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handbook '77

Swinburne College of Technology
Swinburne Technical College
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Introduction to Swinburne

History

Swinburne was established in 1908 under the name of 'Eastern Suburbs Technical School'. The first students were enrolled in 1909, when classes were begun in carpentry, plumbing and blacksmithing. The institution prospered and within a short time a boys' junior school and a girls' school 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, whose energies were largely responsible for the initial establishment of the college.

The range of courses and the various levels at which they were offered grew until the junior technical school and the institution offering the professional and sub-professional qualifications were separated in 1962. The junior technical school was incorporated into the Victorian Education Department. The college remained as an autonomous institution.

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 two colleges are now known as:

Swinburne College of Technology – a tertiary 'college of advanced education' offering courses for professional qualifications (diploma and degree of Bachelor) and graduate qualifications (diploma and degree of Master). Enrolments in 1976 are 2,106 full-time and 2,593 part-time students.

Swinburne Technical College – a college offering courses in middle level or sub-professional and trade qualifications and a sixth form or preliminary year. Enrolments in 1976 are 500 preliminary year (sixth form) students and 2,600 students in the other courses.

Campus

The college campus covers an area of approximately four hectares close to the Glenferrie station on Burwood Road Hawthorn, the geographical centre of the metropolitan area. It is well served by other means of public transport and is in close proximity to parklands.

A number of projects are being planned for the near future, including an applied science building, an art (graphic design) and film and television complex, union building and sports centre.

Coat of Arms

The coat of arms conferred on Swinburne College by the College of Heralds on 25 June, 1969, is based on that 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 aided Queen Margaret of Scotland in the wars. She rewarded him by 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, and there he built a castle. He became known as William Swinburn(e) and soon the county reverted to the crown of England.

The Swinburne 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 royalist side. After the restoration of Charles II, 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 countercharged.

This college holds a unique place among colleges of advanced education in Australia in the link that persists between the institution and the founder and his family. The conferring on the college of a modification of the family's coat of arms should preserve and strengthen that link.

The arms: The basic colours of red and white, as also 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 recalls that in the Swinburne family crest; the book symbolic of learning; the cinquefoil is further to identify the Swinburne connection.

The motto: The College of Heralds' translation of the motto is:

Achievement through learning.
General information

Council Membership as at 31 August, 1976

President
T.W. Higgins, FCIS, FASA

Vice-presidents
W.P. Brown, DipCE, FICE, FIE Aust
B.R. Martin, BMetE

Members
W.J. Braden, BA, BEd
R.S. Davie, BE (Mech), CEng, FIProdE, FIE Aust, MACE
R.H. Fowler, FASA, FACS
G.A. Harrison, DipMechE, BSc, TTTC
G.R. Hjorth, BE (Mech)
L.M. Jenkins, BCom, DipEd, FASA, MACIS
Hon. W. Jona, MP
W.R. Longworth, MSc, PhD, CCChem, FRC, FRACI, FACE
D.J. MacFarlane
Kathleen McGrath, BA, ARMIT, ALAA
Fay Moore, DIM, TTTC
R.N. Morse, BSc, BE, FIE Aust
L.E. Orton, MArch, DipArch (DFN), ARIBA
G.L. Poole
A.P. Stark, DipMechE, TTTC, GIE Aust
N.P. Watson, AASA, ACIS
G.N. Williams, TTTC
J.F. Williams, BE (Mech), MEngSc, PhD, MIE Aust
J.A. Wunderlich, MSc, DRevSc (Paris), ARACI
H. Zimmerman, BA (Hons), LLB, DipEd

1 Student representatives
2 Non-academic staff representative
3 Academic and teaching staff representatives
4 Academic Board representative
5 Board of Studies representative

Senior college staff

Director
W.R. Longworth, MSc, PhD, CCChem, FRC, FRACI, FACE

Assistant Director (Engineering and Applied Science)
R.S. Davie, BE (Mech), CEng, FIProdE, FIE Aust, MACE

Assistant Director (Art, Arts and Business)
L.M. Jenkins, BCom, DipEd, FASA, MACIS

Principal, Swinburne Technical College
A.P. Stark, DipMechE, TTTC, GIE Aust

Dean, Faculty of Applied Science
E.H. Bode, PhD, BSc (Hons), FRMTC, FRACI, TTTC

Dean, Faculty of Arts
C.K. McDonald, BSc, BEd, MA, MACE

Dean, Faculty of Business
M.H. Hunter, BCom, MAdmin, DipEd, FASA

Dean, Faculty of Engineering
F.W. Bevis, MSc, MBIM, CEng, MI Mech E, FIProdE

Dean, Faculty of Art
I. McNeillage, DipArt, TTTC

Comptroller
F.G. Bannon, BCom, FASA, ACIS, LCA
Registrar
G.L. Williamson, BSc

Heads of divisions STC
Building – G.A. Martin, MIE, MWSOM
Engineering – J.R. Riley, MechEngCert, TTIC, AAIST
General studies – G.A. Harrison, BSc, DipMechE, TTIC

Comptroller's office

Comptroller
F.G. Bannon, BCom, FASA, ACIS, LCA

Accountant
D.F. Baker, AASA, ACIS, RCA

Assistant Accountant
R.N. Devers, AASA

Budget Officer
Kirsty Linke, DipCom, AASA

Maintenance Officer
A.J. Kibble, CBuild, AAIB

Manager, College Press
J.R. Hayward, MBE, FAIA(Dip)

Planning Officer
T. Rosauer, BArch, FRAIA, ARIBA

Projects Officer
R.G. Allingham, TTC, DTSC

Salaries Officer
D.T. Coutts

Student Health & Welfare Officer
Miss Mary Algar

Registrar's office

Registrar
G.L. Williamson, BSc

Assistant Registrar
R.T. Dawe, BA, LLB

Administrative Officer
Lewis Evans, BS in Foreign Service

Admissions and Examinations Officer
Dawn Evans

Correspondence Registry
Elizabeth A. Black

information Officer
R.J. Cross

Staff Officer
Alison Dews, ARMIT

Statistics Officer
Marie Weir, BA, GradDipSecStuds

Students Records Officer
June Wood

Student Services Officer
Christine M. Miller

Faculty Secretaries
Applied Science
J.S. Ure, BSc, DTA, MAIAS

Arts
Adrienne Patterson, BA, DipEd

Business
Valerie Stiles, BA

Engineering
A.J. Miles, BSc, DipEd, BEd

Swinburne Technical College office

Assistant Accountant
D.T. Barnard, BCom, AASA(Snr), ACIS

Assistant Registrar
Geraldine E. Emerson, BJuris, LLB

Membership of Academic Board 1976

Ex officio

Director (Chairman)
Dr W.R. Longworth

Assistant Directors
Mr R.S. Davie
Mr L.M. Jenkins

Deans
Dr E.H. Bode
Mr C.K. McDonald
Mr M.H. Hunter
Mr F.W. Bevis
Mr I. McNeilage

Heads of teaching departments
Mr A.P. Gardner
Mr G.A.K. Hunt
Mr R.P. Kavanagh (representing head of department)
Mr S.J. Rackham
Mr W. Fricker
Mr L.A. Zimmerman (acting)
Mr R.N. Nortle (acting)
Mr I.G. Gaudion (representing head of department)
Mr H.J. Kannegiesser
Mr R.L. Howe
Mr M.A. Howe
Dr F. Molyneux
Mr K. McManus (acting)
Mr J.K. Russell
Mr A.J. Sampson
Mr P.D. Stewart
Mr R.W. Treloar
Mr R.S. Walker
Mr B. Warren
Mr N. Zorbas

Comptroller
Mr F.G. Bannon

Registrar
Mr G.L. Williamson

Chief Librarian
Mrs J. McL. Harley
Head, Student Health and Welfare
Miss M. Algar

Head, Education Research Division
(to be filled pro tem by Education Officer, Educational Technology)
Mr K.J. Anderson

Representative, Technical College
Mr A.P. Stark

Representatives, Board of Studies STC (2)
vacant

College Council
Mr R.N. Morse
Dr J.F. Williams

President, Student Union
Mr G. Lambert

Elected members

Faculty of Applied Science (6)
Mr E.F. Carter
Mr R.B. Watson
Dr I.G. McWilliam
Mr B.R. Phillips
Dr A.P. Towns
Dr D.F. Ward-Smith

Faculty of Art (2)
Mr M. Cantlon
Vacant

Faculty of Arts (4)
Mr J.E. Baxter
Mr R.H. Smith
Mr P.F. Thompson
Mr F.X. Walsh

Faculty of Business (4)
Mr R.M. Brown
Mr B.C. McDonald
Ms I. Paranthoiene
Mr G.M. Parrington

Faculty of Engineering (8)
Mr R.W. Hird
Mr R.K. Horrigan
Mr J. Hyne
Mr H.J.V. Maynard
Mr I.R. Palmer
Mr G.L. Price
Mr R.R. Statham
Mr W. Thompson

General representatives
Mr N. Garnham
Mr G.J. Hjorth
Mr N.J. Maling
Ms J. O’Connor

Student members
Mr I. Dixon
Ms S. Ellis
Mr M. Kiddle
Mr R. Moore
Mr P. Paris
Ms R. Rodgers

Members of the Board of Studies

Ex officio members

Director
Dr W.R. Longworth

Principal
Mr A.P. Stark

Council representatives
Dr J.F. Williams
Hon. W. Jona, MP

Head of Division, Building
Mr D.A. Martin

Head of Division, Business Studies
Mr B.J. McDonald

Head of Division, Engineering
Mr J.R. Riley

Head of Division, General Studies
Mr G.A. Harrison

Department Heads

Building Construction
Mr A.L. Patience (acting)

Electrical Mechanics
Mr J.D. Fraser

Humanities
Mrs D.L. Abernethy (acting)

Machines & Materials
Mr J.R. Riley

Mathematics & Science
Mr R. Gullan

Plumbing & Gasfitting
Mr R.T. Lyons

Chief Librarian
Mrs J. McL. Harley

Assistant Accountant
Mr D.T. Barnard

Assistant Registrar
Mrs G.E. Emerson

Elected members

Staff representative
Mr F. Hutchison

Staff representative
Mr D.J. Gaylard

Tertiary representative – General Studies
Mr C. D’Aprano

Tertiary representative – Science & Engineering
Mr A.P. Gardner
Library Staff

Chief Librarian
Jessie Harley, BSc, Dipl'd, ALAA

Deputy Librarian
Bill Linklater, BA, DipLib, ALAA

Acquisitions
Merna Mattsson, AssocDipLib, ALAA
Meredith Barnes, BA, GradDipLib, ALAA

Audio-visual
Geoff Baxter, BA, ALAA

Cataloguing
Klaus Villwock, BA, ALAA
Meredith Curtis, AssocDipLib, ALAA
Diane Worth, BSc, ALAA
Penny Crawn, BSc, DipEd
Jan Whittle

Periodicals
Kath McCrath, BA, GradDipLib, ALAA
Barbara Camfield, AssocDipLib, ALAA
Alannah Kelly, BA, GradDipLib

Readers' services circulation
Peter Simmenauer, BA, DipLib

Reader education reference
Stuart Hall, FRMIT(ElecEng), GradDipLib, ALAA
Barbara Irvine, BSoSc (Lib ship)
Bea Donkin, ALAA
Ian Douglas, BA, MSc, ALAA
Jenny Loh, BSc, GradDipLib, ALAA
Adriana Bendeleer, BA, ALAA
Diane Zakis, AssocDipLib
Pat Pettit, BA(Hons), GradDipLib
Kerola Griffiths
Laurel Scott

Special services
Agnes Gregory, BA, BEd, MACE, ALAA

Library

The central reference and lending library is housed in a modern five-storey building with an ultimate capacity for 650 readers and 50 staff. 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 reasonable cost. The major purpose of the library is to supplement and support the formal instruction given in all courses of the college curriculum and to provide ample opportunity for recreational and general reading.

In 1976, the collection comprised approximately 111,000 volumes including fiction and bound periodicals. Over 3,000 current periodicals are received, including a wide range of indexes and abstracts. There is a rapidly growing collection of audio-visual material, including records, audio- and video-tapes, 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.

Rules and Procedures

Persons entitled to use the library

The library at Swinburne is available for the use of all full-time and part-time students and staff of both colleges, who accept the following rules and procedures officially decided and agreed upon by the Library Committee and the Academic Board.

In addition, any professional people from commerce, industry and the public services in the region of the college, and members of the general public are welcome to read or use audio-visual facilities within the library, provided that they too, accept the rules. In general they are not entitled to borrow from the library. The Chief Librarian, Deputy 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 College Council.

Full-time and part-time staff members of both colleges.

Full-time and part-time students of both colleges.
Such other persons or organisations as the Chief 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 – 8.45 am to 10.00 pm
- Friday – 8.45 am to 8.30 pm

**Public holidays**
- Queen’s Birthday 8.45 am to 5.00 pm
- Show Day 2.00 pm to 10.00 pm
- Cup Day 8.45 am to 11.00 pm

Closed on all other public holidays.

**During vacations**

- Mid-semester and semester breaks:
  - Monday to Thursday 2.00 pm to 10.00 pm
  - Friday 2.00 pm to 8.00 pm

- Long vacation
  - Monday to Friday 9.00 am to 5.00 pm

Closed between Christmas and New Year.

**Saturday 10.00 am to 5.00 pm**

From the first Saturday after the mid-semester breaks, up to and including the Saturday at the end of the first week of examinations, depending on demand.

**11.00 pm closing**

The library will remain open until 11.00 pm Monday to Thursday for the four weeks prior to and including the examination period in both semesters, depending on demand. Loan and advisory services will not operate between 10.00 pm and 11.00 pm.

Further variations may be made at the direction of the Chief Librarian on the recommendation, or with the approval of the Library Committee.

Details of all variations from the normal hours will be posted on notice boards in the library at appropriate times and published in student and staff newsletters.

**Student loans**

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 audio-visual counters and must be returned by the date and time stamped on the borrowing slip. Items borrowed, with the exception of audio-visual and periodical material, should normally be returned through the chutes located outside the main entrance.

**Borrowing periods**

**Fortnightly loans**

The normal loan period for most books and pamphlets is a fortnight. This period may be extended for a further fortnight provided another student has not reserved the item 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.

Some of the items in the Counter Reserve collection and those items on the shelves marked ‘overnight loan only’. This material may be borrowed after 4.00 pm from Counter Reserve and should be returned by 9.00 am the next week day. This condition may be varied for part-time students.

**Weekly loans**

Audio-visual material (excluding microforms, video-cassettes and slides) and equipment which is not marked ‘not for loan’ may be borrowed for weekly loan.

**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 Counter Reserve leaflet for further details.

**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’), 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.

Reservations for all material on loan 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 audio-visual loans – per item**

On preparation of the first fine notice when the item is overdue: $1.00.

On preparation of the second fine notice: $2.00 and suspension of borrowing privileges.
On preparation of the third and final fine notice: $3.00, suspension of borrowing privileges and withholding of examination results.

3-day loans – per item
On preparation of the first fine notice when the item is overdue: $1.00.
For each day thereafter: a further $1.00 to a maximum of $3.00 per item, suspension of borrowing privileges and withholding of examination results.

Overnight loans – per item
First day: $0.10 per hour late.
For each day thereafter: a further $1.00 to a maximum of $3.00 per item, suspension of borrowing privileges and withholding of examination results.

Counter Reserve loans (within the library building) – per item
$0.10 per hour late.

Lost library material
If an item is lost, the loss must be reported immediately to the Readers’ Services Librarian. 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.

Identify cards
Loss of an identity card must be reported immediately to the Readers’ Services Secretary, as well as to the Information Office, otherwise the library can take no responsibility for books borrowed on that card. A current card must be used, bearing the borrower’s current address. Replacement cards should be obtained at the Information Office if a borrower’s address has changed.

Rules for general conduct
Eating is not allowed in areas of the library open to the public.

Drinking, except from the drinking fountains, 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 permitted only in the stair lobbies, level 2 and in those areas clearly marked by notices. Cigarettes must not be placed anywhere except in the ashrays provided.

Bags and cases may be brought into the library, but must be offered for inspection on leaving.

An atmosphere of quiet must be maintained in the library so that it is at all times a place conducive to independent study and quiet reading. Silence must be kept in the main reading areas, and conversation restricted to the conversation rooms and foyers.

General Information

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 Chief Librarian or Deputy Librarian to the college 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 with the approval of the Academic Board, the Board of Studies and the Chief Librarian.

At the discretion of the Chief 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 one of the library building. Because of copyright provisions, no person other than enrolled students at the college or members of the college staff may use the photocopiers. Users must, on each separate occasion, sign a declaration that the copies which they are about to make are permissible under the terms of the Copyright Act.
Scholarships and financial assistance

Scholarships and financial assistance available to students are listed below. Application forms and other information may be obtained from Mary Algar in the Student Health & Welfare Unit which is situated at Level 2 in the BA building. Applications marked with an asterisk* should be lodged at the college two weeks before the closing date.

Tertiary education assistance scheme (TEAS)
The following rates will apply to TEAS in 1977:

<table>
<thead>
<tr>
<th>Category</th>
<th>p.a.</th>
<th>(p.w.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent student at home</td>
<td>$1,250</td>
<td>($24.00)</td>
</tr>
<tr>
<td>Dependent student away from home</td>
<td>$1,976</td>
<td>($38.00)</td>
</tr>
<tr>
<td>Independent student</td>
<td>$2,236</td>
<td>($43.00)</td>
</tr>
<tr>
<td>Dependent spouse</td>
<td>$1,508</td>
<td>($29.00)</td>
</tr>
<tr>
<td>Dependent child</td>
<td>$390</td>
<td>($7.50)</td>
</tr>
</tbody>
</table>

Incidentals
- CAE students: $70
- Technical college students: $30

Open scholarships
- Senior technical scholarships*
  Form six and preliminary year students may apply. Value: $60 p.a. plus a living allowance of up to $416 p.a., subject to a means test.
- Walter Lindrum Memorial scholarship*
  Applications close 1 November. Open to a student qualified to commence the first year of a diploma course. Value: $300 p.a.
- Gowrie scholarships*
- Alexander Rushall Memorial scholarships*
  Applications close 30 November. Available to Protestant boys, subject to a means test. Value: $40 to $200 p.a.
- Dafydd Lewis Trust scholarships*
  Applications close 1 December. Available to male students under 20½ years of age on 1 January next, who have been educated in Victoria for at least five years immediately preceding the award of a scholarship and who will be qualified to proceed with degree-level study in 1976. Subject to a means test. Value: $4015 p.a. ($77 per week).

Aluminium Development Council scholarships
Awarded to engineering students. Value: $600 p.a.

Stock Exchange of Melbourne scholarships
No formal application required. Eight scholarships awarded annually to students who have completed the preliminary year of business studies. Tenable for one year. Value: $80 p.a. Bonded cadetships and scholarships.

Teaching studentships*
A teaching studentship is a bonded award which provides an allowance of at least $2241. Studentships are available for all approved courses in teacher training.

Students at any stage of a tertiary course or those who are enrolled in the preliminary year and interested in teaching as a career are eligible to apply for any of the following:
- Primary teaching
- Secondary teaching
- Technical teaching

The bond which must be entered into is to teach anywhere in Victoria as required by the department for 600 school days.

Details of the studentships are available from the Education Department Recruitment Centre, 66 Jeffcott Street, West Melbourne 3003.

Teaching scholarships
The Education Department offers a number of unbonded teaching scholarships, each valued at $600 per annum which can be held subject to certain conditions. Holders of the scholarships can also be eligible to receive a TEAS allowance. Details are available from the Education Department Recruitment Centre, 66 Jeffcott Street, West Melbourne 3003.

Commonwealth Service cadetships
Cadetships available in government departments vary from year to year. Details are advertised in the daily newspapers.

Scholarships and awards available to Swinburne students only
Formal application not required. Interested students may obtain further information from the appropriate faculty.

Singleton, Palmer & Strauss McAllen scholarships
Two scholarships (one male, one female student) for the third year of the diploma of art, film and television course. Value: $150 each.
The Margery Withers and Richard McCann scholarship
Available for the second year of the diploma of art, graphic design course. Value: $100.

USP Needham scholarship
Awarded to an outstanding student proceeding to the second year of the diploma of art, film and television course. Value: $150.

Society of Chemical Industry of Victoria prize
A prize of $25 and a certificate awarded to the student nominated by the department as the best student in the final year of the diploma course in chemical engineering.

Molyneux medal
A prize of $30 and a silver medal suitably inscribed awarded to the student in the final year of the diploma of chemical engineering who presents the best process design thesis.

F.W. Green Memorial award
Books to the value of $50 awarded by Engineering Faculty Board to the final year engineering student judged to be the outstanding student graduating that year.

Stanley Liebich Memorial scholarship
Awarded to a full-time engineering student. Value: $90 p.a. for 4 years.

Prizes awarded
Various prizes such as the Tylee Social Science prize, the J. Smith Memorial and the K. Kennewell Memorial prizes are awarded in the fields of Chemistry, Mathematics and Civil Engineering.

Postgraduate awards
There is an ever-increasing number of postgraduate awards available both locally and overseas. Graduates are advised to consult the Student Health and Welfare service for pertinent information.

Student aid funds
Financed by regular contributions from members of the college staff, the Swinburne student aid fund provides short-term assistance to approved students in financial difficulty.

The Victoria Institute of Colleges students' loan fund provides loans to full-time students subject to certain conditions. The Commonwealth Help for Needy Students fund may also be a source of substantial assistance to students.

College advisory services
A range of services is co-ordinated by Miss Mary Algar who is available to discuss matters of concern to students and staff. She can be found in the Student Health and Welfare unit.

Student counselling
Location:
Level 2, BA building, west end.
Counsellors:
Mary Algar, BA(HonsPsych) MAPsS
Jan Dugan, BA, DipPsych
Libby Harrisson, BA, MAPsS
Bob McMullen, BSc, DipMechE, DipPsych, MAPsS, MIEAust, MACE
Marion Pitt, BA, DipSocStuds, AASW

The counselling service is provided for students, prospective students and staff. The service is free, voluntary and confidential. People can be seen individually, or if they prefer it, in small groups.

The basic function of counselling is concerned with helping to clarify educational or situational pressures. Counsellors aim to help people work out more effective ways to confront and cope with these problems.

Students and prospective students are encouraged to make free use of the service, and it is emphasised that no request is regarded as too small.

The following list illustrates some of the main areas of concern:
loneliness, adjustment to life at Swinburne, subject choice, choosing a course, examination anxiety, vocational indecision, deferment, family, general information, marital problems, studying part-time, academic difficulty, study problems, vocational counselling, social or personal problems, concern about others, financial, careers information.

Medical centre
Location:
Level 2, BA building, west end.
Dr Jean McLeod, MB, BS
Sister Mairwen Caines, SRN, ONC(Eng)
Sister Cynthia Holderness, SRN, SCM

The college medical centre is situated in the BA building on level 2 at BA 207 and is open from 9 am to 5 pm (doctor by appointment 10 am to 1 pm). This service provides treatment for emergencies, accidents and short-term illnesses, and a consultation service for long-term problems.

There is also emphasis on preventive medicine in its various aspects, both mental and physical.
College chaplains

The chaplains are not employed by the college but have a wide responsibility to everyone at Swinburne regardless of religious affiliation or lack of it. They are available for confidential counselling but most of their work is done through informal contact with students and staff around the college. They are involved in the community life of the college and take part in student activities, giving help and support, or advice if needed. They also organise discussions and camps.

The chaplains’ office is on level 2 of the BA building, telephone 819 8489. Students and staff are invited to drop in at any time. New students in particular are invited to come and introduce themselves.

