Diploma............................................. AS12
      Instrumental Science (Bachelor of Applied Science).................................................. AS3, 9

   Computer Simulation (Graduate Diploma)........................ AS12

   Computer Systems Engineering (Graduate Diploma).......................... EN19

   Computing (Bachelor of Business)................................ BS3, 5, 6

   Concession Tickets............................................... BS3, 5, 6
   Conference Centre............................................... G12

   Accommodation, Student......................................... G8

   Air-conditioning (Graduate Diploma)............................ EN25
Co-operative Education
  Applied Science........................................................................................................ AS7
  Engineering................................................................................................................ EN5
  Co-operative Employers (Engineering)................................................................. EN5, 6
  Corporate Division................................................. .................................................. G5
  Corporate Finance (Graduate Diploma) ... ....................................................... BS3, 12
  Council. Swinburne ................................................................................................ G3
  Counselling. Student ............................................................ ........................................ G8
  Course Codes (see appropriate Faculty).................................................................
  Courses Offered (see appropriate Faculty)...............................................................
  Directorate ................................................................................................................ G3
  Disabled Students
    Counselling ............................................................................................................ G8
    Equal Opportunity Office ....................................................................................... G11
    Parking ...................................................................................................................... G11
  Doctor of Philosophy (Statute).................................................................................. IT15
  Double Degree of Bachelor of Business
    Bachelor of Arts (Japanese)..................................................................................... AT26,
    BS3, 5
  Economics
    Bachelor of Arts...................................................................................................... AT26
    Marketing (Bachelor of Business)........................................................................... BS3, 5, 6
  Education Unit ............................................................................................................ G11
  Electrical and Electronic (Bachelor of Engineering) .............................................. EN18
  Employment. Student
    Part-time and vacation .......................................................................................... G8
    Graduate placement and full-time ........................................................................... G8
  Engineering (see Chemical Engineering, Civil Engineering, Electrical and Electronic
    Engineering, Manufacturing Engineering, Mechanical Engineering)
    Faculty...................................................................................................................... EN2
    Subject details.......................................................................................................... EN26
  Enrolment Regulations (see also Application Procedure) ........................................ IT5
  Enrolments. Numbers
    Full-time and part-time .......................................................................................... G2
  Entrance Requirements (see also specific Faculties)
    General
      Undergraduate ..................................................................................................... IT4
      Postgraduate ........................................................................................................ IT4
  Entrepreneurial Studies (Graduate Diploma) ......................................................... EN4, 13
  Environmental Health (Bachelor of Applied Science) ........................................ AS4, 10
  Equal Opportunity Administration (Graduate Diploma) ........................................ AT33
  Equal Opportunity Office.......................................................................................... G11
  Examinations............................................................................................................. IT9

Exemptions. Applications for (see specific Faculties)
Faculties
  Applied Science........................................................................................................ A55
  Art............................................................................................................................. AR2
  Arts............................................................................................................................. AT4
  Business.................................................................................................................... AT7
  Engineering.............................................................................................................. EN8
  Fees............................................................................................................................. IT6
  Film and Television
    Bachelor of Arts...................................................................................................... AR3
    Graduate Diploma.................................................................................................... AR3
  Finance. Corporate (Graduate Diploma) ................................................................. BS3, 12
  Finance. Student (see Loans. Student; Assistance Schemes. Student)
  Graphic Design
    Bachelor of Arts...................................................................................................... AR4
    Diploma of Art.......................................................................................................... AR4
  Health and Welfare. Student .................................................................................... G7
  Historical and Philosophical Studies (Bachelor of Arts).......................................... AT6
  Housing. Student ...................................................................................................... G8
  Identity Cards ............................................................................................................ IT7
  Industrial Management (Graduate Diploma) ............................................................ EN22
  Industrial Microbiology (Graduate Diploma) .......................................................... EN5, 13
  Information Office.................................................................................................... G11
  Information Technology
    Bachelor of Information Technology ..................................................................... AS5, 11,
    BS3
    Master of Applied Science ..................................................................................... AS5
    Master of Business.................................................................................................. BS3, 14
    Master of Engineering .......................................................................................... EN20
  Information Technology Services ............................................................................. G7

Instrumental Science (see Biophysics)
  Instrumental Science; Computer Science
  Instrumental Science