Chaplains:
Rev. Harry Kerr, BA, DPS
Rev. Fr Brendan Caulfield-James, SJ, BA, BEd
Howard Shub, MA
Dr Alan Unterman, BA, ThD

Student staff amenities

A committee consisting of the College Council, students and staff, is responsible for the maintenance and development of cultural and recreational amenities for students and staff.

Executive Officer: Chris Miller, 819 8445.

Housing and employment

Location: Student Lounge, top floor, Ethel Swinburne Centre.

Administrative Officer: Chris Miller
Administrative Assistant: Jo Kinross

The housing and employment office is open from 9 am – 5 pm Monday to Friday and remains open until 6 pm by appointment for the convenience of part-timers.

Housing
The housing service provides addresses of a wide range of recommended accommodation.

Advice on living away from home or the legal and financial problems associated with renting is also available to all Swinburne students.

Employment
Several services are available to students in this area:

Information on specific careers and organisation is freely given. Regular workshops are held to improve students’ selection interview technique. A placement service is offered to final year students for full-time career positions; assistance is given in finding part-time jobs.

Campus interviews are held July – October annually enabling students to speak to a wide range of prospective employers.
Other college services

Audio-visual services
Audio-visual services assist in the production and presentation of the various aids to teaching, including film projection, tape recording, slide and transparency making, enlarging and reducing photographic material, general photography, closed circuit television, short-term loan of slide projectors, tape recorders and other audio-visual equipment.

Officer in charge: Mr David McAdam, 819 8010.

Bookshop
At Swinburne there is a branch of Whitcombe & Tombs, booksellers and publishers, where all prescribed texts and many reference books are sold. Also in stock is a large range of paperbacks – technical, general and fiction. Books not in stock may be ordered and information found on old or obscure titles. Student discount is allowed wherever applicable. All general stationery, including slide rules and drawing instruments, is kept as well as art materials. The bookshop is open from 8.30 am until 7.45 pm Monday to Friday throughout the year.

Manager: Mr A.H. Hinton, 819 8130.

College press
The publications department was established in 1952 with a staff of three and one duplicating machine. Over the years the department has developed into the Swinburne College Press with a staff of 14 and a full offset printing capacity.

The press is primarily designed to give a fast print service geared to meet the college’s requirements for the production of class notes, study material and various types of administrative stationery. The major requirement here 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 typing and typesetting service with a range of IBM Selectric Composer faces.

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

Manager: Mr John Hayward, MBE, FAIA(Dip), 819 8123.

Educational technology unit
The education officer (educational technology) is the first appointment in the proposed unit to provide educational support facilities including assistance with the educational use of developments in communication techniques, psychology, sociology, computers, staff training, assessment techniques, production and dissemination of educational software, etc.

The present education officer is concerned mainly with the co-ordination and promotion of alternatives to the lecture/tutorial method, especially methods involving audio-visual techniques and computers. An important aspect of this work is assistance to the lecturers who are conducting innovative projects funded through the VIC educational technology unit.

Education officer (educational technology): Mr Keith Anderson, BSc, DipEE, MIE(Aust), MACE, TTTC, 819 8384.

Information office
The Information office gathers details of college activities for release to the news media and for dissemination within the college. The office also arranges tours of the college for school groups and other visitors, produces and distributes the fortnightly college newsletter, the annual handbooks and course brochures.

Information Officer: Mr Robert Cross, 819 8212.
Assistant Information Officer: Mrs Ann Mullally, 819 8238.
Enquiries: 819 8444.

Science Education centre
The Applied Science Faculty at Swinburne has a centre which offers information resources and experience in the use of equipment not readily available in schools to the secondary teacher of science and mathematics. The centre offers facilities for equipment repair, development and evaluation as well as being a meeting place for exchange of ideas and displays.

Further details are available from Dr E.H. Bode, Dean, Faculty of Applied Science, 819 8480.

Swinburne Applied Research and Development Division (SARDD)
Swinburne was the first college of advanced education in Victoria to appoint an industrial liaison officer to establish closer working relationships with industry. Industrial liaison centres operate at many tertiary colleges overseas. Larger organisations have been developed at various universities, enabling applied research and investigation to be carried out for a wide cross-section of industry and commerce.
SARDD covers technical information services, testing and research, in addition to design and development of special projects.

Industrial Liaison Officer: Mr Frank Lees, BMechE, 819 8001.

**Child-care centre**

A co-operative society was formed in 1975 to provide child-minding facilities at Swinburne. Situated on the campus in pleasant surroundings, arrangements may be made on a part-time basis, for children to be cared for while a parent attends classes.

The object is to assist needy students and 14 places are available. A small charge is made and a fully-qualified supervisor is in attendance.

Enquiries should be directed to: Mrs Chris Miller, 819 8445.

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**Student activities**

**Student Union**

The student Union as the name suggests is a union of students who attend Swinburne. It has many responsibilities. Some of these include:

(i) Implementing policy decided on by a general meeting of the students.
(ii) Providing varied services to students, i.e. entertainment, presenting submissions to such bodies as the VIC and the Institution of Engineers on behalf of the students.
(iii) Protecting and maintaining the rights of students.
(iv) Representing students on college committees (i.e. course content, anti-assessment campaigns etc.).
(v) Raising political issues on campus.

There are many other duties that the student union is responsible for, however these are flexible and arise as needs demand.

All students have the same rights in respect to the union and all are entitled to use the services provided by it. Some of these services are:

**Australian Union of Students**

The union is affiliated with the Australian Union of Students (AUS). Through AUS students are provided with cut price overseas travel, campus entertainment at reduced rates and a strong political lobby. Detailed information regarding concessions available through AUS is available at the Swinburne Student Union office.

**Clubs and societies**

Many clubs and societies are in operation providing a wide range of activities for students. Clubs active in 1976 included:

- The Swinburne Engineering Students Society (SESS), Photographic Society, Explorers Club, Swinburne League of Business Studies (SLOBS), Overseas Students Service (OSS), Greek Club, Italian Club, Jewish Students Society, Chemical Engineering Society, General Studies Society, The Labour Club, Women's Action Group and the Swinburne International Action Group. Any group of students may establish a society or group to facilitate their group interest and may apply for affiliation with and financial support from the union.
Orientation
Orientation will be held in the first week that classes start at the college. All students will find it helpful to enter into the activities associated with orientation as it will familiarise them with the various aspects of the college that they may otherwise take months to find out about. Information about orientation is available on your first day at Swinburne.

Radio station
3SW provides music and information every day for students in the cafeteria and lounge. Students are involved in the running, organisation, announcing and content of the programs. Anyone interested in becoming involved at any of these levels should contact the union (in which the studio is housed). Production facilities for special programs and recording are available.
This is a valuable media which is part of the student radio network consisting of many Melbourne campuses and all students have access to it.

Student publications
A twice-weekly broadsheet, Scragnlet, is produced 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.

Union shop
The union shop provides articles at cut prices including cigarettes, confectionery, soft drinks and stationery. Secondhand books may be bought and sold through the book exchange which functions throughout the academic year.

Contact centre
The Contact centre is an information and referral service staffed by students for students.

Sports Association
At Swinburne there is a very active Sports Association which promotes and encourages a wide variety of sporting activities, both inter-faculty and inter-colleges.
The aim of the association is to introduce students and staff to the non-traditional secondary school sports such as, SCUBA diving, sky diving, water skiing and others, and at the same time continue to develop the interests of students in the more traditional sports of football, soccer, tennis etc.
The association competes in an inter-college competition against other colleges of the VIC and other Australian colleges in the national championships. The sports involved in these competitions are as follows:
Athletics, Badminton, Basketball, Cricket, Football, Golf, Hockey, Netball, Rowing, Soccer, Squash, Swimming, Table tennis, Tae-kwon-do, Tennis, Volleyball.
In addition to the above sports there are several other clubs which arrange activities, trips and competitions. These clubs with such activities are as follows:
Car:
Regular car rallies, motorcarns, hill-climbs, sprints, film and social evenings.
Gymnastium:
The association has a well-equipped gymnasium and runs both men's and women's classes.
Horse Riding:
Lessons and country rides with hired horses.
Judo:
Classes with qualified instructors.
Modern Dance:
Classes are conducted weekly for both men and women.
Motorcycle:
Regular club trips, competition plus the use of club room and tools.
Orienteering:
Affiliated with VOA, conducts own events.
Rifle:
Regular hunting trips, also indoor and clay target events.
SCUBA Diving:
Classes for beginners and regular dives, equipment available.
Sky Diving:
Classes for beginners and regular weekend jumps, equipment available.
Snow Skiing:
Week-long trips to Hotham, Buller and Falls Creek. Lessons and pre-season gym courses.
Surfing:
Regular trips both local and interstate, equipment available.
Water Skiing:
Club has its own boat and equipment, goes on numerous weekend trips.
In addition to the above clubs the association subsidises ten-pin bowling, bounce ball, golf, ice skating and squash at local venues. It also provides a means through which students may purchase sporting equipment discounted by up to 20 per cent.
The Sports Association welcomes enquiries and can be contacted on 819 8019.
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<tr>
<th>Contacts</th>
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<tr>
<td><strong>Awards</strong></td>
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<tr>
<td>(SCOT) Student Records office, administration building</td>
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<td>(STC) Student Records office, 66 Park Street</td>
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<tr>
<td><strong>Career information</strong></td>
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<td>Student Counselling, Level 2, BA building</td>
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<td><strong>Class time-tables</strong></td>
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<tr>
<td>Lewis Evans, room A203, administration building</td>
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<tr>
<td>Marie Weir, room A229, administration building</td>
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<td><strong>Counselling</strong></td>
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<td>Student Counselling, Level 2, BA building</td>
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<td><strong>Enrolment &amp; amendment to enrolment</strong></td>
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<td>(SCOT) Student Records office, administration building</td>
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<td>(STC) Student Records office, 66 Park Street</td>
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<td><strong>Exemptions</strong></td>
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<td>(SCOT) Appropriate faculty secretary</td>
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<tr>
<td>(STC) Student Records office, 66 Park Street</td>
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<tr>
<td><strong>Examinations results</strong></td>
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<tr>
<td>(publication) Ethel Swinburne Hall</td>
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<tr>
<td>(queries, SCOT) Dawn Evans, Admissions &amp; Examinations Officer, room A203, administration building</td>
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<td><strong>Housing enquiries</strong></td>
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<tr>
<td>Student lounge, top floor, Ethel Swinburne Centre</td>
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<td><strong>Part-time employment</strong></td>
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<td>Student Services office, Ethel Swinburne Centre</td>
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<td><strong>Room bookings (Ethel Swinburne Centre)</strong></td>
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<td>(Lecture theatres &amp; class rooms)</td>
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<td>(College meeting rooms)</td>
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<tr>
<td>Room SU101, Student Union building</td>
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<tr>
<td>Lewis Evans, room A203, administration building</td>
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<td>Registrar's office, administration building</td>
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<td><strong>School tours/student guide group</strong></td>
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<td>Information office, administration building</td>
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<td><strong>Student representation on college committees</strong></td>
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<td>Room A203, administration building</td>
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<tr>
<td><strong>Justices of the Peace</strong></td>
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<tr>
<td>Jack Courtney, room A222, College Press</td>
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<tr>
<td>John Hayward (JP for N.S.W.)</td>
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<tr>
<td><strong>Commissioner for Affidavits and Declarations</strong></td>
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<tr>
<td>Russell Dawe, room A17, administration building</td>
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</tbody>
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16
Swinburne College of Technology
—Degree and diploma courses
Courses offered

Undergraduate

Degrees
Courses leading to degree qualifications of the Victoria Institute of Colleges 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
  Biophysics
  Computer Science
  Instrumental Science
  Mathematics
Bachelor of Arts (BA)
  Graphic Design
  Italian and other major studies
  Japanese and other major studies
  Psychology and other major studies
  Sociology and other studies
Bachelor of Business (BBus)
  Accounting
  Data Processing
  Quantitative/Economics
Bachelor of Engineering (BEng)
  Civil Engineering
  Electrical Engineering
  Mechanical Engineering
  Production Engineering

Diplomas
Courses leading to diploma qualifications of Swinburne College of Technology are available in the following areas:

Diploma of Applied Science (DipAppSc)
  Applied Chemistry
  Biochemistry
  Environmental Health
Diploma of Art (DipArt)
  Film and Television
  Graphic Design
Diploma of Arts (DipArts)
  Italian and other studies
  Japanese and other studies
  Psychology and other studies
  Sociology and other studies
Diploma of Business (DipBus)
  Accounting

Diploma of Engineering (DipEng)
  Chemical Engineering
  Civil Engineering
  Electrical Engineering
  Electronic Engineering
  Mechanical Engineering
  Production Engineering

Associate diplomas
The college currently offers only one course leading to an associate diploma qualification (other courses are under consideration).

Associate Diploma of Private Secretarial Practice (AssocDipPSP)

Postgraduate

Master's degree
Programmes (by research and thesis) leading to the Victoria Institute of Colleges' degree of Master can be undertaken in a number of areas:

Master of Applied Science (MAppSc)
  Applied Chemistry
  Biochemistry
  Biophysics
  Computer Science
  Instrumental Science
  Mathematics
Master of Arts (MA)
  Graphic Design
  Humanities
  Languages
  Social Sciences
Master of Business (MBus)
  Accounting
  Data Processing
  Quantitative/Economics
Master of Engineering (MEng)
  Civil Engineering
  Electrical Engineering
  Mechanical Engineering
  Production Engineering
Graduate diplomas

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

Graduate Diplomas in
Air-conditioning
Applied Film and Television
Applied Social Psychology
Biochemical Engineering
Business (Accounting)
Business (Administration)
Chemical Engineering
Civil Engineering
Computer Simulation
Industrial Management
Urban Sociology
Urban Systems

Application procedure

Degrees and diplomas

Entrance requirements

To be eligible to enter the first year of any degree or diploma course applicants must have successfully completed sixth form year or its equivalent, or the preliminary year at the Swinburne Technical College.

Students at fifth-form level may be eligible to enter preliminary year courses offered by the Swinburne Technical College.

Full-time

First year

All applications for entry to full-time study at the first year level, except those from students who undertook the preliminary year at Swinburne Technical College in 1976, must be made through the Victorian Universities Admissions Committee, 11 Queens Road, Melbourne, 3004.

Applications must be made on the appropriate form. Form 'N' is only for the use of students currently undertaking full-time study for the Higher School Certificate. Special application forms are distributed to all secondary schools, as are copies of the VUAC publication 'Guide for prospective 1977 students' which outlines the procedure to be followed.

Form 'E' is to be used by all applicants not currently enrolled for the Higher School Certificate and, together with the 'Guide for prospective 1977 students', may be obtained from the offices of VUAC.

The closing date for all applications is 29 October 1976. In all cases the application forms must be sent directly to VUAC and not to the college.

Second year and higher

Applications should be made directly to the college and not through VUAC. Application forms can be obtained from the college Admissions Officer, Dawn Evans, 819 8386.

All applications must be received at the college by:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Date</th>
<th>Year</th>
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<tbody>
<tr>
<td>Applied science</td>
<td>31 January</td>
<td>1977</td>
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<tr>
<td>Art**</td>
<td>26 November</td>
<td>1976</td>
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<td>Arts</td>
<td>26 November</td>
<td>1976*</td>
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<tr>
<td>Business</td>
<td>17 January</td>
<td>1977</td>
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<tr>
<td>Engineering</td>
<td>31 January</td>
<td>1977</td>
</tr>
</tbody>
</table>

*late applications may be considered
**no part-time places available.
Part-time students

All applications for enrolment in part-time courses must be made directly to the college by these dates:

- Arts: 26 November 1976
- Business: 17 January 1977
- Applied science: 31 January 1977
- Engineering: 31 January 1977

No places will be available for part-time courses in Art.

Application forms are available from the college Admissions Officer, Dawn Evans, 819 8386.

Mature-age entry

The college policy on admissions makes provision for mature-age entrants – generally people in, or beyond, their early twenties – who, for some reason have not been able to attempt the HSC examinations or to fulfil the generally accepted criteria for entry into a tertiary course.

Applications should be made in writing to the college Registrar, Mr. C.L. Williamson.

Offers of places at the college will be made on the merits of the particular case and the Registrar will notify successful applicants in writing.

It should be noted that the scheme is not intended for the rehabilitation of students who have recently failed the Higher School Certificate examinations.

Deferred entry

Students who are offered a full-time place in first year for 1977 may apply for deferment until 1978. Applications must be addressed to the Registrar, and must be made at the time an offer of a place at the college is made.

Deferment will be virtually automatic for those students who apply as soon as they receive an offer. Later applicants may be asked to give reasons for their request for deferment and, in these cases, the head of the particular department will have the final decision. Students who have been granted deferment will be informed in writing by the Registrar.

Deferments will be valid for one year only for entry to the particular course for which the original offer was made.

Should a student who has been granted a deferment apply to another faculty or to another college or university, the offer of a reserved place will lapse.

Overseas students

Before making application for admission to a course offered by Swinburne College of Technology (or any Australian University or college of advanced education) nationals of countries other than Australia who reside outside Australia must obtain the approval of the Australian Development Assistance Agency.

Application for such approval is made through the Australian diplomatic or consular office in the student's country of residence. Initial enquiries should be directed to the education officer of the Australian diplomatic or consular post concerned.

Under normal circumstances it requires some months for the official approval of the Australian Development Assistance Agency to be obtained and transmitted back to the applicant. Intending applicants should note that applications to enter the individual colleges or universities are generally required by the end of October in the year prior to intended commencement of study. Application to the Australian diplomatic or consular office should, therefore, be made fairly early in the year prior to the first year of study in Australia.

It should also be noted that the governments of some countries (e.g., Singapore) have special requirements for their nationals who wish to study in Australia. Information about any such special requirements should be obtained from the government or public service of, or the education officer of, the Australian legation, in the particular country.
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 of the college or a degree of the Victoria Institute of Colleges and which has a title and code number in the subject register maintained by the Student Records office; 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' includes the dean of the faculty where appropriate; unless the contrary intention is expressed.

Conditions of enrolment

Enrolment at the college is conditional upon acceptance of the regulations set out in the college handbook and such additional regulations as the College Council shall from time to time decide.

Approval for enrolment

Before enrolling in any course or subject, a student must obtain the approval of the head of the appropriate awarding department or his nominee.

Enrolment requirements

To enrol for any course or subject, a student must complete the college enrolment form, provide all required statistical information, pay the prescribed Student Union and Sports Association fee together with such other fees as the College Council may require to be paid and lodge the completed enrolment form with the cashier.

Two semesters’ subjects

When enrolling for the academic year 1977, or part of it, students will be required to list on the college enrolment form under the appropriate semester headings, all subjects which they intend to study during the year.

Mid-year procedures.

Students may be required to attend the college on a day and at a time specified by their department or faculty in order to review their second semester enrolment.

Notices setting out dates, times, and procedures for attendance will be posted on college notice boards during first semester 1977.

Degree and diploma courses

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, may be required to pay a late fee of $5.00 per week or part thereof from the date on which their attendance was required, to the date on which the completed forms are lodged with the college cashier, in order to be enrolled for the year or the semester concerned.

Confirmation of college records

The college 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 further 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 prior to the end of the seventh week of the semester.

In recent years a confirmation-of-enrolment card has been posted to each student approximately six weeks after the beginning of each semester. Because of the recent financial restrictions and cost increases it has been decided not to post cards, statements or certificates to students during 1977.

To assist in the checking process, a statement of each student’s enrolment will be printed by the computer approximately four weeks after the commencement of each semester. The statements will be available from a place to be notified during first semester.

Students who do not check the statements, or who do not notify the Student Records office of any errors existing in the records will be required to pay a substantial fee ($5.00 or part thereof per amendment required) for each amendment to be made after the closing date for enrolment files.

Amendments to course, subjects or units

Students may amend their subject enrolments only by completing an Amendment to course or subjects form and lodging it with the college cashier and by paying an additional Student Union and Sports Association fee which is required.

Withdrawal from all studies

A student who intends to withdraw from all study at this college must lodge an Amendment to course or subjects form to indicate this intention.

Failure to comply with this regulation will mean that the student will be recorded as having failed in all subjects.
Amendment forms
Amendment to course or subjects forms are available only from the secretary of the student's faculty, or, for art students, from the secretary to the Dean, Faculty of Art. Locations are as follow:

- Applied Science (Mr J. Ure), F40B
- Art (Mrs J. Forbes), M103
- Arts (Mrs A. Patterson), BA911
- Business (Miss V. Stiles), BA912
- Engineering (Mr A. Miles), H517

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 of study to 14 hours or more per week will be required to pay the difference between the part-time and the full-time Sports Association and Student Union fee.

No refunds on reduction
No refund of fees will be made where a full-time student reduces his or her contact hours to less than 14 hours per week.

Approval
Every amendment to courses or subjects must be approved by the head of the awarding department (or nominee) and in addition must be approved by the head of the department (or nominee) responsible for teaching the subject or unit concerned.

Date of amendment
An amendment does not take effect (that is, a student has not withdrawn from nor added any subject) until the Amendment to course or subjects form, duly approved, has been lodged at the Student Records office and any fee required has been paid.

Amendments after the 7th week of a semester
A student who withdraws from a subject later than the end of the 7th week of the semester in which the final assessment for that subject takes place, will be recorded as having failed the subject unless special permission to withdraw has been given by the head of the awarding department.

Amendments after the close of enrolment files
After 29 April (first semester) and 30 September (second semester), changes in a student's enrolment will only be made after personal application to the Registrar of the college and then only if special circumstances exist.

Fees
At the time of going to press the Student Union and Sports Association fees for 1977 had not been determined. In 1976 the fees were:

- Full-time students – more than one semester academic $35.00
- Full-time students – at least one semester of work experience $25.00
- Part-time students $16.00

For all college purposes a full-time student is one enrolled for subjects which require a total class, tutorial and/or laboratory contact time of 14 hours or more per week. It includes students studying under the cooperative format. Such students qualify for the special fee rate only in those years which include work experience. These are:

- Applied Science Degree course, 2nd and 3rd years;
- Applied Science Diploma (Environmental Health) 2nd year;
- Art (Graphic Design) Degree course, 3rd year;
- Civil Engineering Degree course, 3rd and 4th years;
- Electrical Engineering Degree course, 3rd and 4th years;
- Production Engineering Diploma course, 2nd and 3rd years;
- Production Engineering Degree course, 2nd, 3rd and 4th years.

A part-time student is one enrolled for subjects which require less than 14 hours per week contact time.

Refund of fees higher preference
A student who has enrolled at the college as a result of an offer made by the Victorian Universities Admissions Committee (VUAC) and who receives an offer, not including an irregular offer, from VUAC for a higher preference course may receive a refund of all fees paid if notice of the withdrawal from the college and application for the refund is lodged at the Student Records office, administration building, prior to Thursday 31 March 1977.

Refund of fees no higher preference offer
A student who withdraws from the college, not being the recipient of a higher preference regular offer from VUAC, may receive a refund of fees, less a $5.00 service charge, if notice of the withdrawal from the college and application for the refund is lodged at the Student Records office, administration building, prior to Thursday 31 March 1977.
No refunds after 31 March 1977

No refunds of fees will be made where a student withdraws from study or lodges an application for refund of fees after Thursday 31 March 1977.

Exemptions
Where a student has undertaken a subject at another institution and wishes to receive credit for the subject towards a course at Swinburne College of Technology, formal application for such exemption must be made.

Application forms are available from, and when completed should be lodged at, the Student Records office, administration building. Original documentary evidence should be attached to every application. Original documents will be returned to the applicant if a photostat copy is also attached.

Students should apply for exemptions at the earliest possible time.

Any student who has an existing claim for exemptions and who wishes to claim such exemptions should apply immediately.

Amendments to personal details
Students must notify the Student Records office, administration building, of any change to their name, address, or any other personal information recorded on the enrolment file at the earliest possible opportunity after a change has occurred. A form for that purpose is available from the Student Records office.

Notice of special requirements
Information which affects students' progress in their courses is displayed from time to time on college, faculty and departmental notice boards. Display of such information for two weeks will be deemed to be adequate notice to all students concerned.

Students are therefore recommended to check college (quadrangle and administration building) departmental and faculty notice boards at least once every two weeks.

Regulations concerning assessment

1 General provisions
All subjects or units are assessed in some way. A variety of forms is used at the college. In some cases a formal examination forms part of the assessment; in others it does not. Students should make themselves aware of the methods of assessment adopted for the subjects they undertake; enquiries should be directed to the lecturers in the subjects concerned.

Students are automatically entered as candidates in the subjects/units for which they are enrolled. Students should therefore check their statements of enrolment by the date notified to them.

Students who attend examinations in subjects/units for which they are not enrolled take the risk of having no result given in that subject/unit.

2 Attendance requirements
No minimum attendance requirements will be demanded of a student who is duly enrolled in a subject:

(a) as a prerequisite to that student being permitted to sit for an examination; or
(b) as the basis for requiring a student to pay a fee in order to sit for an examination; or
(c) as a prerequisite to that student obtaining a passing grade in that subject; provided that it always be clearly within the power and responsibility of a department to lay down minimum standards of work which a student must reach in order to be notified to a faculty board as a pass in the subject.

3 Effect of withdrawal
A student who withdraws from a subject/unit later than the end of the seventh week of the semester in which final assessment takes place, shall be deemed to have failed that subject/unit, unless special permission has been given by the head of the awarding department.

4 Time-table
Approximately half-way through each semester a provisional time-table for examinations to be held during the designated period of examinations will be posted on the notice board in the quadrangle.

Students should take note of their examination times and report any clashes immediately to the examinations officer.

The final examination time-table will be posted on the notice board in the quadrangle approximately two weeks prior to the beginning of the examinations.
It is the responsibility of students to find out dates and times of examinations. No information will be given over the telephone.

5 Conduct of examinations

Unless otherwise stated on the time-table morning examinations will commence at 8.50 am and afternoon examinations at 1.20 pm.

Students will not be permitted to enter the examination room after half an hour has elapsed from the commencement of the examination, and will not be permitted to leave until half an hour after the commencement or during the last 15 minutes of the examination period.

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

Students are required to provide their own slide rules, and drawing instruments.

Unless expressly prohibited, electronic calculators may be used. Such calculators must be battery operated. Students will not be permitted to borrow or lend calculators during an examination.

Convenors of subjects may ask that room supervisors ensure they mark 'calculator used' on examination scripts. Convenors may also place a restriction on the level of sophistication of calculators to be used.

Convenors of subjects should be present in the examination room at the beginning of each examination for which they are responsible to answer any questions which may arise regarding the subject matter. Staff should be readily available during the remaining period of the paper.

6 Examination discipline

When an apparent case of cheating or other irregularity is detected in an examination room, the student will be informed by the supervisor immediately, but will be permitted to finish the examination paper. The examinations officer will immediately report the circumstances to the appropriate assistant director, the subject convenor, or the head(s) of the appropriate teaching and awarding department.

At the conclusion of the examination the Assistant Director will decide whether or not there has been an irregularity. If there has he shall convene a meeting of the people listed in the paragraph above to decide whether any penalty shall be imposed upon the student.

A student who suffers a penalty in this way shall have the right of appeal to a committee appointed for the purpose by the Director.

The committee shall comprise at least one student. The Assistant Director (or a nominee who has been a party to the investigation), subject convenor, or head of department shall be ineligible to sit on the appeal committee.

7 Absence from examinations

Students who are absent from an examination in whole or in part due to illness or other misadventure and who wish to apply for a special examination must do so at the Student Records office. Applications should be accompanied by evidence (e.g., a medical certificate) of genuine inability to attend. The applications should be lodged at the Student Records office within 48 hours of the examination.

Students who are absent from an examination through a misreading of the time-table are not entitled to a special examination. Students in these circumstances should contact the head of their awarding department.

8 Publication of results

Results of assessment are normally displayed in the Ethel Swinburne Centre.

No results will be given over the telephone. The Student Records office is the only official source for publication of results. In the semester following the official publication of results concerned, a printed certificate of each student’s results is prepared. These results are obtainable on application to the Student Records office.

9 Report on results

Reports on examinations are available in two categories:

(a) A statement showing marks gained for each question or part of question. Fee $1.00.
(b) A detailed report by the examiner. Fee $10.00.

Applications may be lodged at the cashier’s desk, within one calendar month of the publication of the result in the subject.

10 Supplementary assessment

Other than the provision shown under 12 (Engineering), only in special circumstances will a student who fails a subject at a semester or end of year examination be given a supplementary assessment.

11 Special examination for last subject of award

A student who has obtained a pass category in all subjects except one for an undergraduate diploma or degree at the time of the most recent final examination shall be entitled to apply for permission to sit for a special assessment.
This provision will apply where a student has failed a subject/unit in the penultimate semester and where this subject/unit is not available for the student to repeat in the final semester.

The provision does not apply to graduate courses.

Application should be made to the Student Records office within ten calendar days after the date of publication of results.

12 Special faculty provisions

Applied Science

The results of full-time first year students will be released only at the end of the second semester; in later years of the degree courses and in the Diploma of Applied Science (Environmental Health) results will be released at the conclusion of each semester subject. Results will be released annually for all students in the Diploma of Applied Science (Applied Chemistry) and the Diploma of Applied Science (Biochemistry).

Engineering

(1) The Engineering faculty operates a scheme of block passing by years which enables engineering students to be assessed on a block of work rather than individual subjects.

Following the end-of-year examinations, full-time engineering students who do not achieve pass results or better in all subjects are considered for a 'Faculty Pass' on the year's work as a whole. Students who receive poor results in only one or two subjects may be given supplementary assessments. In these cases, consideration of students' overall faculty results is deferred until the results of the supplementary assessments are available.

(2) Mid-year examinations are held in some subjects. However, as the faculty operates a scheme of block passing by years, official results are not released until the end of the academic year.

13 Withholding result certification

A student who fails to pay any library fine after notice of the outstanding fine has been given by the college Registrar will, in addition to any other penalties applicable under library user regulations, not be permitted to receive any certification of results of examinations or assessments until the outstanding fine is paid and notice of the payment is received by the Registrar.

Students should note that failure to pay outstanding library fines will have the effect that they cannot receive any statements of their results from student records and, in the long term, will not be able to qualify for any award of the college (e.g. diploma) or for a degree of the Victoria Institute of Colleges.

Awards

Students nearing completion of their course

Students nearing completion of their course may obtain a statement indicating those subjects passed and those subjects still required to complete their courses for a fee of $1.

Special examination for last subject of award

A student who has obtained a pass category in all subjects except one for an undergraduate diploma or degree at the time of the most recent final examination shall be entitled to apply for permission to sit for a special assessment.

This provision will apply where a student has failed a subject/unit in the penultimate semester and where this subject/unit is not available for the student to repeat in the final semester.

The provision does not apply to graduate courses.

Application should be made to the Student Records office within ten calendar days after the date of publication of results.

A student who has obtained all subjects except one for his diploma or degree, and has failed in that subject at the most recent final examination, shall be entitled to make application for permission to sit for a special examination. Candidates will use the same number as used for the final examinations.

Application must be made to the Registrar within ten calendar days of publication of the examination result in the subject.

Any student who has been involved in a change of syllabus (e.g. from the 1960 syllabus to the 1965 revised syllabus, or to the 1972 syllabus etc.) and who has not previously obtained a statement, would be wise to do so before starting the final semester.

Applications for awards

Students eligible to be admitted to a degree of the Victoria Institute of Colleges, or to be awarded a diploma/graduate diploma or certificate by this college, are required to make application for the award on the form prescribed. Forms are available from, and must be lodged at, the Student Records office, administration building.

Applications for all awards close on 31 October of the year in which the student anticipates completion of the academic work for the award.

Students who expect to qualify for an award are advised to apply as early as possible and not defer application until the closing date. This will ensure that a statement certifying qualification for the particular award, or for admission to the particular
degree, can be posted to the student immediately after qualification. Statements will be produced strictly in order of receipt of application – the early receipt of such a statement can make a significant difference to a graduand's salary.

Degrees

Degrees are conferred by the Victoria Institute of Colleges on certification by this college that the student has completed the requirements for admission to the particular degree. Students who hope to qualify for a degree in 1977 should lodge their application forms at the Student Records office by March 1977 to ensure that the necessary certification may be completed at the earliest opportunity. Such certification can affect a graduand's status in industry thus early completion of the necessary checking is essential.

Diplomas and certificates

(industrial experience)

Students should note that periods of industrial experience are required to qualify for the award of the following diplomas and certificates:

- Biochemistry diploma: 12 weeks
- Applied Chemistry diploma: 12 weeks
- All Engineering diplomas: 12 weeks
- Applied Chemistry certificate: 4 years
- All Engineering certificates: 4 years

If industrial experience has not been completed at the time of lodging the application for the award, students should attach a note explaining when they expect to complete it. Students who have not yet commenced employment should advise the Student Records office to that effect, and should again contact the office when they actually take up employment.
Faculty of Applied Science
Faculty of Applied Science

Dean
Eric H. Bode, PhD, BSc(Hons), FRMTC, FRACI

Academic Staff
Department of Applied Chemistry
Head
Alex P. Gardner, MSc, DipEd, ARIC, ARACI

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Robert L. Laslett, MSc, DipEd
Ian G. McWilliam, DSc, FRACI

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John W. Davis, DipPhil, MAIHS, MRSH
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Graeme McEwen, PhD, BSc(Hons)
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Leslie Michel, PhD, BSc
Jocelyn E. Packer, PhD, BSc

Instructor
Peter J. Kelly

Department of Computer Studies
Head
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Ian M. Smith, BSc(Hons), DipEd, MAV

Department of Mathematics
Head
Robert Kavanagh, MA, MSc, MAORS, MORS

Deputy Head
Kenneth B. Watson, BA, BSc

Principal Lecturer
To be appointed

Senior Lecturers
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Peter H. Green, BA
John R. Iacono, BA, TPTTC
John F. Pidgeon, BA, DipEd
Colin Scott, BA, BSc, ATTI
Henry V. Yeo, BA

Lecturers
Stephen R. Clarke, BSc(Hons), DipEd
Nick Cornham, BSc, DipEd
John Gray, BSc, DipEd
Edward P. Hauser, BSc, DipEE, TTTC
John C. Herzel, PhD, MSc, BA, MAIP
Maxwell N. Hunter, BSc(Hons)
Peter L. Jones, PhD, BSc
Hill O'Deall, BA, DipEd
Tom Peachey, BSc(Hons)
Brian R. Phillips, BSc, BEd
Joe Steiner, PhD, BSc(Hons)
Alex van Hoof, BA, DipEd

Senior Tutors
Christopher Barling, MSc
Nalini de Silva, PhD, BSc
Roger Hilton, BSc, ARMIT(Maths), MIA

Department of Physics
Head
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Deputy-Head
C. Grenville Sibley, BSc, DipEd

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Richard B. Silverstein, PhD, BSc(Hons), MAIP, MIBME

Lecturers
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Thomas Gill, MSc
John Hennessy, BSc, DipMet, MAIP, TCert
Peter S. Smith, BSc(Hons), DipEd, MAIP
Jack M. Venema, BSc, BA, DipEd, TTTC

Senior Demonstrator
Donald Ward-Smith, PhD, BSc(Hons)
Courses offered

Degree of Bachelor of Applied Science

The full-time degree courses are programs of cooperative education which extend over a period of three and a half years and include two periods of work experience. They comprise either a double major in applied chemistry (with the opportunity of a biochemistry option) or two single majors chosen from biophysics, chemistry, computer science, instrumental science and mathematics. Students spend two six-month periods gaining professional experience in industry, business, clinics or research laboratories depending on their area of study. The applied chemistry double major is also offered for part-time study.

Diploma of Applied Science (Applied Chemistry)
Diploma of Applied Science (Biochemistry)

These diploma courses are available for either full-time or part-time study. They are of three years' duration (post HSC) when studied full-time.

Diploma of Applied Science (Environmental Health)

This course is the recognised training for health surveyors in Victoria and is available for both full-time and part-time study. The full-time course extends over three and a half years including two six-month periods of work experience. Part-time students complete the academic work of the course over a five-year period.

Higher degrees

Individual applications for candidature for the VIC Degree of Master of Applied Science may be made through the Faculty of Applied Science. Intending candidates should, in the first instance, obtain details from the Faculty Secretary, Mr J.S. Ure, 819 8481.

Professional recognition

The courses leading to the degree in applied science (applied chemistry) and the diplomas of applied chemistry and biochemistry are recognised by the Royal Institute of Chemists. It is anticipated that graduates who have majored in other study areas will be eligible for membership of the appropriate professional bodies.

Career potential

The applied science courses available 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 are employed in very diverse fields of work such as analysing samples from the scene of a crime, testing streams and waterways for pollution, experimenting with methods of producing quick-drying paints, developing new materials like teflon, or antibiotics, which have revolutionised modern living.

They may take up careers as analytical chemists in industry in the fields of production, quality control, research and development, as teachers and in administration. Employment opportunities occur in industrial chemicals, agriculture, fertilisers, food processing, textiles, dyeing, explosives, soap, cosmetics and detergents, in the processing of oil, coal, minerals and natural gas, and as technical representatives in all these fields.

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 the application of physics to life. By merging the life sciences of physiology and anatomy with physical sciences, particularly physics and instrumental science, techniques are developed to assist with the problems of unravelling the mysteries of life and consciousness.
Graduates will be employed in hospitals or in industry. In hospitals they may be researchers participating in chemical and biomedical research and contributing to both the technological and physical aspects of the research of technologists engaged in developing new electronic equipment to fulfil the required specialist functions, and in maintaining the equipment already in operation. In industry there are opportunities for graduates to take up development and consultancy positions in organisations serving the medical and biological professions.

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.

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 chemistry/computer science graduate could be interested in the simulation of complex chemical processes while 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 the student with the necessary theoretical background and practical skills to become a versatile user and developer of instrumentation systems and techniques.

Employment opportunities occur in the scientific instrument industry for graduates to take up development and consultancy positions or as administrators or technical representatives. Research, teaching and the installation and maintenance of industrial process control systems are other possible careers.

Mathematics
The applied mathematics of probability theory is used whenever numerical data arises in business, scientific, economic or industrial investigations, and a major in mathematics provides valuable experience for potential statisticians, computer programmers, operations research or quality control experts. Specialist mathematical skills are required in the solving of problems which arise, for example, in medical research, building research, animal health, poultry research, forest products, fisheries, metrology, food preservation, wool research or protein chemistry. Statistical skills are also used in the designing of trials such as those to study the effectiveness of various fertilisers or fodders and in assessing the effectiveness of, for example, traffic control, insecticides or new drugs. To become a fully qualified science/mathematics teacher also requires the completion of a mathematics major.

Health surveying (environmental health course)
The majority of health surveyors are employed by local authorities and by the State Health Department, but many work with statutory authorities such as the Environment Protection Authority, the State Rivers and Water Supply Commission 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.

It is expected that industry, particularly the food industry, will in due course employ diplomats to assist with quality control work and compliance with health and pollution laws generally.

Entrance requirements

Degree/Diploma in Applied Science
Normal entry to the first year of the degree/diploma course requires satisfactory completion of the Victorian Higher School Certificate or its equivalent. It is recommended that students should have studied English, Chemistry, Physics and Pure and Applied Mathematics.

Students who satisfactorily complete the engineering and applied science stream of the preliminary year course offered by Swinburne Technical College will be given entry to the first year without quota restrictions. The preliminary year course comprises English, Chemistry, Physics and Mathematics.

Diploma in Applied Science (Environmental Health)
Normal entry to the first year of the course requires satisfactory completion of the Victorian Higher School Certificate or its equivalent, or other evidence of capacity to succeed in the course. A
Faculty of Applied Science

background of Chemistry, Physics and Mathematics is recommended but knowledge of these subjects at HSC level will not be assumed.

Mature-age entry

Special provision is made whereby mature-age applicants may be accepted to the first year of the courses with less than the normal entry prerequisites. This provision applies to persons who are in regular relevant employment, but not to students who have recently failed the HSC examinations.

Applicants in this category should include in their application, details of their previous academic background (or reasons for the lack of it), and a statement of their work experience. Offers of places will be made on the merits of the particular case.

Ad eundem statum admissions

Certain subjects passed at another college of advanced education, the Pharmacy College or at a university may provide advanced standing in the above courses. Each application will be considered individually by the head of the appropriate department, in consultation with the Applied Science Faculty Board.

Mentor scheme

Each student whether part-time or full-time will be allocated to a particular member of staff who will be known as the student's mentor. These mentors will be responsible for guidance on student difficulties, courses, exemptions and re-enrolments.

Re-enrolment

Re-enrolling students who require advice about their course should consult their mentor. If an old syllabus is being followed (these are not included in this handbook), 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 mentor before attempting to re-enrol.

Diploma/degree conversion course

Holders of recent chemistry and biochemistry diplomas who wish to study for a degree in applied science (applied chemistry) may apply, preferably before 1 November, for admission to the degree course. Such applications are individually considered by a special selection panel.

Conversion course students are required to pass at the first attempt appropriate subjects for the degree course and to undertake a project and write a thesis (SC404).

Laboratory and practical work requirements

In all subjects involving practical or laboratory work, a student's progress in practical work must be approved by the relevant department to gain an overall pass in the subject. Each student being assessed in a subject must have satisfactorily completed the laboratory work approved for the current year, either by completing the work during the year or by having previously completed work re-approved. Students seeking exemption in practical work should consult the lecturer in charge of the subject.

Laboratory material requirements

Students 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 refundable deposit of $15. Lockers are allocated by the chemistry laboratory manager.
Cooperative education

In the Applied Science Faculty, the degree courses and the diploma course (environmental health) 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 total 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 semester.

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

Continuity of supply of students to employers is achieved by the alternation of third and fourth semesters and of fifth and sixth semesters as in the diagram.

The students are visited regularly by academic staff during their semesters.

Cooperative degree course arrangement

Course details

All students studying for a degree or a diploma (except in environmental health) undertake the common first year (two semesters) of compulsory subjects which must be completed before enrolling for any later year subject.

Common first year degree and diploma

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCI131</td>
<td>Physical Chemistry 2</td>
<td>30</td>
</tr>
<tr>
<td>SCI141</td>
<td>Analytical Chemistry 2</td>
<td>30</td>
</tr>
<tr>
<td>SCI151</td>
<td>Inorganic Chemistry 2</td>
<td>30</td>
</tr>
<tr>
<td>SCI161</td>
<td>Organic Chemistry 2</td>
<td>30</td>
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<tr>
<td>SM151</td>
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<td>SK112</td>
<td>Introduction to Computers 2</td>
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<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours</th>
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<td>Physical Chemistry 2</td>
<td>30</td>
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<td>SCI142</td>
<td>Analytical Chemistry 2</td>
<td>30</td>
</tr>
<tr>
<td>SCI152</td>
<td>Inorganic Chemistry 2</td>
<td>30</td>
</tr>
<tr>
<td>SCI162</td>
<td>Organic Chemistry 2</td>
<td>30</td>
</tr>
<tr>
<td>SM152</td>
<td>Mathematical methods 4</td>
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<td>SP102</td>
<td>Physics 5</td>
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<tr>
<td>SC172</td>
<td>Biology 5</td>
<td>75</td>
</tr>
<tr>
<td>SM161</td>
<td>Electronic Computation 2</td>
<td>30</td>
</tr>
</tbody>
</table>

On completion of the first two semesters selection occurs of those who are to proceed towards the degree. This is based on assessment of their suitability for degree studies. The assessment depends partly on the academic ability shown during the first year, and partly on reports submitted by lecturers, mentors and tutors of the student's attitude and aptitude for work of degree standard. To be selected they must have demonstrated in their class work that they are capable of independent study and have a critical approach to their work. The choice of major studies is done in consultation with the teaching staff.

Degree of Bachelor of Applied Science

To qualify for a degree, a student must successfully complete the common first year and one of the following combinations of major studies:

(a) A double major in Applied Chemistry (with the possibility of a Biochemistry option).
(b) Biophysics combined with Instrumental Science.
(c) Chemistry combined with Computer Science, Instrumental Science or Mathematics.
(d) Computer Science combined with Chemistry, Instrumental Science or Mathematics.
(e) Instrumental Science combined with Biophysics, Chemistry, Computer Science or Mathematics.

(f) Mathematics combined with Chemistry, Computer Science or Instrumental Science.

Of the range of possible combinations of major studies, five sample course structures are described below:

1) Double major in Applied Chemistry
2) Double major in Applied Chemistry (Biochemistry option)
3) Biophysics combined with Instrumental Science
4) Chemistry combined with Mathematics
5) Computer Science combined with Instrumental Science

It should be noted that some majors may not be offered if student demand is insufficient.

Where the course entails majors in two different disciplines and work experience is gained in only one, the student undertakes a special project (SA409) in the other.

1 Double major in Applied Chemistry

This course features a series of elective subjects which are short courses supporting and extending the main themes of chemistry while amplifying the student’s industrial experience. Students are encouraged to choose electives from as wide a spectrum as possible. This course is also available for part-time study, details of which are available from the Head of the Chemistry Department.

<table>
<thead>
<tr>
<th>Semester 3 (or 4)</th>
<th>hours week</th>
<th>hours semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC231 Physical Chemistry</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td>SC351 Inorganic Chemistry</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td>SC761 Organic Chemistry</td>
<td>4</td>
<td>72</td>
</tr>
<tr>
<td>SC233 Applied Physical Chemistry</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>SC253 Applied Inorganic Chemistry</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>SC263 Applied Organic Chemistry</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>Elective subjects (2)</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>GS906 Complementary Studies A</td>
<td>4</td>
<td>72</td>
</tr>
<tr>
<td>SC271 Microbiology</td>
<td>2</td>
<td>36</td>
</tr>
</tbody>
</table>

Semester 4 (or 3)

<table>
<thead>
<tr>
<th>Work Experience</th>
</tr>
</thead>
</table>

Semester 5 (or 6)

| SC331 Physical Chemistry | 3 | 54 |
| SC351 Inorganic Chemistry | 3 | 54 |
| SC361 Organic Chemistry | 3 | 54 |
| SC333 Applied Physical Chemistry | 3 | 54 |
| SC263 Applied Organic Chemistry | 3 | 54 |
| Elective subjects (2) | 2 | 36 |
| GS908 Communication Studies | 1 | 18 |
| SP355 Physics | 6 | 108 |

Faculty of Applied Science

Semester 6 (or 5)

<table>
<thead>
<tr>
<th>SC309 Work Experience</th>
</tr>
</thead>
</table>

Semester 7

| SC431 Physical Chemistry | 2 | 36 |
| SC441 Analytical Chemistry | 3 | 54 |
| SC461 Organic Chemistry | 2 | 36 |
| Elective Subjects (4) | 4 | 72 |
| SC491 Practical Chemistry | 5 | 90 |
| SC409 Seminars | 2 | 36 |
| BS493 Managerial Economics | 6 | 108 |

* The elective subjects are chosen from the following list:

(a) Subjects which may be attempted in the second or subsequent year

<table>
<thead>
<tr>
<th>SC211 Crystal Chemistry</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC212 Solution Chemistry-Chemical Processes in Natural Water</td>
</tr>
<tr>
<td>SC213 Chemical Process Industries</td>
</tr>
<tr>
<td>SC223 Isolation and Identification of Organic Compounds</td>
</tr>
</tbody>
</table>

(b) Subjects which may be attempted in the third and final year and of which some have specific prerequisites

<table>
<thead>
<tr>
<th>SC303 Lubrication and Lubricants</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC311 Physical and Chemical Parameters of Environmental Investigations</td>
</tr>
<tr>
<td>SC312 Inorganic Biochemistry</td>
</tr>
<tr>
<td>SC314 Electrochemical Technology</td>
</tr>
<tr>
<td>SC316 Electroanalytical Techniques</td>
</tr>
<tr>
<td>SC321 Organometallics</td>
</tr>
<tr>
<td>SC322 Radiation Chemistry of Polymers</td>
</tr>
<tr>
<td>SC323 Industrial Organic Chemistry</td>
</tr>
<tr>
<td>SC324 Technology of Polymers</td>
</tr>
<tr>
<td>SC325 General Polymer Chemistry</td>
</tr>
<tr>
<td>SC326 Surface Coatings</td>
</tr>
</tbody>
</table>

(c) Subjects which may be attempted only in the final year and of which some have specific prerequisites

<table>
<thead>
<tr>
<th>SC401 Soil Chemistry</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC403 Advanced Soil Chemistry and Clay Mineralogy</td>
</tr>
<tr>
<td>SC405 Ceramic and Silicate Chemistry</td>
</tr>
<tr>
<td>SC407 Liquid and Solid Fuel Technology</td>
</tr>
<tr>
<td>SC411 Paints, Emulsions and Detergents</td>
</tr>
<tr>
<td>SC413 Gaseous Fuels, Theory and Technology</td>
</tr>
<tr>
<td>SC415 Food Chemistry</td>
</tr>
<tr>
<td>SC421 Applied Organic Chemistry and Synthesis</td>
</tr>
<tr>
<td>SC423 Bio-organic Chemistry</td>
</tr>
<tr>
<td>SC425 Heterocyclic Chemistry</td>
</tr>
<tr>
<td>SC427 Steroids</td>
</tr>
<tr>
<td>SC429 Computers in Chemistry</td>
</tr>
</tbody>
</table>

These elective subjects may not all be offered initially and may be supplemented from time to time.