Instrumentation. Biomedical (Graduate Diploma) ..................................................... AS3, 11
  Insurance. Personal Accident ................................................................................... G14
  Italian
    Bachelor of Arts...................................................................................................... AT10
    Graduate Diploma.................................................................................................. AT34
  Japanese
    Bachelor of Arts...................................................................................................... AT11
    Double Degree of Bachelor of Arts/Bachelor of Business ................................ AT28,
    BS3
  Korean (Bachelor of Arts) ....................................................................................... AT12
  Liberal Studies......................................................................................................... AT14
  Library and Information Technology Services ..................................................... G5
  Literature (Bachelor of Arts) .................................................................................... AT13
  Loans. Student ......................................................................................................... G9
Management (Graduate Diploma of Engineering) ........................................ EN4
Management Systems (Graduate Diploma) ........................................ BS3, 13
Manufacturing Engineering (Bachelor of Engineering) ........................ EN20
Manufacturing Technology (Graduate Diploma) ........................................ EN22
Map of Campus (see inside back cover of handbook) ..............................
Marketing (Bachelor of Business) ...................................................... BS3, 5, 6
Master's Degrees (see also appropriate Faculty) ......................................
Statute (by research) ................................................................. IT13
Statute (by publication) .............................................................. IT14
Mathematics/Computer Science (Bachelor of Applied Science) ............. AS4, 10
Mechanical Engineering (Bachelor of Engineering) ................................. EN24
Media Studies (Bachelor of Arts) ..................................................... AT17
Organisation Behaviour Graduate Diploma ........................................... BS3, 13
Master of Business ................................................................. BS3, 14
Parking  .....................................................................................
Car parks ...................................................................................... G12
Enquiries ..................................................................................... G11
Permits, etc ................................................................................... G12
Philosophy (see Historical and Philosophical Studies) ..............................
Postgraduate Awards ........................................................................ G9
Courses (see appropriate Faculty) .....................................................
Press, Swinburne ........................................................................... G12
Prizes (see Scholarships and Awards) ...................................................
Registrar ...................................................................................... G5
Risk Management (Graduate Diploma) .................................................. EN25
Scholarships and Awards (see also specific Faculties) ................................ IT7
Scientific Instrumentation (Graduate Diploma) ........................................ AS12
Short Course Centre, Bookings .......................................................... G12
Societies and Clubs .......................................................................... G14
Sociology (Bachelor of Arts) ............................................................ AT23
Sports Association ........................................................................... G16
Staff (see Swinburne Institute) ............................................................
Student Services
Administration Office .......................................................................... IT5
Health and Welfare Unit ................................................................. G7
Careers and Course Information ....................................................... G8
Counselling .................................................................................... G8
Employment
Graduate placement and full-time ..................................................... G8
Part-time and vacation ................................................................. G8
Health ......................................................................................... G8
Housing ....................................................................................... G8
Loans ............................................................................................ G9
Union (see G14 for complete list) ........................................................
Appeals and Advocacy Unit ............................................................. G15
Cafe ............................................................................................ G15
Clubs and Societies ......................................................................... G14
Coffee Shop .................................................................................. G15
Contact/Information Desk .............................................................. G14
Insurance, Personal Accident .......................................................... G14
Legal Advisor .............................................................................. G15
Office ......................................................................................... G14
Radio Station ................................................................................ G15
Reading Room ................................................................................ G14
Tool Library ................................................................................... G14
Subjects (see appropriate Faculty) ........................................................
Surveying, Diploma of Building ........................................................ EN15
Swinburne, George (Founder) ............................................................... G2
Swinburne Centres
Applied Colloid Science ..................................................................... IT17
Applied Neurosciences ..................................................................... IT18
Computer Integrated Manufacturing ................................................ IT18
Computing Productivity Institute ...................................................... IT18
Industrial Democracy ....................................................................... IT18
Marketing Strategy .......................................................................... IT18
Science Education .......................................................................... IT18
Science Shop .................................................................................. IT18
Taxation Research and Advisory Centre ........................................... IT18
Urban and Social Research .............................................................. IT19
Women's Studies ........................................................................... IT19
Swinburne Commercial Enterprises .................................................. G12
Swinburne Institute
Academic Board ............................................................................... IT2
Applied Research & Development Division ......................................... G12
Coat of Arms .................................................................................. G2
Commercial Enterprises ................................................................... G12
Corporate Division .......................................................................... G5
Council ......................................................................................... G3
Directorate ..................................................................................... G3
Faculties (see Faculties above) .......................................................... G2
Geographical Location ...................................................................... G2
History .......................................................................................... G2
Press ............................................................................................. G12
Project Officers ................................................................................ G3
Services .......................................................................................... G4
Short Courses .................................................................................. G12
Staff
Academic ....................................................................................... G4
Administrative ................................................................................ G5
Techsafe .......................................................................................... G12
Telecommunications Systems Management (Graduate Diploma) ............ EN19
Tool Library ..................................................................................... G14
Typing Room ................................................................................... G16
Union, Student ................................................................................ G13
Urban Research and Policy (Graduate Diploma) .......................................
Welfare ............................................................... G7
Word Processing Centre ........................................... G16
Workshops, Central Technical ................................... G10

KEY
AS  Faculty of Applied Science
AR  Faculty of Arts
AT  Faculty of Arts
BS  Faculty of Business
EN  Faculty of Engineering
G   General Information
IT  Swinburne Institute of Technology