2 Double major in Applied Chemistry (Biochemistry option)

This course is also available for part-time study. Details can be obtained from the Head of the Chemistry Department.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Weeks</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC231</td>
<td>Physical Chemistry</td>
<td>3</td>
<td>54</td>
<td>3 or 4</td>
</tr>
<tr>
<td>SC251</td>
<td>Inorganic Chemistry</td>
<td>3</td>
<td>54</td>
<td>3 or 4</td>
</tr>
<tr>
<td>SC261</td>
<td>Organic Chemistry</td>
<td>4</td>
<td>72</td>
<td>3 or 4</td>
</tr>
<tr>
<td>SC281</td>
<td>Biochemistry</td>
<td>8</td>
<td>144</td>
<td>3 or 4</td>
</tr>
<tr>
<td>SC271</td>
<td>Microbiology</td>
<td>2</td>
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<td>3 or 4</td>
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<td>GS906</td>
<td>Complementary Studies A</td>
<td>4</td>
<td>72</td>
<td>3 or 4</td>
</tr>
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</table>

Semester 4 (or 3)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Weeks</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA209</td>
<td>Work Experience</td>
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<td></td>
<td>4 or 5</td>
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</tbody>
</table>

Semester 5 (or 6)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Weeks</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC331</td>
<td>Physical Chemistry</td>
<td>3</td>
<td>54</td>
<td>5 or 6</td>
</tr>
<tr>
<td>SC351</td>
<td>Inorganic Chemistry</td>
<td>3</td>
<td>54</td>
<td>5 or 6</td>
</tr>
<tr>
<td>SC361</td>
<td>Organic Chemistry</td>
<td>3</td>
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<td>5 or 6</td>
</tr>
<tr>
<td>SC381</td>
<td>Biochemistry</td>
<td>8</td>
<td>144</td>
<td>5 or 6</td>
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<tr>
<td>GS909</td>
<td>Report Writing</td>
<td>1</td>
<td>18</td>
<td>5 or 6</td>
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Semester 6 (or 5)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Weeks</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA309</td>
<td>Work Experience</td>
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<td></td>
<td>6 or 7</td>
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</tbody>
</table>

Semester 7

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Weeks</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC431</td>
<td>Physical Chemistry</td>
<td>2</td>
<td>36</td>
<td>7</td>
</tr>
<tr>
<td>SC441</td>
<td>Analytical Chemistry</td>
<td>3</td>
<td>54</td>
<td>7</td>
</tr>
<tr>
<td>SC461</td>
<td>Organic Chemistry</td>
<td>2</td>
<td>36</td>
<td>7</td>
</tr>
<tr>
<td>SC481</td>
<td>Biochemistry</td>
<td>8</td>
<td>144</td>
<td>7</td>
</tr>
<tr>
<td>BS494</td>
<td>Complementary Studies B</td>
<td>4</td>
<td>72</td>
<td>7</td>
</tr>
<tr>
<td>SA409</td>
<td>Special Project</td>
<td>4</td>
<td>72</td>
<td>7</td>
</tr>
</tbody>
</table>

Elective Subject (1)

* This elective subject is chosen from the list of chemistry elective subjects to broaden the student’s appreciation of the biological applications of analytical, separation and purification techniques.

3 Biophysics/Instrumental Science

This combination is unique to Swinburne and is aimed at training hospital researchers. The course offers the student a firm grounding in both the instrumental and life sciences. The biophysics has a clinical orientation and consists of two parallel streams, human physiology and biophysical instrumentation.

A thorough appreciation of instrumental philosophies and techniques is offered in instrumental science. Areas of study in this major include nuclear, acoustic, ultraviolet, X-ray and optical instrumentation together with a strong emphasis on information processing, digital and analogue electronics.

Semester 3 (or 4)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Weeks</th>
<th>Semester</th>
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<td>144</td>
<td>3 or 4</td>
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<tr>
<td>SP213</td>
<td>Instrumental Science</td>
<td>8</td>
<td>144</td>
<td>3 or 4</td>
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<tr>
<td>SM263</td>
<td>Mathematics</td>
<td>4</td>
<td>72</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GS906</td>
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<td>4</td>
<td>72</td>
<td>3 or 4</td>
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Semester 4 (or 3)

<table>
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<tr>
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<th>Course Name</th>
<th>Hours</th>
<th>Weeks</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA209</td>
<td>Work Experience</td>
<td></td>
<td></td>
<td>4 or 5</td>
</tr>
</tbody>
</table>

4 Chemistry/Mathematics

A feature of the mathematical methods major is the workshop component in which solutions to real-life problems are discussed.

Semester 3 (or 4)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Weeks</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC231</td>
<td>Physical Chemistry</td>
<td>3</td>
<td>54</td>
<td>3 or 4</td>
</tr>
<tr>
<td>SC251</td>
<td>Inorganic Chemistry</td>
<td>3</td>
<td>54</td>
<td>3 or 4</td>
</tr>
<tr>
<td>SC261</td>
<td>Organic Chemistry</td>
<td>3</td>
<td>54</td>
<td>3 or 4</td>
</tr>
<tr>
<td>SM251</td>
<td>Mathematical Methods</td>
<td>8</td>
<td>144</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GS906</td>
<td>Complementary Studies A</td>
<td>4</td>
<td>72</td>
<td>3 or 4</td>
</tr>
<tr>
<td>SK213</td>
<td>Computer Science</td>
<td>2</td>
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Semester 4 (or 3)

<table>
<thead>
<tr>
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<th>Course Name</th>
<th>Hours</th>
<th>Weeks</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA209</td>
<td>Work Experience</td>
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<td></td>
<td>4 or 5</td>
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</table>

Semester 5 (or 6)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Weeks</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC331</td>
<td>Physical Chemistry</td>
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<td>54</td>
<td>5 or 6</td>
</tr>
<tr>
<td>SC351</td>
<td>Inorganic Chemistry</td>
<td>3</td>
<td>54</td>
<td>5 or 6</td>
</tr>
<tr>
<td>SC361</td>
<td>Organic Chemistry</td>
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<td>54</td>
<td>5 or 6</td>
</tr>
<tr>
<td>SM351</td>
<td>Mathematical Methods</td>
<td>9</td>
<td>162</td>
<td>5 or 6</td>
</tr>
<tr>
<td>SP305</td>
<td>Physics</td>
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<td>5 or 6</td>
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Semester 6 (or 5)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Weeks</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA309</td>
<td>Work Experience</td>
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<td></td>
<td>6 or 7</td>
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</tbody>
</table>

Semester 7

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Weeks</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC431</td>
<td>Physical Chemistry</td>
<td>2</td>
<td>36</td>
<td>7</td>
</tr>
<tr>
<td>SC441</td>
<td>Analytical Chemistry</td>
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<td>7</td>
</tr>
<tr>
<td>SC461</td>
<td>Organic Chemistry</td>
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<td>36</td>
<td>7</td>
</tr>
<tr>
<td>SM451</td>
<td>Mathematical Methods</td>
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<td>BS494</td>
<td>Complementary Studies B</td>
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<td>72</td>
<td>7</td>
</tr>
<tr>
<td>SA409</td>
<td>Special Project</td>
<td>4</td>
<td>72</td>
<td>7</td>
</tr>
</tbody>
</table>

Elective Subject (1)

* The elective subjects are listed under 'Double major in Applied Chemistry'.

5 Computer Science/Instrumental Science

The computer science major centres around 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 programming 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, acoustic, ultra-violet, X-ray and optical instrumentation together with a strong emphasis on information processing, digital and analogue electronics.

Faculty of Applied Science

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, acoustic, ultra-violet, X-ray and optical instrumentation together with a strong emphasis on information processing, digital and analogue electronics.

Faculty of Applied Science

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Faculty of Applied Science

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The 'software' emphasis in computer science is complemented by the strong 'hardware' orientation of instrumental science. Areas of study in this major include nuclear, acoustic, ultra-violet, X-ray and optical instrumentation together with a strong emphasis on information processing, digital and analogue electronics.
All students of the diploma courses in applied chemistry and biochemistry are required to study the subjects in an approved order, in accordance with the following table:

<table>
<thead>
<tr>
<th>First year</th>
<th>Second year</th>
<th>Third year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>Physical chemistry</td>
<td>Physical chemistry</td>
</tr>
<tr>
<td>Physics</td>
<td>Analytical chemistry</td>
<td>Analytical chemistry</td>
</tr>
<tr>
<td>Physical chemistry</td>
<td>Inorganic chemistry</td>
<td>Inorganic chemistry</td>
</tr>
<tr>
<td>* Biology</td>
<td>* Physiology</td>
<td>* Biochemistry</td>
</tr>
<tr>
<td>Organic chemistry</td>
<td>* Chemical processes</td>
<td>* Organic chemistry</td>
</tr>
<tr>
<td>* Intro. to computers</td>
<td>* Social science</td>
<td>* Managerial economics</td>
</tr>
</tbody>
</table>

Explanatory notes:
1. Subjects in a higher year may not be studied unless all subjects in the lower year(s) have either been passed or are being studied concurrently.
2. Subjects must be studied in the vertical order shown except those marked * which may be studied at any time within their own year.
3. Subjects in different years connected by arrows may not be studied concurrently.
4. Part-time first year students should study physical and analytical chemistry in one year and inorganic and organic chemistry in a subsequent year.
5. Technical report writing may not be attempted unless concurrently with or after completion of four other subjects of the third year.

**Diploma of Applied Science (Environmental Health)**

This takes the form of a three and a half-year program of cooperative education in which students attend the college for a total of five semesters and occupy two semesters gaining practical experience. The course is also offered for part-time study requiring some twelve hours (two evenings and one afternoon) of attendance weekly over a period of five years. Part-time students cover one semester of the course in one year.

In 1977, semesters 1 to 4 are available for full-time study and semesters 1 and 2 for part-time study.

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Semester 2</th>
<th>Semester 3</th>
<th>Semester 4</th>
<th>Semester 5</th>
<th>Semester 6</th>
<th>Semester 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC181 Biology</td>
<td>SC182 Biology</td>
<td>SC293 Environmental Science</td>
<td>SA208 Work Experience</td>
<td>SC391 Chemistry</td>
<td>SA308 Work Experience</td>
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<tr>
<td>6</td>
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<td>90</td>
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<td>SC191 Chemistry</td>
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<td>SC391 Chemistry</td>
<td>SC402 Environmental Health</td>
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36
Subject details
Subject codes are listed in numerical order within the following groups:

<table>
<thead>
<tr>
<th>Code</th>
<th>Department or Faculty</th>
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<tbody>
<tr>
<td>SA</td>
<td>Faculty of Applied Science</td>
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<td>SC</td>
<td>Department of Chemistry</td>
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<td>SK</td>
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<td>SM</td>
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<td>FG</td>
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<td>GS</td>
<td>Faculty of Arts</td>
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SA208 Work Experience
A six-month period of work experience occurring as part of the second year of the course leading to the Diploma of Applied Science (Environmental Health). Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor.

SA209 Work Experience
A six-month period of work experience occurring as part of the second year of the course leading to the Degree 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 Diploma of Applied Science (Environmental Health). 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 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.

SA409 Special Project
4 hours per week for one semester.
Prerequisite: satisfactory completion of the first three years of the course.
A compulsory final year subject in the degree course in applied science (except for the double major in applied chemistry).
The subject comprises individually assigned work and may involve practical work and/or a written assignment in an area considered necessary for completion for the course.

SC131 Physical Chemistry
SC132 One hour of theory per week for two semesters plus practical work.
A compulsory subject in the common first year of the degree/diploma of applied science.
Electronic structure of atoms (wave-particle duality; the wave equation; energy levels; shapes of atomic orbitals).

SC151 Inorganic Chemistry
SC152 One hour of theory per week for two semesters plus practical work.
A compulsory subject in the common first year of the degree/diploma of applied science.
Thermodynamics. The first, second and third laws, culminating in a discussion of free energy as a criterion of spontaneity and chemical equilibrium.
Chemical kinetics. Rate laws governing zero, first and second order reactions; simple reaction mechanisms.

References
Campbell, Chemical Systems, W.H. Freeman, 1970
Knight, Introductory Physical Chemistry, W.H. Freeman, 1970
Mahan, University Chemistry, 3rd edn, Addison Wesley, 1975
Moore, Physical Chemistry, 5th edn, Longmans, 1972
A compulsory subject in the common first year of the diploma in applied science.

A course covering the field of basic modern aliphatic organic chemistry. It includes the study of methods of preparation, the reactions, and industrial uses of the following classes of aliphatic compounds: hydrocarbons, halides, alcohols, carbonyl compounds, and alkylamines and their derivatives. The course is designed to give students a basic understanding of the underlying concepts, and mechanisms associated with the reactions of the above-mentioned compounds.

References
Gunstone, Nomenclature of Aliphatic Compounds. English Universities Press
Morrison and Boyd, Organic Chemistry. 3rd edn. Allyn and Bacon

SC171/SC172  Biology
Three hours of theory and two hours of practical work per week for two semesters

A compulsory subject in the common first year of the diploma in applied science.

The course provides an introduction to the biological world and a background for subsequent subject areas in applied biochemistry and biophysics majors. The course involves an integrated study of cell biology, genetics, microbes, plants and animals, ecology, evolution and an introduction in biochemistry.

Students will require an up-to-date textbook, but this should be purchased only after consultation with the lecturing staff.

SC181  Biology
Four hours of theory and two hours of practical work per week for one semester

A first year subject in the diploma course in applied science (environmental health).

(a) Cellular biology: introduction to the structure and function of the cell, types of cells, organisational aspects at various levels, the molecular and chemical basis of cellular function and a brief introduction to enzyme systems.

(b) Genetics and evolution: a study of the concepts involved in evolution through variation and speciation. This study is developed to the chromosomal level and emphasises the importance of the gene. Concepts are applied to human populations and the causes and processes of evolution.

(c) Environmental parameters: the role of environmental factors in determining the nature of the flora and fauna as ecosystem components in selected areas of Victoria.

SC182  Biology
Four hours of theory and two hours of practical work per week for one semester

A first year subject in the diploma course in applied science (environmental health).

Biological diversity: the need for taxonomic status of organisms, limitations of classification, principles of classification applied to plant, animal and protista kingdoms. The main evolutionary trends as shown by comparative physiology among the kingdoms, and structure and function of organs.


Physiology: introduction to the basic physiology of the nervous, endocrine, digestive, urinary, respiratory and cardiovascular systems, including the composition and structure of blood cells and basic immunological mechanisms.

SC191  Chemistry
Two hours of theory and three hours of practical work per week for one semester

A first year subject in the diploma course in applied science (environmental health).

Atomic and molecular structure: the names, symbols, electronic configurations of the more commonly encountered elements with their environmental significance being stressed. Ionic and covalent bonding. Structures of solids.

Chemical periodicity: atomic structure related to chemical properties. Periodicity of chemical properties related to periodicity of atomic structure. Trends within the periodic table.


Equilibrium 1: solubility and ionic equilibrium.
SC192 Chemistry
Two hours of theory and three hours of practical work per week for one semester
A first year subject in the diploma course in applied science (environmental health).
Illequilibrium 11: Corrosion and pH.
Kinetics: Reaction rates, equilibrium, chain reactions, half life, radioactivity.
Organic chemistry: unique bonding of carbon.
Hydrocarbons (aliphatic and aromatic). Functional groups.
Displacement, substitution and rearrangement reactions.
Simple chemistry of polymers. Decomposition products, selected examples of industrial production of organic material.
Co-ordination chemistry: complex formation. Importance of complexes in analysis, industry and living systems.

SC207 Chemical Processes
Two hours per week for two semesters
A subject in the second year of the diploma of applied science (applied chemistry).
Thermodynamics of the extraction of metals. Co-ordination chemistry related to ion exchange, solvent extraction and catalysis. Thermal and catalytic cracking. Fuel and combustion.
A study of the main chemical and physical factors underlying the design of the major types of industrial equipment including transportation, heat transfer, drying, separation and measuring. There will be at least one visit to an industrial plant.

SC231 Physical Chemistry
Two hours of theory per week for one semester plus practical work
Prerequisite, completion of the common first year.
A second year subject for students majoring in chemistry.
Spectroscopy: Introduction to principles. Infra-red spectra, including a detailed study of the spectra of classes of organic compounds. UV/visible spectra of atoms, including a comparison between atomic absorption and flame emission techniques. UV/visible spectra of molecules.
Thermodynamics and phase equilibria: Effect of T on ΔH and ΔG for reactions; variation of K with T; chemical potentials. The phase rule: One component systems; two component systems (a) binary liquid mixtures (b) solid liquid equilibria (c) solid vapour equilibria.

SC233 Applied Physical Chemistry
One hour of theory per week for one semester plus practical work
Prerequisite, completion of the common first year.
A second year subject for students taking a double major in applied chemistry.

Kinetics and colligative properties: kinetics includes revision of SC131/2, experimental methods, elucidation of rate laws, complex reaction mechanisms.
Spectroscopy: the interpretation of characteristic features – a continuation of SC231. Infra-red spectra, normal modes of vibration, energy levels and transitions, reasons for characteristic frequencies UV/visible spectra of atoms, energy levels and transitions. UV/visible spectra of molecules, energy levels and transitions. other areas of spectroscopy.

References
Daniels and Alberty, Physical Chemistry. Current edn, Wiley

SC236 Physical Chemistry
Two hours of theory per week for two semesters plus practical work
Prerequisites, SM151, SM152, SP101, SP102, SC131, SC132
A second year subject in the diploma courses in applied science (applied chemistry) and (biochemistry).
Thermodynamics
Continuation and some revision of 1st year. The effects of temperature on the enthalpy and free energy changes for reactions, variation of equilibrium constant with temperature. Chemical potentials.
Phase Equilibria
(a) binary liquid mixtures, T vs. X relationships, fractional distillation: complete miscibility, partial miscibility and immiscibility, solvent extraction, salting-out and steam distillation.
(b) solid-liquid equilibria, T-X diagrams, recrystallisation, miscibility in solid state, fractional crystallisation and zone refining.
(c) solid-vapor equilibria.
Colligative properties.

Kinetics
Brief revision of 1st year kinetics, experimental methods, elucidation of rate laws, complex reaction mechanisms, steady state approximation, Arhenius equation, qualitative introduction to transition state theory.

Electrochemistry
(a) Electrical conductance and conductivity of electrolyte solutions, strong and weak electrolytes, ionic atmosphere effects. High mobility of H⁺ and OH⁻. Transference numbers.
Faraday’s Laws.
(b) Equilibrium electrochemistry: sign conventions for cells, potentiometric determination of EMF, liquid junction potentials, cells without liquid junction potentials (incl. salt bridges), thermodynamics of cells. Specific ion electrodes: glass, solid state, liquid membrane, sensitivity, applications and advantages, Limitations.
(c) Working cells nonequilibrium electrochemistry: structure of the double layer, importance, adsorption, measurement of overpotentials.
Charge transfer kinetics, Butler-Volmer equation and special cases thereof, sign of overpotential. Tafel equation and multistep reactions. Significance of the exchange current density. Mass transport in cells: diffusion, convection and migration. Limiting currents and importance to electroanalytical methods. Functioning of complete cell: dissipation of cell voltage in overpotentials and IR drop. Fuel cells and batteries, characteristics and differences, variety of, efficiencies of, comparison with internal combustion engines, electric cars.

Chromatography
The chromatographic separation process. Techniques and applications for column, gas, paper, thin layer and gel filtration chromatography.

SC237 Applied Physical Chemistry
One hour of theory per week for two semesters plus practical work
Prerequisites, SM151, SM152, SP101, SP102, SC131, SC132
A second year subject in the diploma course in applied science (applied chemistry).
Solid state chemistry:
(i) the band theory of solids. The nature of amorphous solids. Liquid crystals.
(ii) defect structures and interactions. The elements of nucleation theory.
(iii) applications of (i) and (ii) to, for example, tarnish reactions, sintering and photographic processes.
Rheology: the study of the deformation and flow of matter.
(i) the behaviour of simple liquids, dilute and concentrated suspensions under the action of shear forces.
(ii) a study of time-dependent phenomena. e.g. thixotropy and rheopexy.
(iii) experimental methods for measuring rheological behaviour.
The non-ideal behaviour of solutes. Activities and activity coefficients, experimental determination and calculation of, magnitudes and effects; effects of solvents and salts on chemical processes in solution.

SC246 Analytical Chemistry
One hour of theory per week for two semesters plus practical work
Prerequisites, SC141, SC142
A second year subject in the diploma courses in applied science (applied chemistry) and (biochemistry).
The basic spectrometer, the spectrum and the interpretation of characteristic frequencies, peak widths and intensities. The vibrational (Infrared) spectra of molecules. The electronic (UV/visible) spectra of atoms and molecules.
Chelometry
Gravimetry
Sampling and quality control
Obtaining a representative sample of solid, liquids and gases. Sample preparation.
Application of statistical methods for routine checking of analytical techniques and for monitoring product quality.
Acid/base properties in non-aqueous solvents.
Microanalysis

SC247 Applied Analytical Chemistry
One hour of theory per week for two semesters plus practical work
Prerequisites, SC141, SC142
A second year subject in the diploma course in applied science (applied chemistry).
The basic analyser – general considerations. Operational amplifiers used for amplification and for control of chemical experiments. Pen recorders and other output systems, including integrators. Scope and application of electroanalytical chemistry. Controlled-potential vs. controlled-current techniques and instrumentation – application to coulometry. Solvents and supporting electrolytes, reference electrodes, types of indicator electrode material. Limiting currents and the general voltammetric technique – stirred and unstirred solutions, indicator electrodes rotating and stationary cells.
D.C. polarography and its extension to advanced polarographic techniques. Stripping analysis. Diffraction, fluorescence and absorption spectroscopy.

SC251 Inorganic Chemistry
Two hours of theory per week for one semester plus practical work
Prerequisite, completion of the common first year.
A second year subject for students majoring in chemistry.
Topic 1: periodic chemistry of selected compounds The periodic variation of the properties of oxides, hydroxides, fluorides, and hydrides, are discussed for the elements of the second and third periods. Emphasis is placed on the structural variation of the above compounds across periods, the variation in chemical behaviour, and the variation in behaviour with bond type. The ideas developed are extended to the compounds of the lower members of respective groups, and to compounds of the remaining group VI and VII elements, aspects of solubility of those compounds also being considered. The concepts developed for the main group elements are applied also to the transition metal elements and the lanthanides.

References
(i) As for Topic 2 in SC151/2
(ii) Cotton and Wilkinson, Advanced Inorganic Chemistry. N.Y., Interscience

Topic 2: co-ordination chemistry

References
Basolo and Johnson, Coordination Chemistry. N.Y., Benjamin, 1964
Orgel, An Introduction to Transition-Metal Chemstry. Liguand Field Theory. Lond., Methuen, 1966
Cotton and Wilkinson, Advanced Inorganic Chemistry. 3rd edn, New York, Interscience
SC253 Applied Inorganic Chemistry
One hour of theory per week for one semester plus practical work
Prerequisite, completion of the common first year.
A second year subject for students taking a double major in applied chemistry.

Non-metal chemistry: treatment of the chemistry and applications (industrial and environmental) of selected non-metals, e.g., phosphorus and sulphur.

SC256 Inorganic Chemistry
One hour of theory per week for two semesters plus practical work
Prerequisites, SC151, SC152
A second year subject in the diploma course in applied science (biochemistry).

A periodic study of the chemistry of the more important compounds, e.g., oxides and hydroxides, halides. Compounds of transition elements extended to coordination chemistry – including naming, structure, stereochemistry, stability and theory thereof, with particular emphasis on the aspects of biochemical importance, e.g., stability of chelates, optical isomerism of complexes and effects of complexing on electron transfer in biochemical systems.

Ion-exchange and radiochemistry; principles and practice with emphasis on biochemical aspects.

SC261 Organic Chemistry
Two hours of theory per week for one semester plus practical work
Prerequisite, completion of the common first year.
A second year subject for students majoring in chemistry.

This is a basic course in the chemistry of aromatic compounds and will include an introduction to the uses of spectroscopy in organic chemistry. Particular stress will be given to preparation, reactions, underlying concepts, mechanisms and industrial application.

References
Refer lecturer in charge.

SC263 Applied Organic Chemistry
One hour of theory per week for one semester plus practical work
Prerequisite, completion of the common first year.
A second year subject for students taking a double major in applied chemistry.

A course involving the principles of radical chemistry and photochemistry and their applications.

References
See lecturer in charge.

SC266 Organic Chemistry
Three hours of theory per week for two semesters plus practical work
Prerequisites, SC161, SC162
A second year subject in the diploma courses in applied science (applied chemistry) and (biochemistry).

The principles of organic chemistry are extended to aromatic compounds emphasising differences and similarities with aliphatic compounds.

The chemistry of aliphatic and aromatic poly functional compounds is taught with a view to elucidate the interaction of different functional groups on the same molecule.

General properties of compounds such as acidity, basicity, reactivity towards electrophilic and nucleophilic reagents, stereochemistry systematically covered.

Reactions are reviewed (and extended) according to their type: carbanion reactions, carbonium ion reactions, additions, substitutions, etc.

Emphasis is given to synthetic pathways and industrially significant reactions.

The applications of instruments in organic analysis is extended to UV and NMR spectroscopy.

SC271 Microbiology
Two hours per week for one semester
Prerequisite, completion of the common first year.
A second year subject for students taking a double major in applied chemistry.

The course aims to provide an introduction to the biology of micro-organisms and to the basic techniques involved in handling micro-organisms. Practical aspects will be integrated with the practical work associated with SC281.

Topics to be covered – microbial anatomy, introduction to microbial systematics, microbial growth and nutrition, sterilisation and antibiotics.

References
Brock, Biology of Microorganisms. Prentice-Hall Stanier, Doudoroff and Adelberg, General Microbiology. 3rd edn. Macmillan

SC276 Physiology
Five hours per week for two semesters
Prerequisites, SC171, SC172
A second year subject in the diploma course in applied science (biochemistry).

The aim of this course is to present a study of human physiology from the following points of view:

a) The physico-chemical processes underlying physiological mechanisms
b) The structure and function of organ systems.

The course stresses the following – organisation of the human body; recording and measurement; the cardiovascular system; blood and body fluids; respiration; digestion, the renal system; immunology; endocrinology and reproduction; neurophysiology and psychophysiology.

SC281 Biochemistry
Eight hours per week for one semester
Prerequisite, completion of the common first year.
A second year subject for students taking a double major in applied chemistry (biochemistry option).

General principles of bioenergetics
Structure – function relationships in biological compounds.
Biological role of ATP
Metabolism of carbohydrates
Fats and fatty acids
Protein catabolism – urea cycle
Gluconeogenesis and anaplerotic reactions
Biochemistry of glycosidic linkages
Photosynthesis
Lipid biosynthesis
Integration of lipid, carbohydrate and protein metabolism – whole animal approach.

Practical work emphasises analytical technique and accuracy while providing a selection of experiments to reinforce knowledge of the chemistry of biological compounds and of metabolic pathways.

References
Conn and Stumpf, Outlines of Biochemistry, 3rd edn, Wiley
Lehninger, Biochemistry. Worth
McCilvery, Biochemistry – a functional approach. Saunders

SC283  Microbiology
Five hours per week for one semester

A second year subject in the diploma course in applied science (environmental health).

The course aims to introduce the students to the biology of viruses, bacteria, fungi and algae with emphasis on the interactions of micro-organisms with organisms, particularly man. The course will extend the basic aspects of the interrelationships of the group to roles in diseases of man and of animals and plants of importance to man, as well as to roles in technological processes.

Physical and chemical anatomy: the general features of the physical structure of viruses, prokaryotic and eukaryotic cells. Consideration of structure-function relationships in bacteria, fungi and algae. Special features of chemical composition and macromolecular structure of microbial cells.

Microbial physiology: growth patterns of micro-organisms and methods for measuring growth. Physical parameters affecting growth. Basic features of nutritional categories amongst micro-organisms. Interactions between nutritional groups and the role of these interactions in environmental effects.

Sterilisation and antimicrobial substances: the basic methods used for sterilisation, the choice of method of sterilisation, The mode of action and limitations of chemical disinfectants and antimicrobial compounds used in industry and chemotherapy.

SC286  Biochemistry
Three hours of theory and four hours of practical work per week for two semesters.
Prerequisites, SC171, SC172, SC161, SC162

A second year subject in the diploma course in applied science (biochemistry).

A general survey of the chemical compounds and reaction sequences used by living organisms. The metabolic sequences are integrated by emphasising control mechanisms at the kinetic, genetic and hormonal levels.

SC293  Environmental Science
Two hours of theory and two hours of practical work per week for one semester.

A second year subject in the diploma course in applied science (environmental health).

The course aims to develop a basic understanding of the energy requirements of each organism and the manner in which these requirements are met, and to illustrate how organisms have adapted to environmental pressures and how manipulation of certain environmental aspects can result in pest control.

Fundamental biochemistry: the concept of biological useful energy, basic energy sources, enzymes as biological catalysts, biological uses of metabolic pathways, the role of vitamins, suitability of foodstuffs as a nutritional source.

Toxicology and environmental adaptation: the biochemical nature of human metabolism and respiration, respiratory enzymes, enzyme inhibitors, qualitative treatment of types of inhibition, important environmental examples. Toxic industrial compounds which act as enzyme inhibitors e.g. cyanide, azide, mercury, zinc, carbon monoxide.

Biochemical mechanisms which some organisms have developed for overcoming the effect of toxic compounds.

Pest recognition and control: the habitat and identification of pests, vermin and insects. Disease in relation to infestation. Control by baits, chemical contacts, fumigants, chemical contrivances, fungicides and pesticides and the physiological effects of each. The health hazards associated with their usage.

SC307  Inorganic Manufacturing Industries
One hour per week for two semesters
Prerequisite, SC207

A third year subject in the diploma course in applied science (applied chemistry).

A study of –
(i) the chemistry of a selection of the following: S., Si, N, P, C1 and metals, and of their commercially important compounds
(ii) the manufacturing processes involved in the large-scale production of the elements and their consumer compounds.

Rationalisation of the nature, problems and economic aspects of the selected processes in terms of the chemistry of the species concerned. The application of physical-chemical principles, e.g. thermodynamics, kinetics, catalysis, and separation techniques, to plant efficiency – integration of these principles with the basic inorganic chemistry involved.

SC308  Organic Manufacturing Industries
One hour per week for two semesters
Prerequisite, SC207

A third year subject in the diploma course in applied science (applied chemistry).

This subject applies theoretical principles to industrial organic manufacturing. Topics include industrial synthesis of organic compounds; the application of photochemical methods to industrial processes; properties and manufacture of synthetic polymers; uses and applications of organometals and organic compounds of phosphorus and silicon.

SC331  Physical Chemistry
Two hours of theory per week for one semester plus practical work
Prerequisite, SC231

A third year subject for students majoring in chemistry.

Electrochemistry: introduction. Scope and application of electrochemistry. The electrical double layer; electrode

Colloid and surface chemistry: surface thermodynamics. Surface activity and orientation at interfaces, the Gibbs equation. Spreading of liquids, the nature of insoluble monolayers and their use. Contact angles and wetting, practical considerations. Detergents. Foams and emulsions.

Chromatography: the chromatographic separation process. Adsorption, partition, gel filtration, thin layer, paper and gas chromatography.

References
Adams, Electrochemistry at Solid Electrodes. N.Y., Marcel Dekker Inc., 1967
Aveyard and Haydon, An Introduction to the Principles of Surface Chemistry. C.U.P., 1973
Delaney, New Instrumental Methods in Electrochemistry. N.Y., Interscience
Shaw, Introduction to Colloid and Surface Chemistry, 2nd edn, Butterworths, 1970

Facility of Applied Science

SC333  Applied Physical Chemistry
Two hours of theory per week for one semester plus practical work
Prerequisites, SC211, SC233

A third year subject for students taking a double major in applied chemistry.


Electrochemistry: introduction to electrochemical kinetics. Importance of electrochemical kinetics; multi-step electrode reactions; experimental methods applied to important electrochemical reactions.

References
As for SC331

SC336  Applied Physical Chemistry
Two hours of theory per week for two semesters plus practical work
Prerequisites, SC236, SC237

A third year subject in the diploma course in applied science (applied chemistry).

Technological applications of electrochemistry: this unit is an extension of the core unit in electrochemistry in SC236. Application of controlled electrolysis (potentiostatic and galvanostatic) to refining and recovery of metals, treatment of waste, and synthesis. Industrial cells and electrodes --

electrocatalysis. The electrochemical nature of corrosion corrosion inhibition. Battery technology.

Surface and colloid chemistry: two main topics will be covered in this course with a strong emphasis on applications of the phenomena studied.
(a) Liquid surfaces -- surface and interfacial tensions; surface thermodynamics, adsorption at interfaces; properties of surfactant solutions, the spreading of liquids; insoluble monolayers; contact angles, wetting and detergency.
(b) Electrical phenomena -- the development of charge and potential at interfaces; structure of the electrical double layer; electrokinetic phenomena; colloid stability.

Kinetics
(a) Gas kinetics: outline of statistical mechanics; transition state theory – comparison with S.C.T. Thermodynamic formulation of reaction rates; further study of complex gaseous reaction of environmental significance, e.g. the mechanism of photochemical smog formation, exhaust emissions from internal combustion engines and their control.
(b) Solution kinetics: elementary reaction in solution; ionic reactions – influence of solvent and ionic strength; reactions involving dipoles; influence of hydrostatic pressure on rates in solution; acid base and enzyme catalysis.
(c) Radiation chemistry: dosimetry; new techniques; applications of radioisotope tracers; sources; characteristics of radiation; industrial processes.

SC337  Applied Chemistry (Physical)
Two hours of theory per week for two semesters plus practical work.
Prerequisite, CA241

A third year subject in the diploma course in applied science (applied chemistry), (1972 syllabus).

Colloid and surface chemistry: thermodynamics of surface films, liquid interfaces, colloid stability, mineral flotation, detergency. Kinetics: gas kinetics, mechanisms of reactions with industrial or environmental significance.

Solution kinetics, practical aspects.

Radiation chemistry, radiation dosimetry, chemical effects. Electrochemistry.

References
Adams, Physical Chemistry of Surfaces. 2nd edn, Interscience, 1967
Aveyard and Haydon, An Introduction to the Principles of Surface Chemistry. C.U.P., 1973
Bockris and Drazic, Electrochemical Science. Taylor & Francis
Laidler, Reaction Kinetics. Vol. 11, Pergamon
Pratt, Gas Kinetics, Wiley
Sangster and O'Donnell, Principles of Radiation Chemistry. Edward Arnold
Shaw, Introduction to Colloid and Surface Chemistry, 2nd edn, Butterworths, 1970

SC346  Applied Analytical Chemistry
One hour of theory per week for two semesters plus practical work
Prerequisites, SC246, SC247

A third year subject in the diploma course in applied science (applied chemistry).
Nuclear magnetic resonance spectroscopy: chemical shift, integrated area, first and second order splitting patterns, magnetic equivalence, rate and time considerations, the analysis of spectra and instrumentation. Mass spectrometry: instrumentation. Applications will include qualitative analysis and fragmentation reactions. Gas chromatography — mass spectrometry: direct connection of mass spectrometer to the chromatograph using separators. Data processing.

Applications of GC — MS.

Automatic chemical analysers. Process analysers: construction and use of process analysers. The instruments to be discussed will include the gas chromatograph, oxygen, infra-red and moisture analysers, and trace gas analysers. Process control: the use of process analysers in process control systems.

**SC347 Applied Chemistry (Analytical)**

One hour of theory per week for two semesters plus practical work

Prerequisite, CA222

A third year subject in the diploma course in applied science (applied chemistry), (1972 syllabus).

This unit involves three topics — Chromatographic separation processes, Spectroscopy, Diffraction. References

Cullity, Elements of X-ray Diffraction, Addison-Wesley
Leathard & Shurlock, Identification Techniques in Gas Chromatography, Wiley, 1970

**SC351 Inorganic Chemistry**

Two hours of theory per week for one semester plus practical work

Prerequisite, SC251

A third year subject for students majoring in chemistry


Carswell, Introduction to Nuclear Chemistry. Amsterdam, Elsevier

Radioactive Products — The Radiochemical Centre, Amersham, 1967

Chase and Rabinowitz, Principles of Radioisotope Methodology, 3rd edn., Minneapolis, Burgess


Unisearch Ltd, Industrial Uses of Radioisotopes. Sydney, Southern Cross International

Ion exchange and solvent extraction: the principles of both techniques are discussed to a sufficient level to allow application in a practical situation. Applications are discussed in industrial, laboratory and biochemical situations, particular reference being made to the isolation and separation of the rare earths, actinides, and some transition metals.

References

Patterson, An Introduction to Ion Exchange. Hayden/Sudler, 1970


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.

References

Selley, Chemical Energetics. Arnold

Ives, Principles of the Extraction of Metals. RIC, 1969

Hetlop, Numerical Aspects of Inorganic Chemistry. Ilsevier

**SC361 Organic Chemistry**

Two hours of theory per week for one semester plus practical work

Prerequisite, SC261

A third year subject for students majoring in chemistry.

This is a course in fundamental organic chemistry extending previous principles to polyfunctional molecules. Particular emphasis will be given to acidity and basicity, carbonions, carbonium ions and syntheses involving these compounds.

References

See Lecturer in charge.

**SC363 Applied Organic Chemistry**

Two hours of theory per week for one semester plus practical work

Prerequisites, SC261, SC263

A third year subject for students taking a double major in applied chemistry.

The course comprises two sections

(a) The principles of heterocyclic chemistry with particular emphasis given to compounds of medical and biological importance.

(b) The principles of synthesis as applied to compounds of industrial importance.

**SC366 Applied Organic Chemistry**

One hour of theory per week for two semesters plus practical work

Prerequisite, SC266

A third year subject of the diploma course in applied science (applied chemistry).

A study of the heterocyclic compounds of nitrogen, oxygen and sulphur, the organic chemistry of other elements and photochemistry.

**SC367 Organic Chemistry**

Two hours of theory per week for two semesters plus practical work

Prerequisite, SC266

A third year subject of the diploma course in applied science (biochemistry).

The course extends basic principles studied in earlier years to more complicated systems. Topics covered include heterocyclics, macromolecules, organosilicon and phosphorus compounds, photochemistry and synthesis.
**SC368**  **Applied Chemistry (Organic)**  
One hour of theory per week for two semesters plus practical work  
Prerequisite, CA211  

A third year subject in the diploma course in applied science (applied chemistry), (1972 syllabus).  
This unit involves two topics:  
Heterocyclic chemistry  
Macromolecules.  

References  
Billmeyer, *Textbook of Polymer Science*. Wiley  
Moore, *An Introduction to Polymer Chemistry*. University of London Press  

**SC369**  **Organic Chemistry 3**  
Two hours of theory per week for two semesters plus practical work  
Prerequisite, CA211  

A third year subject in the diploma course in applied science (biochemistry), (1972 syllabus)  
The aim of the course is to extend the basic principles studied in earlier years to more complicated systems.  
Topics covered include heterocyclics, macromolecules, organo-silicon, phosphorus and boron compounds, photochemistry and synthesis.  

References  
Acheson, *An Introduction to the Chemistry of Heterocyclic Compounds*. Interscience  
Deputy and Chapman, *Molecular Reaction and Photochemistry*. Prentice-Hall  
Morrison and Boyd, *Organic Chemistry*. 3rd edn, Allyn and Bacon  
Walker, *Organophosphorus Chemistry*. Penguin  

**SC376**  **Microbiology**  
Two hours of theory and three hours of practical work per week for two semesters  
Prerequisites, SC286 (in 1976 syllabus) CA251 (in 1972 syllabus)  

A third year subject in the diploma course in applied science (biochemistry).  
The course is designed to provide basic instruction in the techniques and methods of microbiology. Areas covered include microscopy, sterilisation, and antisepsis, microbial anatomy, physiology and growth, and systematics. Basic material is developed to illustrate the use of microorganisms in processes, such as fermentation, food processing and analysis, antibiotic assays, cheese production and other selected aspects of microbiology relevant to Australian industry.  
Practical work is designed to show the essential features of each of the above areas. Emphasis is placed on developing the manipulative skills required to handle microbes and to maintain sterile conditions.  

Preliminary reading  
Nicol, *Microbes by the Million*. Penguin  
Postgate, *Microbes and Man*. Penguin  

**SC381**  **Biochemistry**  
Three hours of theory and five hours of practical work per week for one semester  
Prerequisite, SC281, SC261  

A third year subject for students taking a double major in applied chemistry (biochemistry option).  
The course extends the treatment of anabolic pathways dealt with in SC281 and emphasises control and coordination of pathways. The practical course will enable the student to apply a wide range of techniques to specific biochemical projects.  

**SC382**  **Physical Biochemistry**  
Three hours of theory per week for one semester plus practical work  
Prerequisites, SC281, SC231  

A third year subject for students taking a double major in applied chemistry (biochemistry option).  
The course is designed to establish an understanding of a number of basic physical and physico-chemical techniques as applied to biochemical analyses. Topics include enzyme kinetics, molecular weight determinations, optical rotatory dispersion, X-ray crystallography, spectroscopy.  

References  
(Additional references and reading material will be specified during the course.)  
Lehninger, *Biochemistry*. Worth  

**SC383**  **Epidemiology**  
Sixty three hours in one semester  

A third year subject in the diploma course in applied science (environmental health).  

**Faculty of Applied Science**

**References**  
Stanier, Doudoroff and Adelberg, *General Microbiology*. 3rd edn, Macmillan  
Topley and Wilson, *Principles of Bacteriology and Immunity*. 5th edn, Edward Arnold  

**SC384**  **Microbiology**  
Three hours per week for one semester  
Prerequisite, SC283  

A third year subject in the diploma course in applied science (environmental health).  

**SC385**  **Epidemiology**  
Sixty three hours in one semester  

A third year subject in the diploma course in applied science (environmental health).
A study of infectious diseases of man and animals, vectorial agents in disease transmission, the recognition and methods of control of epidemics, and special infections.

**SC386 Biochemistry**
Three hours of theory and five hours of practical work per week for two semesters
Prerequisites, SC286, SC266, SC236
A third year subject in the diploma course in applied science (biochemistry).
The course comprises –
Biochemical techniques and methodology: chromatography; electrophoresis; extraction; gaseous exchange; automated analyses; microscopy; preparation of subcellular fractions; radio-isotopes and immunological techniques.
Hormonal control in mammalian biochemistry: chemistry of the brain; nervous system; muscle; liver; adipose tissue, adenohypophysis and other selected organs. Control of metabolism in each of these tissues by means of hormonal mechanisms.
Protein and enzyme chemistry: classification; quantitative estimations; fractionation and purification; determination of primary structure; intra- and inter-molecular forces in proteins; conformational analysis; denaturation; mechanisms of catalysis; evolution; control mechanisms at the level of protein structure.
Biochemical genetics: the genetic control of protein structure; structure and function of the nucleic acids; inborn errors of metabolism.
Photosynthesis: pigments; Calvin cycle; C4 dicarboxylic acid cycle; photosynthesis; the chloroplast.
Clinical chemistry: instrumentation and analyses applicable to clinical diagnosis.

**SC387 Physical Biochemistry**
Two hours of theory and three hours of practical work per week for two semesters
Prerequisite, SC236
A third year subject in the diploma course in applied science (biochemistry).
Molecular weight determinations; moving boundary electrophoresis; optical rotatory dispersion and circular dichroism; X-ray crystallography. Spectroscopy: IR; UV; NMR; ESR; MS; isotopes; enzyme kinetics; theoretical conformational analysis of proteins and polypeptides.

**SC388 Biochemistry 2**
Three hours of theory and five hours of practical work per week for two semesters
Prerequisites, CA251, CA211, CA241
A third year subject in the diploma course in applied science (biochemistry). (1972 syllabus).
The course is divided into a number of units which are designed to develop the more specialised and practical aspects of topics introduced in Biochemistry I.
The units are:
- Methods of separation, purification and analysis in biochemistry.
- Microbial products
- Mammalian metabolism and control
- Molecular genetics
- Protein chemistry
- Clinical chemistry
- Rant biochemistry

References
(Additional references and reading material will be specified during the course).
Bu'Lock, *The Biosynthesis of Natural Products*, McGraw-Hill
Fincan, *Microbial and Molecular Genetics*, E. U. P.
Frieden and Lipner, *Biochemical Endocrinology of the Vertebrates*, Prentice-Hall
Lerner, *Intermediary Metabolism and its Regulation*, Prentice-Hall
Lehninger, *Biochemistry*, Worth

**SC389 Physical Biochemistry**
Two hours of theory and three hours of practical work per week for two semesters
Prerequisites, CA241, CA251
A third year subject in the diploma course in applied science (biochemistry), (1972 syllabus).
The aim of this diploma course is to give an understanding of the basic theory of several techniques and to apply these to biochemical problems. Topics covered include molecular weight determination, optical rotatory dispersion, X-ray crystallography, spectroscopy, isotopes and enzyme kinetics.

References

**SC391 Chemistry**
Six hours per week for one semester
Prerequisites, SC191, SC192
A third year subject in the diploma course in applied science (environmental health).
A study of the application of chemical principles to the environment. Topics include sampling techniques, the principles of analytical instruments, the constituents of household substances, the main constituents of soils, water treatment, identification of pollutants in air, water, soil and food, waste disposal.

**SC402 Environmental Health**
One hundred and eight hours for one semester
A final year subject in the diploma course in applied science (environmental health).
A study of domestic hygiene, industrial health, food quality and control and the analysis of food and water spoilage.

**SC404 Project**
A minimum of one hundred and twenty hours.
A unit undertaken by part-time diploma/degree conversion students. The unit comprises individually assigned work normally associated with the student's occupation.
SC409 Seminars
Two hours per week for one semester
A final year subject for students taking a double major in applied chemistry.
The subject combines the communication studies of the third year with the reports of the student’s work experience. Each student is required to present an oral report of his work experience.

SC431 Physical Chemistry
Two hours per week for one semester
Prerequisite, SC331
A final year subject for students majoring in chemistry.
Kinetics: statistical thermodynamics – development of transition state theory and thermodynamic formulations. Complex gaseous systems of environmental and industrial significance. Solution kinetics; dielectric constant and ionic strength effects; ΔS, ΔV, and hydrostatic pressure effects; high pressure chemistry, polymerisation; homogeneous catalyses in solution, acid base catalyses, enzyme catalyses.
References
A.S.N.T. Lecture on Radiation Biology.
Denaro and Jayson, Fundamentals of Radiation Chemistry. Butterworths, 1972
Dickerson, Molecular Thermodynamics. Benjamin, 1969
Frost and Pearson, Kinetics and Mechanisms. 2nd edn, Wiley
Leven and Spier, Chemical Reaction Engineering.
Laidler, Chemical Kinetics. N.Y., McGraw-Hill
Laidler, Reaction Kinetics. Voils I & II, Pergamon
Pratt, Gas Kinetics. Wiley, 1969
Sangster and O’Donnell, Principles of Radiation Chemistry.
Edward Arnold, 1970
Spinks and Wood, Introduction to Radiation Chemistry.
Wiley, 1964

SC441 Analytical Chemistry
Three hours per week for one semester
A final year subject for students majoring in chemistry.
References
(Additional references and reading material will be specified during the course.)
Cullity, Elements of X-ray Diffraction. Addison-Wesley, 1959
Day and Underwood, Quantitative Analysis. 3rd edn, Prentice-Hall 1974

Faculty of Applied Science
Morrison and Boyd, Organic Chemistry. 3rd edn, Allyn and Bacon, 1966
Verdin, Gas Analysis Instrumentation. Macmillan, 1973

SC461 Organic Chemistry
Two hours per week for one semester
Prerequisite, SC361
A final year subject for students majoring in chemistry.
This course in modern organic chemistry will discuss the fundamentals of stereochemistry. The principles involved will be illustrated in a study of the chemistry of monosaccharides and disaccharides. Polysaccharides will also be considered as an introduction to the principles of macromolecular chemistry. Current developments in applied organic chemistry will be featured.
References
Refer lecturer in charge.

SC481 Biochemistry
Four hours of theory and four hours of practical work per week for one semester
Prerequisites, SC381, SC383, SC361
A final year subject for students taking a double major in applied chemistry (biochemistry option).
The course introduces the following topics of applied significance – clinical chemistry, biological assay techniques, applied enzymology, industrial genetics, isotope applications, fermentation pathways of commercial significance – controls, applied microbiology.
References
References and reading material will be specified during the course.

SC491 Practical Chemistry
Ninety hours of practical work in one semester
A final year subject for students taking a double major in applied chemistry.
This course is designed to teach instrumental analytical techniques. Students are expected to plan their own experiments and to solve experimental problems. They will round off their knowledge of, and ability to use, instruments found in the chemical industry.
**Chemistry Practical Work**

Practical work forms an important part of all chemistry subjects except SC431, SC441 and SC461 which are final year subjects for students majoring in chemistry. The practical work is an integrated course which may relate to a number of chemistry subjects. The hours per week given in the course details include the appropriate practical work. The following complements the information given in the subject outlines.

All students must acquire a set of practical notes at the start of the first semester.

Satisfactory completion of the practical work is required before a student may obtain an assessment for the relevant theory examinations. In combination with the theory assessment, the student's ability in practical work will form part of his final assessment in the appropriate subjects.

**Common first year**

The integrated practical course of 120 hours is part of SC131/2, SC141/2, SC151/2 and SC161/2, and is designed to teach common chemical techniques and to illustrate the theory covered in lectures. It may be divided into two parts -

(a) Physical and Analytical Chemistry, and  
(b) Inorganic and Organic Chemistry

Part-time students must therefore enrol for these subject in combination (a) and (b).

**References**

Day and Underwood, *Quantitative Analysis – Laboratory Manual*  
Kolthoff, *et al., Quantitative Chemical Analysis*. Macmillan  
Vogel, *Textbook of Practical Chemistry*. Longmans

**Degree second year**

This integrated practical course occupies 72 hours for students majoring in chemistry or 126 hours for students taking a double major in applied chemistry. It forms part of SC231/3, SC251/3 and SC261/3 and is designed to teach accurate analytical techniques, some organic techniques and some of the principles of physical chemistry.

**Degree third year**

This integrated practical course occupies 54 hours for students majoring in chemistry or 90 hours for students taking a double major in applied chemistry. It forms part of SC331/3, SC351 and SC361/3 and is designed to teach organic techniques, some analytical techniques and some of the principles of physical chemistry.

**Diploma second year**

This practical course is designed to teach accurate analytical techniques, organic techniques and the principles of physical chemistry and occupies the following hours:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Chemistry</td>
<td>330</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>150</td>
</tr>
</tbody>
</table>

To be eligible for the part-time course the student must be in approved employment.

**Diploma third year**

This integrated practical course comprises three sections and is designed to teach:

(a) **Instrumental/Analytical techniques**  
(b) **Physical/Instrumental/Analytical projects**  
(c) **Organic projects/experiments**

It occupies the following hours:

1976 syllabus

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Chemistry</td>
<td>360</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>180</td>
</tr>
</tbody>
</table>

1972 syllabus

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Chemistry</td>
<td>240</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>105</td>
</tr>
</tbody>
</table>

**References:**


**SK112 Introduction to Computers**

Thirty hours in one semester

A compulsory subject in the common first year of the course leading to a degree/diploma of applied science.

An introductory course in the use of computers to solve problems in the area of applied science, the course uses either BASIC or FORTRAN as a programming language and covers the common programming statements and programming techniques. In addition some consideration is given to non-numerical applications and magnetic file handling. Students are required to complete several programming exercises as an integral part of the course.

**SK203 Computer Science**

One hundred and forty-four hours in one semester  
Prerequisite, SK112

A compulsory second year subject for students majoring in computer science.

The course begins the formal education in computing techniques. Topics covered include:

- Algorithmic method and logic 1  
- Computer programming techniques 1  
- The computing machine 1  
- Simulation and modelling techniques 1  
- Programming practice and assignments

**SK213 Computer Science**

Thirty-six hours in one semester  
Prerequisite, satisfactory completion of the common first year or some background in computer programming.

An elective second year subject for students majoring in chemistry/mathematics.

The course includes study of computer programming techniques and an introduction to computer simulation and modelling.
SK214  Computer Science
Thirty-six hours in one semester
Prerequisite: satisfactory completion of the common first year or equivalent qualification and some experience in the use of computers in business, engineering or science. An elective second year subject for students majoring in chemistry/mathematics.

The course provides an introduction to systems science, some aspects of computer design and construction and a relatively advanced course on computer simulation and modelling.

SK303  Computer Science
One hundred and sixty-two hours in one semester
Prerequisite, SK203

A compulsory third year subject for students majoring in computer science.

The course continues the study of the formal aspects of computer science. Topics covered include:
- Computer programming techniques 2
- Systems science 1
- Operating systems and software
- Programming practices and assignments

either The computing machine 2
or Simulation and modelling techniques 2

SK403  Computer Science
One hundred and forty-four hours in one semester
Prerequisite, SK303

A compulsory final year subject for students majoring in computer science.

The course rounds off the study of the formal aspects of computer science. Topics covered include:
- Algorithmic method and logic 2
- Systems science 2
- Computer programming techniques 3

either The computing machine 3
or Simulation and modelling techniques 3

SM121  Mathematics
Three hours per week for one semester
A first year subject in the diploma course in applied science (environmental health).

An introduction to basic mathematical techniques including:
- Elementary calculus: differentiation and applications, partial differentiation, integration and applications, differential equations of first order
- Graphs of algebraic, logarithmic and exponential functions

SM122  Mathematics
Fifteen hours in one semester
A first year subject in the diploma course in applied science (environmental health).

An introduction to probability and descriptive statistics, including:
- Probability theory: independent events, mutually exclusive events, conditional probability
- Graphical representation of observed data, histograms, ogives
- Frequency distributions, mean and standard deviation and other measures of central tendency and dispersion
- Concept of a random variable and of discrete and continuous probability distribution.

SM151  Mathematical methods
Live hours per week for one semester
Assessment is by assignments, tests, workshop reports, and/or an end of semester examination.

A subject of the common first year of the course leading to a degree/diploma in applied science.

Boolean algebra. Boolean arithmetic and algebra, switching circuits, set theory, Karnaugh maps, elementary symbolic logic.

Calculus. Functions, relations and graphs, polar coordinates, limits, derivatives, the mean value theorem, elementary functions and their inverses, the Riemann integral, infinite and improper integrals.

Differential equations. Standard first order types, second order linear with constant coefficients, D operator, variation of parameters.

Statistics. Revision and extension of work on probability. The expectation of a discrete variate and of a function of a discrete variate. The occurrence, properties, and applications of the binomial and Poisson distributions.

Workshop.

Preliminary reading
Bell, Men of Mathematics, Vols 1 & 2, Penguin
Kemeny, Facts from Figures, Pelican

SM152  Mathematical methods
Four hours per week for one semester
Assessment is by assignments, tests, workshop reports and/or an end of semester examination.

A subject of the common first year of the degree/diploma in applied science.

Calculus. Functions of two variables, partial differentiation, multiple integrals, other co-ordinate systems.

Vector analysis. Revision, parametric co-ordinates, differentiation with respect to a parameter, products, geometry of lines, planes and space curves, gradient, simple line and surface integrals. Linear algebra. Systems of linear equations, determinants, matrix notation, linear operators.

Numerical methods. Sources of computational error, approximation of functions by polynomials, numerical integration - solution of non-linear equations in one variable.

Workshop.

References
Thomas, Calculus and Analytic Geometry, 4th edn, Addison Wesley
Williams, Numerical Computation, Nelson
Kline, Calculus, Vol 11, Wiley
SM161  Electronic Computation
Two hours per week for one semester
Assessment is progressive by means of tests and assignments.

A subject of the common first year of the degree/diploma in applied science.

A subject designed to achieve competence in the use of electronic calculators. It includes experience in programming a variety of desk calculators, and an introduction to basic computer language and use of a mini-computer.

References
Manuals of the calculators and computer used during the course.

SM213  Mathematics
Two hours per week for one semester
Prerequisites, SM121 and SM122.

A second year subject in the diploma course in applied science (environmental health).

An introduction to sampling and the interpretation of statistical data including:

a) examples of probability distributions (discrete and continuous), binomial, Poisson and the normal.
b) sampling theory, means, difference of means, t-, χ², and F-distributions.
c) Estimation theory: estimating means difference between two means, proportion, difference between two proportions and estimating the variance and the ratio between two variances.
d) Tests of hypotheses, including test for independence.
e) Elementary correlation and regression.

SM251  Mathematical methods
Eight hours per week for one semester
Prerequisites, SM151, SM152

Assessment is by tests and assignments throughout the periods and/or one end of period written examination of three hours duration.

A second year subject for degree students majoring in mathematics.

Boundary value problems for ordinary differential equations
Topics from advanced calculus, including series, linear algebra and eigenvalue problems.
Numerical methods with specific references to linear algebra and the solution of ordinary differential equations. Statistics (continuous distributions, tests of hypotheses, the analysis of variance, and regression analysis).
Transform theory - Fourier and Laplace transforms.
Vector analysis - Integral transformation theorems and curvilinear co-ordinates.

Preliminary reading
Conte and deBoor, Elementary Numerical Analysis.
McGraw-Hill
Forsythe and Moler, Computer Solution of Linear Algebraic Systems. Prentice-Hall
Green, Sequences and Series, R & E P
Hicks, Fundamental concepts in the Design of Experiments, Holt-Saunders
Jaeger, Laplace Transformation, Science Paperbacks
Kraut, Fundamentals of Mathematical Physics, McGraw-Hill

Sokolnikoff and Redheffer, Mathematics of Physical and Modern Engineering, McGraw-Hill
Wallace, Mathematical Analysis of Physical Problems, Holt-Saunders
Williams, Numerical Computation, Nelson
Yamane, Statistics. 2nd edn, Harper and Row

SM263  Mathematics
Four hours per week for one semester
Prerequisites, SM151, SM152

A second year subject for degree students majoring in biophysics, instrumental science or computer science.

This subject is a sub-set of SM251.

SM351  Mathematical methods
Nine hours per week for one semester
Prerequisite, SM251

A third year subject for degree students majoring in mathematics. Details are available from the mathematics department.

SM363  Mathematics
Six hours per week for one semester
Prerequisite, SM263

A third year subject for degree students majoring in biophysics, instrumental science or computer science.

This subject is a sub-set of SM351.

SM451  Mathematical methods
Eight hours per week for one semester
Prerequisite, SM351

A final year subject for degree students majoring in mathematics. Details are available from the mathematics department.

SPI101/102  Physics
Three hours per week of theory for two semesters plus practical work fifteen hours in the first semester and thirty hours in the second semester

A compulsory first year subject in the common first year of the course leading to degree/diploma in applied science.

A general physics course comprising: mechanics of particles, bodies and fluids, thermal physics, fields, waves, atomic and nuclear physics, geometric optics.

The experimental program includes design and analysis of experiments, electrical devices and circuits and a planned sequence of practical work.

Recommended texts
R. Weidner and R. Sells, Elementary Classical Physics.
Vo1 1, 2nd edn, Allyn and Bacon
R. Weidner and R. Sells, Elementary Classical Physics.
Vo1 11, 2nd edn, Allyn and Bacon
R. Weidner and R. Sells, Elementary Modern Physics.
Alternate 2nd edn, Allyn and Bacon

SPI11  Physics
Three hours of theory and two hours of practical work per week for one semester

A first year subject in the diploma course in applied science (environmental health).

Recommended text  

SP112 Physics  
Two hours of theory and two hours of practical work per week for one semester  
Prerequisite, SP112

A first year subject in the diploma course in applied science (environmental health).


Recommended text  

SP213 Instrumental Science  
Eight hours per week for one semester  
Prerequisite, completion of the common first year

A second year subject for students majoring in instrumental science.


References  
See lecturer-in-charge.

SP223 Biophysics  
Eight hours per week for one semester  
Prerequisite, completion of the common first year

A second year subject for students majoring in biophysics.

Transport at the cellular level. Electrophysiology and transport of information. Skeletal muscle. The heart: the electrocardiogram, electrical stimulation of the myocardium.

References  
See lecturer-in-charge.

SP305 Physics  
Three hours per week for one semester

A third year subject for students majoring in biomedical science.

Quantum mechanics Statistical mechanics Electrical, magnetic and optical properties of solids

References  
See lecturer-in-charge.

SP313 Instrumental Science  
Nine hours per week for one semester  
Prerequisite, SP213

A third year subject for students majoring in instrumental science.

Mathematics of signal processing Analogue and digital electronics Analogue and digital interconversion Transducer physics Nuclear, acoustic, U/V, X-ray and vacuum instrumentation Introduction to control systems

References  
See lecturer-in-charge.

SP323 Biophysics  
Nine hours per week for one semester  
Prerequisite, SP223

A third year subject for students majoring in biophysics.

Body fluids and systemic circulation Respiration Monitoring the vascular system Monitoring respiratory parameters The automatic nervous system Monitoring the autonomic nervous system Survey of endocrinology Physiological control system Imaging techniques in biology Obstetric instrumentation Bio feed-back

References  
See lecturer-in-charge.

SP355 Physics  
Six hours per week for one semester

A third year subject for students majoring in chemistry or taking a double major in applied chemistry.

Quantum mechanics Statistical mechanics Nuclear physics Radiation physics, concentrating on the properties and instrumentation of the main regions of the electro-magnetic spectrum of interest to chemists.

References  
See lecturer-in-charge.

SP413 Instrumental Science  
Eight hours per week for one semester  
Prerequisite, SP313

A final year subject for students majoring in instrumental science.

Optical instrumentation and image processing Signal recovery techniques Digital electronics, microprocessors, interfacing Pneumatic instrumentation Design of instrumental systems Chemical instrumentation Project

References  
See lecturer-in-charge.
SP423  Biophysics
Eight hours per week for one semester
Prerequisite, SP323
A final year subject for students majoring in biophysics.
Somatic sensation, proprioception
The spinal cord
PeripheraH and feed-back control of movement and posture
Stimulating and recording from the peripheral nervous system
Monitoring spinal function
The special senses
The forebrain
Functional assessment of the special senses
Seminars
References
See lecturer-in-charge

BS192  Introductory Law
Two hours per week for one semester
A first year subject in the diploma course in applied science (environmental health).
An introduction to the Australian legal system and to basic concepts of law. The sources of law, the main branches of law, the administration and enforcement of the law, the doctrine of precedent.

BS292  Law
Two hours per week for one semester
Prerequisite, BS192
A second year subject in the diploma course in applied science (environmental health).
The law relating to procedure and evidence with particular reference to Magistrate's courts, professional conduct and ethics in court and non-statutory problems e.g. common law remedies.
An introduction to the Health Act and the Environment Protection Act.

BS293  Seminars, Visits, etc.
Fifty-four hours in one semester
A second year subject in the diploma course in applied science (environmental health).
Principally, time will be devoted to visiting Courts and industrial plants and in discussion, to inter-relate the various areas of study, exchange ideas and discuss problems which students may have encountered in industry.

BS390  Law
Sixty-three hours in one semester
Prerequisite, BS292
A third year subject in the diploma course in applied science (environmental health).
Statutory interpretation of the main branches of law, e.g. contract, tort, etc. relating to environmental health.
Consideration of relevant statutes, e.g. Health Act, Local Government Act and Clean Air Act.

BS395  Managerial Economics – diploma
Three hours per week for two semesters.
A final year subject in the diploma course in applied chemistry.

The course involves the development and integration of concepts and principles from the fields of management theory, economics and accounting with particular reference to decision-making and policy formulation within the modern industrial firm.

References

References
Heilbroner. Understanding Microeconomics, 2nd edn. Prentice-Hall
Hague, Managerial Economics. Longmans
Bursk and Chapman, ed. New Decision Tools for Managers
Mentor
Scott, Organisation Theory. Irwin
Fulmer, The New Management. Macmillan

BS399  Seminars, Visits, etc.
Sixty-three hours in one semester
A third year subject in the diploma course in applied science (environmental health).
Principally, time will be devoted to visits to Courts and industrial plants and in discussion, to inter-relate the various areas of study, exchange ideas and discuss problems which students may have encountered in industry.

BS493  Managerial Economics
Three hours per week for one semester
A final year subject for students taking a double major in applied chemistry.
An appreciation of the concepts and methods of economics, accounting and business administration as they relate to the business environment.

BS494  Complementary Studies B
Four hours per week for one semester
A final year subject for degree students (except double major in applied chemistry).
This subject develops and integrates concepts and principles from various fields of economics, accounting and business administration, where they assist management decision-making and policy formulation within the firm.

BS497  Office Systems and Administration
One hour per week for one semester
A final year subject in the diploma course in applied science (environmental health).
A study of office procedures and administrative principles applicable to municipal and other public bodies. Particular attention will be given to record-keeping and its relevance to evidence for prosecutions.
A study of water and waste water treatment, and air-pollution controls.

**EA421 Industrial Processes**

Four hours per week for one semester

Pre requisite, EA321

A final year subject in the diploma course in applied science (environmental health).

A continued study of industrial chemistry, waste water and solid waste treatment, and air pollution control.

**EC223 Town and Country Planning**

Two hours per week for one semester

A second year subject in the diploma course in applied science (environmental health).

An introduction to town-planning techniques, planning legislation, map techniques, the preparation of planning data, regional concepts. The practical-tutorial work will include visits to new development sites within the metropolitan area and an introduction to the preparation of planning reports.

**ED101 Engineering Drawing and Sketching**

Three hours per week for one semester

A first year subject in the diploma course in applied science (environmental health).

The course aims to provide a sound basic knowledge of the principles of engineering drawing and sketching. Exercises are selected from the areas of interest to health surveyors and topics include equipment and plans for heating, ventilation, lighting, air-conditioning, refrigeration, fire protection, drainage, waste treatment and disposal, building construction, pumps, pipework, etc. In addition to drawing exercises completed by students, sets of industrial drawings are studied to give experience in the interpretation and understanding of procedure and practice.

**ED102 Engineering Drawing and Sketching**

Three hours per week for one semester

Pre requisite, ED101

A first year subject in the diploma course in applied science (environmental health).

A continuation of the topics of ED101.

**EG211 Environmental Engineering**

Three hours per week for one semester

A second year subject in the diploma course in applied science (environmental health).

This subject aims to give the student a practical understanding of mechanical engineering plant and of urban drainage design methods. Topics covered include -

(a) Mechanical engineering plant. Principles and standards to be met by heating, ventilation, lighting, air-conditioning, refrigeration, steam and high pressure hot water plants, stand-by power plants, combustion and boiler plant — tests on boiler plants such as the Ringleman, O2, CO and CO2 tests. Recognition and analysis of problems, reports and recommendations, maintenance of records.

(b) Hydrology — precipitation, runoff, streamflow. Design theory — rational formula, Lloyd Davis method, tangent check.
Elements of design — coefficients of runoff, recurrence interval and storm duration, time of concentration, gutter capacity, drainage inlets, time area contributing diagram, design tabulation.

EG311  Environmental Engineering
Three hours per week for one semester
Prerequisite, EG211
A third year subject in the diploma of applied science (environmental health).
(a) A study of levelling and measuring, and an introduction to water supply, sewage, stream pollution and municipal waste disposal.
(b) Vibration and acoustics: planning recommendations, recognition of problems, and survey methods.

EG411  Environmental Engineering
Six hours per week for one semester
Prerequisite, EG311
A final year subject in the diploma of applied science (environmental health).
A continued study of mechanical engineering plant, water supply, sewage, pollution and health hazards.

GS111  Health and Society — diploma
Two hours per week for one semester
Assessment is continuous
A first year subject in the diploma course in applied science (environmental health).
An examination of some psychological principles in human behaviour; learning principles applied to human behaviour, the role of reinforcement in enhancing desired behaviour
Communication processes and the practical application of these in one-to-one communication.
Role development and how society reinforces different rble patterns in people of different ages, backgrounds and sexes.
Recommended reading

GS112  Health and Society — diploma
Two hours a week for one semester
Assessment is continuous
A first year subject in the diploma course in applied science (environmental health).
An examination of some psychological principles in human behaviour. Emphasis in this course will be on communication skills, especially listening and helping skills.
Attention will also be given to attitudes towards drugs, environmental stress and the development of anxiety.
Recommended reading
Cooper, D., The Death of the Family, Penguin, 1972
Laurie, P., Drugs, Medical, Psychological and Social Facts, Penguin, 1970

GS292  Social Science 2 — diploma
Two hours per week for two semesters
Assessment is continuous
A second year subject in the diploma course in applied science (applied chemistry).

Details of the program to be followed will be made available from the Chairmen of the Department of Liberal Studies.

GS395  Report Writing — diploma
One hour per week for two semesters
Assessment is continuous
A third year subject in the diploma course in applied science (applied chemistry) and (biochemistry).
There is no formal syllabus, but training is given in the efficient use of library facilities for the investigation of technical topics at final year level. A detailed study is undertaken of the techniques of report writing, including the search for and the collation of information; its organisation and presentation in oral and written form.
Recommended reading

GS906  Complementary Studies A — degree
Four hours per week for one semester
(Second semester in 1977)
Assessment is continuous
The use and application of 'science' is not value free but has implications for society as a whole, as well as for individuals who comprise our social world. As most scientists in advanced industrial societies work in industrial organisations, students will examine the effect large organisations have on communities, as well as the employees themselves. Areas of study include:
What is an organisation? Possible areas of conflict within organisations. Do large organisations contribute to or impede the standard of living and well-being of people generally and employees specifically?
The role of the scientist. Can he absolve himself of the effects, the repercussions intended or otherwise of his work?
What are some of the likely ramifications of the scientist's work on the way people live and interact?
Recommended reading

GS908  Communication Studies — degree
One hour per week for one semester
(First semester in 1977)
Assessment is continuous
Training in the efficient use of library facilities for the investigation of technical topics; detailed study of report writing, including the search for and collation of information; its organisation and presentation in oral and written form.

GS909  Report Writing — degree
One hour per week for one semester
(First semester in 1977)
Assessment is continuous
A third year subject in the degree course in applied science (double major in applied chemistry).
Training in the efficient use of materials and services available in a technical library. The preparation of a critical assessment of biochemical topic and presentation of the review in written and oral form.
Faculty of Art
Faculty of Art

Dean
I. McNeilage, DipArt, TTTC

Academic Staff

Graphic Design
Head
R.A. Francis, DipArt, TTTC

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G. Dance, DipArt

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D.G. Murray, DipArt, TTTC
J.W. Larkin

Principal Tutors
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N.J. Maling, CertEd, ATTI
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Instructor
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Film and Television

Head
B.C. Robinson, FDipArt, TTTC

Senior Lecturer
J. Harris, DipArt

Lecturers
J.F. Bird, DipArt, TTTC
N.B. Buesst, BCom
A.M. Evans, BAgricSc, DipAgricExt

Instructor
J. Gradl, FTS

Courses offered

Full-time courses in the Faculty of Art are offered in the following areas:

- Graphic Design (degree) 4 years cooperative
- Graphic Design (diploma) 3 years full-time
- Film and Television (diploma) 3 years full-time
- Applied Film and Television (graduate diploma) 1 year full-time or part-time equivalent

Undergraduate courses: degree, diploma

Applicants must have passes in any four Higher School Certificate subjects or have equivalent qualifications. Selection tests and interviews will be conducted in December to qualify for entry. All applicants who specify an art course, either graphic design or film and television at this college, must follow carefully the procedure for enrolment, which is given with dates etc. in the Victorian Universities Admissions Committee 'Guide for Prospective Students'. This will be published in September, and distributed to all secondary schools, or will be available on application to the Victorian Universities Admissions Committee, 11 Queens Road Melbourne 3004, telephone 267 1877. Please refer to 'application procedure', in the general section of this handbook.

Aptitude tests

It is important to note that the aptitude tests are designed to assess creative potential and suitability for the course.

No preparatory work is necessary as the tests do not depend on acquired skills or preliminary knowledge. If successful in these tests, the applicant is then interviewed to ensure that there is complete understanding about the requirements of the course.

Assessment

Each year of the course is to be taken as a whole and in order to qualify, an overall pass must be obtained on the year's work. A faculty pass may be awarded in the event of failure in one theory subject. The only exception is in the final year of the diploma or degree course, where individual subjects may be repeated with the approval of the Art Faculty Board. If the subject or subjects are not successfully completed within two years, the complete set of final examinations must be attempted again.

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Examinations
Students must enter for all subjects in a particular year of the course except where an exemption has been approved or electives offered.

A requisite number of assignments must be completed and a record of satisfactory attendance is required before the candidate is allowed to sit for any particular examination.
The form of the examination and the content of the folio work (assigned projects) will be determined by the panel of examiners and moderators appointed by the Art Faculty Board.

General Conditions
The college reserves the right to retain any work executed by students as part of their diploma course studies. Work not required by the college may be claimed by the student when 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.

Diploma course in Graphic Design
The graphic designer is concerned with many aspects of design, 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.

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<th>1st year</th>
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<td>AR111</td>
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<td>AR240</td>
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Special study areas include:
- Design
- Photography
- Design for print
- Drawing and technical illustration
- Typing

*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’)
Week 2

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This program constitutes a bridge between the formative lithography, roto-gravure, silk-screen, type identification, indication and specification, the point system, practical exercises in direct impression typesetting for book, advertising and sales promotion, studies of the first year and the closely applied studies of student to a professional standard of competence in the graphic arts.

Second year

AR201 Assigned Projects 2
Two hours practical per week for two semesters
Prerequisite, AR140, 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, typography, history of arts and sociology. Instead of studying these subjects in isolation, the aim is to integrate them into composite communication problems wherever possible.

Methods of production
A comprehensive study of photo-mechanical and direct printing procedures. Photo-engraving, letterpress, offset lithography, roto-gravure, silk-screen, type identification, indication and specification, the point system, copy-casting, proof-reading, copy preparation techniques, practical exercises in direct impression typesetting for book, advertising and display typography.

AR211 History of Arts 2
Two hours per week for two semesters
Prerequisite, AR140 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.

GS297 Social Science 2
Two hours per week for two semesters
Prerequisite, AR140 Result of Studies 1
Assessment is continuous.

1 The study of all communications media, including oral and written communication. Communication through music; the study and writing of short stories, radio plays, films, T.V. sketches and cartoons.

Advertising in the media; market research and its effect on advertising design.

2 This course involves analysis and appreciation of various forms of media, particularly written and visual communication in print and electronic media. Students are provided with wide opportunities to experiment with original writing and illustration, for fiction and journal use. Individual criticism of writing style and techniques is discussed in workshop sessions. The theoretical aspects examine book publishing and newspaper presses, with particular reference to the role of authors, editors and designers in production processes. Specific research into television, radio, film and advertising is undertaken in the context of examining the use, ethics and responsibilities of the mass media.

The work of communicators – journalists, graphic designers, film directors, cartoonists – is discussed, together with theories of writers like Barthes and Marshall McLuhan.

Recommended reading
Berry, R., Communication Through the Mass Media, Edward Arnold, 1971.

Third year

AR301 Assigned Projects 3
Twenty hours per week for two semesters
Prerequisite, AR240 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 or educational technology. Whenever possible and appropriate, the student is given the opportunity of undertaking commissions from industry.

AR320 Methods of Production 3
Two hours per week for two semesters
Prerequisite, AR240 Result of Studies 2
Assessment is continuous

Advanced studies of photo-mechanical and direct-printing procedures. Photo-engraving, letter-press, offset lithography, roto-gravure, silk screen, type identification, indication and specification, the point system, copy-casting, proof-reading, copy preparation techniques, practical exercises in direct impression type-setting for book, advertising and display typography. Cost estimating, mechanical art procedures, production control, paper consideration. Visits to production houses are arranged.
GS382  Psychology  
Two hours per week for two semesters  
Prerequisite, AR240  
Result of Studies 2

A third year diploma subject designed to increase perceptual skills using specific areas of psychology. This course embraces social and inter-personal relations, dynamics of behaviour and creative thinking.

Degree course in Graphic Design  
Third year  
Duration, four years including one full year in industry.

The aim of the 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, advertising, educational and information design.

The first two years are common to both diploma and degree courses. A limited number of students will be selected from the second year to go into industry for the whole of third year. This arrangement will conform to the Y structure under the cooperative education system. This third year will enable the student to begin professional practice and will be supervised by senior college staff.

The fourth and final year of the course will be undertaken in the college.

Third year  
(full time in industry)  
hours  
week

Subjects to be taken by part-time study:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per Week</th>
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<tbody>
<tr>
<td>GS380</td>
<td>Psychology</td>
<td>2</td>
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<tr>
<td>AR321</td>
<td>Print Technology</td>
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<tr>
<td>AR303</td>
<td>Industrial Year</td>
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<tr>
<td>AR341</td>
<td>Result of Studies</td>
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Fourth year  
(full time in college)  
hours  
week

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per Week</th>
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<tbody>
<tr>
<td>AR410</td>
<td>Assigned Projects 4</td>
<td>18</td>
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<tr>
<td>BS491/2</td>
<td>Business Administration</td>
<td>3</td>
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<tr>
<td>AR421</td>
<td>Communication Theory</td>
<td>2</td>
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<tr>
<td>AR441</td>
<td>Result of Studies</td>
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GS380  Psychology  
Two hours per week for two semesters  
Prerequisite, AR240  
Result of Studies 2

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 further 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 media material in second semester.

AR321  Print Technology  
Two hours per week for two semesters  
Prerequisite, AR240  
Result of Studies 2

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) electrostatic and heat transfer. Studies of paper and other stock.

This course will include the economics of production and relate to sections of the course in Business Administration.

AR303  Industrial Year  
Two semesters industrial experience  
Prerequisite, AR240  
Result of Studies 2

Assessment is continuous  
(See Y chart.)

Fourth year  
AR410  Assigned Projects 4  
Eighteen hours per week for two semesters  
Prerequisite, AR341  
Result of Studies 2  
Assessment is continuous

A number of specialist elective areas of study will be offered in the subject AR410  Assigned Projects.

BS491/2  Business Administration  
Three hours per week for two semesters  
Prerequisite, AR341  
Result of Studies 2

Assessment is continuous

The aim of this subject is to introduce students to the major bases and problem areas of the modern firm.

It consists of two units. The first dealing with economic and accounting concepts as they influence managerial decision-making. The second unit is concerned with marketing administration and relates to decision-making in the administration of people and in the formulation of marketing programs.

AR421  Communication Theory  
Three hours per week for two semesters  
Prerequisite, AR341  
Result of Studies 2

Assessment is continuous

This course aims to develop a critical awareness of the function, problems and issues relating to the field of mass media. The character, trends and problems of book and newspaper publishing are discussed. The publishing process is analysed, including ownership and economics of Australian publishing, the role of designers and editors, forms of books, newspapers or magazines, and related production processes. Examples of writing are discussed, such as short stories, science fiction, speech writing, investigative journalism and feature columns.

The nature and processes of electronic media, film, radio and television, and issues involving their inter-relationship with society, are discussed. Study is made of AM and FM broadcasting, community or alternative radio, access and cable television, commercial and national media programming and potential. The changing character of film medium, from silent movies to Hollywood to the rise of the
'auteur' is introduced. It is intended that individual research will follow group discussions of the general issues concerning the media and society.

Recommended reading

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 will be expected in this student, but not necessarily unique technical skills of a high order.

At the completion of a two-year common course the diploma and degree streams will separate. A further year of full-time study in the college will lead to the diploma, whilst degree students will complete the third year of the course in industry and return to the college for the final year.

During the year in industry, students will be required to attend the college for two evenings per week for theoretical subjects: Print Technology and Psychology.

In the final year, in addition to Assigned Projects 4, Business Administration and Communication Theory subjects will be studied in the college.

Materials
Major items to be purchased by students include a camera (estimate $180) and a screen printing frame (estimate $12). Both items to be purchased only after consultation with the lecturers concerned. During 1976 all other equipment and materials for assigned projects were supplied by the college, and it is possible that the same provision will be made in 1977. In the past, annual allowance for expendable items of equipment and materials was estimated at $200 per student.

References
Campbell-Drury, A. Photography Notes. Swinburne College Press
Trademarks. London, Studio Vista
Pocket Pal. 3rd Ausn edn, Melbourne, APPM, 1976

Diploma course in Film and Television
First year
Duration, three years full-time
The aim of this course is to enable students to express ideas using film or video techniques.

Assigned projects refers principally to film production or television production. In the first and second years these two areas of study alternate on a semester (half-yearly)
basis. In the final year the student elects to specialise in film or video production for both semesters.

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<thead>
<tr>
<th>1st year</th>
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<tbody>
<tr>
<td>AR151 Assigned Projects 1 (2 semesters) 20</td>
<td>AR251 Assigned Projects 2 (2 semesters) 20</td>
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<td>AR161 History of Arts 1 (2 semesters) 2</td>
<td>AR261 History of Arts 2 (2 semesters) 2</td>
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<tr>
<td>AR141 Script Writing 1 (2 semesters) 2</td>
<td>AR241 Script Writing 2 (2 semesters) 2</td>
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<td>AR171 Result of Studies 1</td>
<td>AR271 Result of Studies 2</td>
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<td>AR351 Assigned Projects 3 (2 semesters) 20</td>
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<td>AR361 History of Arts 3 (2 semesters) 2</td>
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<tr>
<td>AR365 Methods of Production 3 (2 semesters) 2</td>
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<td>AR371 Result of Studies 3</td>
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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 student's total success or otherwise in the year's studies (see under 'assessment').

AR151 Assigned Projects 1
Twenty hours practical per week for two semesters
Prerequisite, nil
Assessment is continuous

A number of subjects fall under this general heading as follows:

Still photography
A comprehensive introduction to still photography techniques including camera operation, sensitometry, film processing and printing.

Film technology
An introduction to the theory and mechanics of film production. Aspects of study include camera operation, lighting, sound recording and film editing.

Film production
The students, sometimes individually, but more often in crews, undertake the complete production of a series of short 16mm films. They are responsible for the scripting, setting graphics, lighting, sound, camera operation and editing. By varying their area of responsibility in each production the students gain insight into all aspects of the creative problem.

Television technology
An introduction to the electronic, mechanical and human factors underlying videotaping.

Television production
Working in crews of eleven or more, the students videotape a number of simple productions. They vary their areas of responsibility in each production. It is of great importance that they learn to work efficiently as crew members subordinate to a director and floor manager.

Faculty of Art

AR161 History of Arts 1
Two hours per week for two semesters
Prerequisite, nil
Assessment is continuous

Two semesters are given to a broad review of selected aspects of the arts. Music and drama form the basis of these studies from which the film and television graduate may subsequently draw.

AR141 Script Writing 1
Two hours per week for two semesters
Prerequisite, nil
Assessment is continuous

Introductory script exercises dealing with light, sound, movement, time, dramatic form, characterisation and content.

Second year

AR251 Assigned Projects 2
Twenty hours practical per week for two semesters
Prerequisite, AR171 Result of Studies 1
Assessment is continuous

Subjects under this general heading are as follows:

Film technology
Further studies in the mechanical control of film production. The recording and editing of synchronous sound, A and B roll editing assembly, the deployment of music and sound effects, and the control of optical effects are amongst subjects taught.

Film production
The students produce sociological and documentary films plus an individual experimental film. They usually form crews when attempting these subjects.

Design
The preparation of art work for animation.

Television technology
More advanced studies in television theory which deal in greater depth with principles introduced in the first year.

Television production
Second year television production exercises are conducted on the basis of an experimental workshop, facilitating the staging and videotaping of short dramatic excerpts.

Students vary their roles from production to production.

Concepts
Each student is required to prepare two scripts. The emphasis of one is on persuasion likely to change attitudes held by the audience, whereas the second simply aims to entertain. All scripts are produced and videotaped and the results criticised by the group.

AR261 History of Arts 2
Two hours per week for two semesters
Prerequisite, AR171 Result of Studies 1
Assessment is continuous

In second year, this subject relates principally to the history of film. Representative 'classics' and more recent films are screened and discussed. Students present criticisms of these films in written form.
Third year

**AR351 Assigned Projects 3**
Two hours practical per week for two semesters
Prerequisite, AR271 Result of Studies 2
Assessment is continuous

In the final year the student is concerned with the production of an experimental film, one or more persuasive film 'commercials', and a film on a stipulated topic. A crew may assist with the realisation of these subjects.

Students electing to specialise in television must prepare a videotape of an experimental program, a propaganda or persuasion segment and a dramatic adaptation. This is a minimum requirement. Associated production plans and graphics may be presented.

**AR361 History of Arts 3**
Two hours per week for two semesters
Prerequisite, AR271 Result of Studies 2
Assessment is continuous

These studies centre on the philosophies and work methods associated with leading contemporary directors. Students submit papers in which they review these factors in depth.

**AR365 Methods of Production 3**
Two hours per week for two semesters
Prerequisite, AR271 Result of Studies 2
Assessment is continuous

The student is required to present a series of papers on aspects of contemporary film and television production. Potential subject areas evolve through group discussion.

Material costs
Other than still cameras, the college provides all equipment required for film and television assigned projects and meets the cost of sound and image recording materials.

**References**
*Film: Creative Film Making* (Kirk Smallman)
*Guide to Film Making* (Ed Pincas)
The American Cinematographer's Handbook, (J. Mancelli ed)

*Television:
The Technique of Television Production* (Millerson)
The Technique of the Television Cameraman, (Clark)

**Graduate Diploma in Applied Film and Television**
Duration, one year full-time or part-time equivalent

**Objectives**
1. To provide a practical production course in television, film or animation, for applied commercial, industrial or educational purposes.
2. To promote the objective use of these media in order that information may be communicated to defined audiences.

**Note:** The course will serve areas such as communications, media, education (including retraining), public relations, advertising, social welfare, audio-visual services etc.

**AR400 Assigned Projects**
**AR401 Result of Studies**

**AR400 Assigned Projects**
Twenty hours per week for two semesters
Prerequisite, first degree or diploma in any discipline
Assessment is continuous

**Entrance requirements**
Applicants will be required to make a written 'Statement of Intent' in which they define their reasons for wishing to undertake the course, given its aims and objectives.

In the event of demand exceeding available places the 'Statement of Intent' plus personal interviews will provide the basis for selection.

A small number of 'mature entry' applicants who are not graduates may be admitted to the course.

**Entry procedure**
Application forms are available from the Secretary of the Faculty of Art, and must be lodged by 22 November 1977.

**Course details**
Three streams of study are offered, namely, film, television or animation. The student undertakes but one of these alternatives.

Each stream of study has three principal phases.
1. Script development.
2. Production techniques.
3. Production.

Program content will be determined by the individual student. Where possible, theory and practice will be integrated.

**Admissions**
In the initial year of its operation the following numbers will be admitted to the graduate-diploma course:

- Television: 12
- Film: 6
- Animation: 6

**Further information**
For further information contact the Secretary of the Faculty of Art. Phone 819 8124.
Faculty of Arts
Faculty of Arts

Dean
Charles K. McDonald, BSc, BEd, MA, MACE

Sub-Dean
Peter I. Thompson, BA, DipEd

Academic staff

Humanities Department

Chairman
Henry Kannegiesser, BA, BEd, MEd

Senior Lecturers
James E. Baxter, MS, BA, BEd
James Dooley, BA, DipEd

Lecturers
Trevor I. Barr, BA, DipEd
Azizul Hakem, MA
Michael J. Kelly, BSc, PhD, DipEd
Philip G. Kent, BA, BEd, MEd
Rosaleen Love, BSc, CHPS, PhD
Roderick W.I. McComish, MA, DipEd
John A. Scott, BA, DipEd

Languages Department

Head
Brian Warren, MA, DipEd

Senior Lecturer
Naohiko Fukushima, BA, DipEd

Lecturers
Charles D’Aprano, BA, ATTC, DipAdvStud
Helen Marriott, BA(Hons), DipEd

Senior Tutors
Rafaela Dinelli, BA(Hons), DipEd
Morihiro Kubota, MA

Liberal Studies Department

Chairman
Alfred J. Sampson, MA, BEd, MACE

Lecturers
Alan Browne, BA
John F. Ferris, BE (M&E)
Jillian Hawkins, BA(Hons)
John Morison, BA, DipSocStud
Malcolm Sandon, BA(Hons)
Robert H. Smith, BA, TPTC, MACE
Marijke van Geloven, Drs, MAPsS

Senior Tutors
Bruce McGuiness

Psychology Department

Head
Maurice A. Howe, MA, FAPsS, FIPMA

Senior Lecturers
James P. McLennan, MA, MAPsS
John Wangeman, BA(Hons), BCom, BEd, MAPsS

Lecturers
Roger H. Cook, BSc(Hons), TPTC, MAPsS
Gordon H. Gots, MSc, MAPsS
Fern G. Marriott, BSc, MA, MAPsS
Christopher D. Robinson, BA(Hons), MAPsS
Raymond Rudd, BA(Hons), MAPsS

Social and Political Studies Department

Chairman
Brian L. Howe, MA, DipCrim

Principal Lecturer
Leslie A. Kilmartin, MA

Senior Lecturers
David Y. Mayer, MA, LLB
C. Graham Nichols, BA
Francis X. Walsh, BA, BEd

Lecturers
Bernard Barrett, MA
Bryan Bottomley, BA(Hons)
Tanya Birrell, BA(Hons)
Stephanie DeBoer, BA(Hons), TPTC
Linda Hancock, BA(Hons)
Salim Lakha, BSc(Hons), GradDip Urban Studies
John Schmid, MA
Robert R. Smith, MA, LLB
Courses offered

Diploma of Arts, awarded by Swinburne College of Technology
Bachelor of Arts, awarded by the Victoria Institute of Colleges
Graduate Diploma in Applied Social Psychology
Graduate Diploma in Urban Sociology

Undergraduate courses

Structure

Initially all students are enrolled in subjects common to both degree and diploma courses. On completion of the equivalent of two years' full-time study, some students are selected to proceed to Bachelor of Arts studies while others complete the Diploma of Arts.

Full-time

Both the diploma and degree courses require three years' full-time study, during which a unit value of twenty-four must be accrued.

Part-time

It is possible to complete a course by part-time study. At the required rate of four units per year, it would usually take six years to gain a unit value of twenty-four.

Career opportunities

The course is designed to develop skills in the collation and analysis of information, a high level of competence in various specialised oral and written forms of communication and an ability to apply theoretical concepts in the search for practical solutions to problems.

Students may select courses which will be of particular value in following a career in such fields as: administration, personnel, publishing, public relations, research services, or interpreting. After further short-term courses graduates may gain qualifications to become, for example, practising psychologists, urban sociologists, teachers or librarians.

Entrance requirements

Applicants in the following categories will be considered for admission although quota restrictions usually prevent offers being made to all eligible candidates:

- students with gradings of D or above in four Victorian Higher School Certificate subjects, including English;
students who have successfully completed an approved tertiary orientation year, including English;
- people granted exemption from Victorian HSC requirements by VUSEB on grounds of interstate or overseas studies; and
- mature-age applicants who can demonstrate an ability to cope with tertiary study.

Applications
Applicants seeking a full-time place in the Arts course must apply through the Victorian Universities Admissions Committee. Application for a part-time place must be made directly to Swinburne.

Specific course requirements
Terminology
'Course' – refers to the total of selected subjects in a complete diploma or degree.
'Subject area' – refers to the category under which specific major/sub-major studies are grouped, (e.g., psychology, literature).
'Semester subject' – refers to a single half-year unit of study.
'Full-year subject' – refers to either two consecutive half-year units, or one subject extending for one year's duration.
'Unit value' – the value attached to a particular subject, either full-year or semester.

Major studies
A major study is usually a three-year sequence of studies in a single subject area. In some subjects a major may be constructed with only one stage one semester unit; please check the prerequisites for the relevant stage two subjects, or consult a course adviser.

In special cases a sequence of studies may be selected from two related areas of study to constitute a major (e.g. Philosophy/History and Philosophy of Science). All such mixed majors must be approved by the chairman of the relevant department before they are undertaken.

Sub-major studies
A sub-major study is usually a two-year sequence of studies in a single subject area.

Diploma requirements
In order to complete a diploma, a student must –
(a) have a unit value totalling 24 from stages 1, 2, and 3 taken over a period of three years.
(b) complete either two majors, or one major plus two sub-majors.
(c) major in one of the following: Italian, Japanese, Psychology, Sociology.

Degree requirements
In order to complete a degree a student must --
(a) have applied and been selected for stage three studies at degree level. See section on degree selection.
(b) have a unit value totalling twenty-four taken over a period of at least three years.
(c) achieve passes to the value of at least six units in stage two subjects.
(d) complete two majors in subject areas which have stage three degree approval.
(e) complete a major in Italian, Japanese, Sociology or Psychology as one of the two required majors.

Subject areas with degree approval:
All stage 1 semester and full-year subjects.

Offered at stage 2 level:
- Asian Studies
- Contemporary History
- Economics
- History and Philosophy of Science
- Italian
- Japanese
- Literature
- Media Studies
- Modern Government
- Philosophy
- Psychology
- Sociology

Offered at stage 3 level:
- Asian Studies
- Economics
- History and Philosophy of Science
- Italian
- Japanese
- Literature
- Media Studies
- Modern Government
- Sociology
- Psychology

No student may, without special permission,
(a) include more than ten stage one semester subjects in a diploma/degree.
(b) include more than two majors in a diploma/degree.
(c) attempt more than two stage three subjects in any semester.

Degree selection
To be eligible for degree selection a student must have –
(a) acquired a unit value of at least fifteen in stage one and stage two subjects including a unit value of six in stage two subjects;

(b) passed the prerequisites for the two proposed stage three degree subjects;

(c) demonstrated ability to undertake degree study. (A 'P' grading or above satisfies eligibility for degree selection but it may not ensure selection).

Students who have been granted exemptions must have acquired a unit value of at least fifteen, including exemptions, and those who enrolled for the first time in and after 1976 must have a unit value of six in stage two subjects.

Applications for degree selection will be received in October each year, for the following academic year. Therefore students who expect to meet the requirements for selection at the end of semester one must also apply the previous October. Application must be made on the appropriate form and lodged by the date specified on the faculty notice board on level 2 of the BA Building.

Special conditions may apply to language students, and students are advised to contact the Head of the Languages Department, Mr. B. Warren.

Unit value of subjects

<table>
<thead>
<tr>
<th>Semester subjects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1 and 2 semester subjects</td>
<td>1 unit each</td>
</tr>
<tr>
<td>Approvals of semester subjects at stage 3 diploma level</td>
<td>total of 3</td>
</tr>
<tr>
<td>Single stage 3 semester subjects at the diploma level</td>
<td>1 unit each</td>
</tr>
<tr>
<td>Approved pairs of semester subjects at stage 3 degree level</td>
<td>total of 4</td>
</tr>
<tr>
<td>Full-year subjects</td>
<td></td>
</tr>
<tr>
<td>Italian 1, 2, and diploma level Italian 3</td>
<td>3 units each</td>
</tr>
<tr>
<td>Degree level Italian 3</td>
<td>4 units</td>
</tr>
<tr>
<td>Japanese 1, 2, and diploma level Japanese 3</td>
<td>3 units each</td>
</tr>
<tr>
<td>Degree level Japanese 3</td>
<td>4 units</td>
</tr>
<tr>
<td>Basic Japanese</td>
<td>2 units</td>
</tr>
<tr>
<td>Approved full-year subjects taken in other faculties, usually</td>
<td></td>
</tr>
</tbody>
</table>

Further information concerning unit values is to be found with the subject listings for each department.

Electives offered by other faculties

A student who wishes to take elective subjects taught by other faculties must first have the approval of a course adviser. The electives most often chosen are listed in the section headed: 'Electives taught by other faculties', page 89.

No student may include more than the equivalent of six units from courses offered by faculties other than the Faculty of Arts, unless more than six units are gained in completing one approved major study. The unit value of electives offered by other faculties is usually one unit for a semester subject and two units for a full-year subject. Students should review their position with the arts faculty before undertaking any stage three units with another faculty.

Course selection

When attending to enrol, students will be issued with detailed instructions to assist in planning a suitable course. All students will be required to complete a Faculty of Arts enrolment form (indicating their subject selection for both semesters), and, once approved, may not alter their enrolment without the approval of a course adviser. Appointments with course advisers during the semester may be made through the office of the Faculty of Arts.

*Please read the college enrolment regulations in the 'general information section of this handbook.*

Subject prerequisites

Prerequisites for subjects (both semester subjects and full-year subjects) are indicated in the details for the particular subject. These prerequisites usually must be completed before students may take subjects from stages two and three. Any divergence from this requirement must have the approval of the lecturers concerned and the Dean, Faculty of Arts.

Exemptions

Students with certain recognised tertiary qualifications may be exempted from a number of units. In special cases exemptions from specific subjects are allowed, but usually exemptions simply provide for a reduction in the total number of units to be studied.

Students who think they may be eligible should apply for exemptions when they first enrol, presenting documentary evidence of their prior qualification. See also "exemptions" in the general information section of this handbook.

Time allocations per week

Each semester subject runs for an average of fifteen weeks. Usually a student would spend approximately ten hours a week, including class time, on each semester subject studied. The proportion of the ten hours per week spent in class and in private study varies from subject to subject. Most require three to four hours in class, with the exception of
languages which may have up to eight hours a week class time.

**Time-tables**

Detailed time-tables, always subject to change, are available early in February.

Assessment and examination

The details of the methods of assessment for each subject will be given by the lecturers in charge. Usually, a combination of progressive assessment and formal examinations is employed.

Reading lists

For preliminary reading and major texts in each subject, see under individual subject entries. Students are advised not to buy any texts until classes have met.

**Academic standards**

All students must maintain an approved academic standard in order to continue their studies.

**Full-time students**

(a) A full-time student is normally required to enrol in sufficient subjects to secure a value of eight units in one year. In special circumstances, permission may be granted to do less than this requirement on application to the Sub-Dean of the Faculty.

(b) In each year of study, full-time undergraduate students are expected to gain passes to the value of at least six units. After two years at the college, a full-time student is expected to have gained units to the value of at least twelve to be eligible to continue full-time study in the following year.

(c) A full-time student who wishes to enrol for more than the normal number of subjects in any semester is required to apply in writing to do so, giving reasons for the request.

(d) Students may not enrol for Psychology 2 until they have passed Introduction to Design and Measurement or Psychology 1A and 1B.

**Part-time students**

(a) A part-time student is required to enrol in sufficient subjects to secure a value of four units in one year. In special circumstances, permission may be granted to do less than this requirement on application to the Sub-Dean of the Faculty.

(b) A part-time student will be considered to have made satisfactory progress if he or she has achieved passes to the value of three units in each year.

**Re-admissions**

Any student who has failed to meet the above requirements at the end of the year may be re-admitted only on conditions agreed upon after discussion with the re-admissions committee.

**Appeals**

A student who has not been re-admitted to the course may appeal in writing (within a time specified by the Dean, Faculty of Arts) to the convener of the re-admissions committee for special consideration.

The general criteria for consideration of 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.

**Withdrawal from study**

Unless a student has made an official request to withdraw from a subject by the date specified in each semester by the Registrar, a failure will be recorded against that subject.

**Deferment of studies**

Students who have just completed their HSC year and who have been offered a full-time place in the course may be granted deferment for one year. Applications should be made in writing and personally lodged with the college when responding to the provisional offer.

In special circumstances, consideration may be given to deferments of up to one year for students who have completed part of the course. Applications stating the period for which deferment is sought, and reasons for the request should be made in writing to the Registrar.
Graduate courses

Graduate Diploma in Applied Social Psychology
This program has been designed to develop an understanding of social processes, and competence in interpersonal skills and research methodology. Special emphasis is placed on the application of psychological knowledge and skills in organisational and social settings.

Entrance requirements
Applicants must have a degree with a major in psychology, or equivalent, from a recognised college or university. Students lacking an adequate background in social psychology will be required to complete appropriate units of the Bachelor of Arts degree course or, in selected cases, a preliminary reading course, before being accepted for enrolment. A reasonable standard of statistical competence will also be required.

Course structure
The course has been designed to be taken by part-time study over two years. Two subjects will be taken in each semester and the course will comprise eight subjects in all. Each unit will involve three hours of class meeting per week. For each of four semesters there will be one subject dealing with theoretical issues and another dealing with skill training and methodology.

The focus throughout will be on experiential learning. In addition to group learning, preparation of papers, etc., students will be expected to participate in an ongoing research project which will involve field work such as interviewing, together with data analysis and report writing. Some of the units will include role playing of interviews, small group laboratory exercises, and exercises using computer facilities. It is expected that a full-time period of no less than three weeks each year will be devoted to practicum training in an employment situation.

Experts in various areas of applied social psychology will be brought in to discuss practical problems and issues, and to demonstrate skills. An over-riding consideration for all subjects (and their assessment) is that they will be flexible enough to meet student needs.

The study program is as follows:

First year, semester one
GS472 Individual and Social Change
GS473 Research Design and Analysis

First year, semester two
GS474 Philosophy of Social Research
GS475 Quantitative Methods in Social Research

Second year, semester one
GS476 Applied Social Psychology
GS477 Small Group Processes

Second year, semester two
GS478 Issues in Social Psychology
GS479 Special Applications Option

Graduate Diploma in Urban Sociology
This course is designed to supplement a student's general education with a more specialised and practical training, of a distinctly applied nature, which will enable a graduate to follow professional occupations in the fields of urban administration and planning. In particular, the course has been designed to extend the student's knowledge of:

- the formulation, implementation, and evaluation of urban policies
- the sociological bases of urban planning and administration, and urban research techniques.

Entrance requirements
Applicants must hold a degree or diploma from an approved tertiary institution, including major studies in at least one of: Sociology, Politics, Economics, Geography, 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' study part-time, involving eight semester subjects and a research project.

Students take the following subjects:
GS482 National Urban Policies
GS483 Urban Administration
GS484 Current Urban Research
GS485 Metropolitan Decision-making
GS486 Public Policy and the Urban Area
GS487 Sociology and Planning Theory
GS488 Urban System Theory
GS489 Community Organisation

Every student will be expected to complete a major project relating to either policy issues or some aspects of urban administration and planning. It is hoped to develop the projects in co-operation with government departments, consultancy firms, community groups and research institutes.
Humanities

Diploma subjects offered

<table>
<thead>
<tr>
<th>Code</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS165</td>
<td>Philosophy 1</td>
</tr>
<tr>
<td>GS141</td>
<td>History and Philosophy of Science 1A</td>
</tr>
<tr>
<td>GS142</td>
<td>History and Philosophy of Science 1B</td>
</tr>
<tr>
<td>GS171</td>
<td>Literature 1A</td>
</tr>
<tr>
<td>GS172</td>
<td>Literature 1B</td>
</tr>
<tr>
<td>GS103</td>
<td>Media Studies 1A</td>
</tr>
<tr>
<td>GS104</td>
<td>Media Studies 1B</td>
</tr>
<tr>
<td>GS117</td>
<td>Alternative course, Literature/Media studies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS265</td>
<td>Philosophy 2A</td>
</tr>
<tr>
<td>GS266</td>
<td>Philosophy 2B</td>
</tr>
<tr>
<td>GS242</td>
<td>History and Philosophy of Science 2A</td>
</tr>
<tr>
<td>GS243</td>
<td>History and Philosophy of Science 2B</td>
</tr>
<tr>
<td>GS271</td>
<td>Literature 2A</td>
</tr>
<tr>
<td>GS272</td>
<td>Literature 2B</td>
</tr>
<tr>
<td>GS303</td>
<td>Media Studies 2A</td>
</tr>
<tr>
<td>GS304</td>
<td>Media Studies 2B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS355</td>
<td>Philosophy 3A</td>
</tr>
<tr>
<td>GS341</td>
<td>History and Philosophy of Science 3A</td>
</tr>
<tr>
<td>GS342</td>
<td>History and Philosophy of Science 3B</td>
</tr>
<tr>
<td>GS371</td>
<td>Literature 3A</td>
</tr>
<tr>
<td>GS372</td>
<td>Literature 3B</td>
</tr>
<tr>
<td>GS303</td>
<td>Media Studies 3A</td>
</tr>
<tr>
<td>GS304</td>
<td>Media Studies 3B</td>
</tr>
</tbody>
</table>

An approved pair of stage three diploma subjects, taken in the one area of study, earns a total of three units. Appropriate pairs are bracketed.

Degree subjects offered

All stage one and two subjects, as listed above and the following stage 3 subjects.

<table>
<thead>
<tr>
<th>Code</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS345</td>
<td>History and Philosophy of Science 3A</td>
</tr>
<tr>
<td>GS346</td>
<td>History and Philosophy of Science 3B</td>
</tr>
<tr>
<td>GS336</td>
<td>Literature 3A</td>
</tr>
<tr>
<td>GS337</td>
<td>Literature 3B</td>
</tr>
<tr>
<td>GS305</td>
<td>Media Studies 3A</td>
</tr>
<tr>
<td>GS306</td>
<td>Media Studies 3B</td>
</tr>
</tbody>
</table>

Application has been made for approval to offer a third year degree subject in Philosophy: GS356 Philosophy 3A. Students will be notified of the outcome of this application at re-enrolment.

Philosophy, Science and Society

Most people want to understand the historical background of their society and many are concerned about one or more of a variety of issues which currently evoke conjecture and controversy.

The subjects offered under the headings of Philosophy, and History and Philosophy of Science, attempt to develop studies in both areas, with philosophy emphasising the conceptual analysis of some of the major problems relevant to contemporary society, and history and philosophy of science, concentrating on the interaction between science, technology, and society throughout history.

As well as the standard History and Philosophy of Science major and Philosophy sub-major, a variety of integrated Philosophy/HPS and HPS/Philosophy majors are available.

Philosophy

The subjects offered in philosophy are designed to relate the study of traditional philosophical problems and methods to relevant contemporary issues. The aim is to encourage and develop an analytic approach to conceptual problems arising directly from areas of social, political, educational, psychological and religious concern.

Although a variety of integrated Philosophy/HPS majors are possible, the following basic combinations are recommended for students wishing to follow a philosophy stream.

1 Philosophy 1 Philosophy 2A Philosophy 3A and Philosophy 2B HPS 3B
   or
2 Philosophy 1 Philosophy 2A or 2B Philosophy 3A and HPS 2B HPS 3B

An integrated Philosophy/HPS major will usually include at least one philosophy semester subject in each of the three years of the course. An application for approval to offer degree studies in Philosophy 3A has been made to the Victoria Institute of Colleges. Students will be notified of the outcome of this application at re-enrolment.
Subject details

GS165 Philosophy 1

Four hours per week (three hours 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; an analysis of the nature and function of language and an introduction to symbolic logic. Some basic principles of handling language and conceptual analysis; the application of such principles to specific problem areas such as: mind and matter; knowledge and perception; truth and falsity; human nature and moral judgements.

Preliminary reading
Emmet, E. Learning to Philosophize. Pelican, 1968
Wilson, J. Thinking with Concepts. OUP, 1968

Textbooks
Please consult with lecturer before buying textbooks.

Recommended reading
Arner, D.G. Perception, Reason and Knowledge. Scott Foresman, 1972
Katen, T.E. Doing Philosophy. Prentice Hall. 1973

GS265 Philosophy 2A

(Mind, nature and reality)

Four hours per week (three hours evening)

Prerequisite, GS165 Philosophy 1 or GS142 HPS 1B

Assessment is continuous

A critical examination of selected primary source material relating to four major problem areas in philosophy:

(i) Free will; determinism and the causal principle
(ii) Mind and body; sensations and brain processes; dualism and monism
(iii) The concept of human nature; visions of reality (Aristotle, Spinoza); Existentialism (Sartre, Heidegger), Phenomenalism (Mill, Hume, Kant, Moore)
(iv) Religious concepts; the existence of God; and the problem of evil.

Preliminary reading

Textbooks
Please consult with lecturer before buying textbooks.

Recommended reading
Arner, D.G. Perception, Reason and Knowledge. Scott Foresman, 1972
Ryle, G. The Concept of Mind. Peregrine, 1963

GS266 Philosophy 2B

(Social and political theories)

Four hours per week (three hours evening)

Prerequisites, GS165 Philosophy 1 or GS142 HPS 1B

Assessment is continuous

An examination of some of the traditional theories of the state or of political and social organisation. An analysis and evaluation of assumptions underlying moral and naturalistic theories of the State; an examination of notions of freedom, justice, equality, and the application of theories to current social/political problems; the legitimate use of authority; consent; obligation; the common good, social contract. Educational assumptions and an evaluation of notions such as 'mental health', growth, 'rationality', 'citizenship' as desirable ends.

Some of the more important writers to be considered will be: Plato, Aristotle, Locke, Mill, Aquinas, Hobbes, Montesquieu, Rousseau, Dewey and Marx.

Preliminary reading

Textbooks
Please consult with lecturer before buying textbooks.

Recommended reading

GS355 Philosophy 3A – diploma

(Ethics, aesthetics and values)

Five hours per week (combined day and evening)

Prerequisite, GS165 Philosophy 1

Assessment is continuous

The course examines three related areas of value conflict.

(i) The principles and systems of moral obligation; a consideration of the meaning and inter-relationships of meaning of ethical terms; the objectivity of moral judgements; naturalism and non-naturalism.

(ii) The problems of definitions, interpretation and evaluation of works of art, emotions and feelings; uniqueness of works of art; the problem of standards or criteria in evaluation; the problem of meaning and the author's intention.

(iii) 'Rationality' as a universal value; practical and theoretical reason; 'rational' and 'reasonable' conduct and the education of feeling and emotion.

Preliminary reading
Moore, G.E. Ethics. OUP, 1969
Wilson, J., Williams, N. and Sugarman, B. Introduction to Moral Education. Pelican, 1968

Textbooks
Please consult with lecturer before buying textbooks.

Recommended reading
Sellers, W. and Hospers, J. Readings in Ethical Theory. Appleton Century Crofts, 1975
GS356 Philosophy 3A – degree
(This subject is awaiting approval by the Victoria Institute of Colleges. Students will be notified before enrolment.)
Seven hours per week (combined day and evening)
Prerequisite, GS165 Philosophy 1
Assessment is continuous
As for Philosophy 3A diploma, plus a series of seminars devoted to a special study of the following topics:
(i) Moral education and the justification of method
(ii) Intrinsic and extrinsic values
(iii) Practical and theoretical reason and rational myths.
Textbooks
Please consult with lecturer before buying textbooks.
Recommended reading
Hare, R.M. Language of Morals. Clarendon Press, 1952
Peters, R.S. Ethics and Education. Routledge and Kegan Paul, 1968
Stevenson, C.L. Ethics & Language. Yale Uni Press, 1944

History and Philosophy of Science
The historical development of science and technology in a social context with emphasis on both the social role of the scientist and technologist, and scientific methodology/philosophy. Though there will be a number of lectures of an introductory nature, students will devote most of their time to detailed investigations of prescribed topics. Written and oral reports of these investigations will be required during the various courses and these will comprise the bulk of the assessment for most HPS semester subjects. No scientific or mathematical knowledge will be presupposed in these courses.
Besides the standard history and philosophy of science major, a variety of integrated HPS/Philosophy majors are available, e.g. HPS 1A, Philosophy 1, HPS 2A, HPS 2B, Philosophy 3A, HPS 3B. Students should examine carefully the prerequisites for each subject before selecting any such integrated major.
An integrated HPS/Philosophy major will usually include at least one HPS semester subject in each of the final two years of the course.

GS141 History and Philosophy of Science 1A
(Science and society A)
Four hours per week (three hours evening)
Prerequisite, nil
Assessment is continuous
The relationship of astronomy and astrology to agriculture, navigation, trade, social change, and religion in ancient and modern societies. Within the general framework of social history the main emphasis is on the interaction of philosophy, religion, and social change with science: Egypt, Mesopotamia, Greece, two sphere universe, role of the Catholic Church, scholastics, Copernican revolution, machine concept of the universe, modern theories about the universe, role and function of theories and hypotheses.
Recommended reading

GS142 History of Philosophy and Science 1B
(Science and society B)
Four hours per week (three hours evening)
Prerequisite, nil
Assessment is continuous
The main philosophical and scientific contributions in the field of natural history. The major concern will be with the growth of observational evidence in biology and geology and the implications of such evidence for philosophical, theological, and scientific theory.
Recommended reading
Ravetz, J.R. The Roots of Present Day Science. Open UP, 1971

Textbooks
Please consult with lecturer before buying textbooks.
Recommended reading
Eiseley, L. Darwin’s Century. Mentor, 1964
Theobold, D.W. Introduction to the philosophy of science. Hutchinson, 1967

GS242 History of Philosophy and Science 2A
(Technology and society)
Four hours per week (three hours evening)
Prerequisite, HPS 1A or HPS 1B or Philosophy 1 or equivalent
Assessment is continuous
The interaction between technology and social change; Ancient Egypt, Greece, Europe, England, America; the evolution of techniques of construction of buildings, bridges, canals, roads, machines; sources of power; specialisation and division of labour; the industrial revolution; the role of industry and of the state; development of physics and dynamics; printing and mass communication; and moral dilemmas of the modern technologist; pollution and environment control.
Recommended reading
Mesthane, E. Technological Clzange. Mentor, 1970

Textbook
Kleinan, F. A History of Western Technology. MIT, 1970

Recommended reading
Forbes, R. Man the Maker. Abelard, 1964
Lilley, S. Men, Machines and History. Lawrence and Wishart, 1965
### Faculty of Arts

| Course Code | Course Title | Prerequisites | Hours per Week | Assessment
|-------------|--------------|---------------|----------------|-----------
| GS243 | History and Philosophy of Science 2B | HPS 1A or HPS 1B or Philosophy 1 or equivalent | Five hours | Continuous
| GS341 | History and Philosophy of Science 3A - diploma | HPS 2A, HPS 2B, Philosophy 2A, Philosophy 2B | Five hours | Continuous
| GS342 | History and Philosophy of Science 3B - diploma | Philosophy 2B | Five hours | Continuous

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per Week</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| GS345 | History and Philosophy of Science 3A - degree | Seven hours | Continuous
| GS346 | History and Philosophy of Science 3B - degree | Seven hours | Continuous

### Textbooks
- Please consult with lecturer before buying textbooks.
- Recommended reading
- Preliminary reading

### Recommended Reading
- Kuhn, T. The Structure of Scientific Revolutions. Univ of Chicago Press, 1970

### Assessments
- Seven hours per week
- Continuous

Smart, T. _Between Science and Philosophy_. Random House, 1968

_Note:_ Because at least one member of staff will be on leave in 1977, the syllabuses for some of the above HPS courses may have to be altered, adapted, or re-organised this year.

**Literature**

**GS171 Literature 1A**

(Twentieth century literature)

Four hours per week (three hours evening)

1 or 2 lectures; 2 or 3 tutorials

Prerequisite, nil

Assessment is continuous

This unit aims to introduce students to a selection of twentieth century literature, relating it to recent developments in the other arts and in society. Students will be 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_. Methuen, 1970

Deutsch, B. _A Poetry Handbook_. Cape, 1965

Mayhead, R. _Understanding Literature_. CUP, 1969

Richards, I.A. _Practical Criticism_. Routledge and Kegan Paul, 1964

Recommended reading

Nil

**GS172 Literature 1B**

(Nineteenth century literature)

Four hours per week (three hours evening)

1 lecture, 3 tutorials

Prerequisite, nil

Assessment is continuous

This unit surveys Romantic and post-Romantic writers of the nineteenth and early twentieth century, emphasising the artist's awareness of, and increasing divorcement from social concerns. Both English and European fiction and drama, and English poetry will be studied in the course.

Preliminary reading

As for GS171 Literature 1A

Recommended reading

Nil

**GS117 Alternative course, Literature/Media Studies**

(After Dada)

It should be noted that this course counts as one stage one unit in either Literature or Media studies, but not both. It is expected that restrictions will have to be placed on entrance quotas.

Four hours per week

Prerequisite, nil

Assessment is continuous

This unit is an examination of contemporary and avant-garde writing in conventional and experimental forms. Participants should have the desire to explore their own creative potential in these forms, and an important part of the work will be concerned with the opportunity for statement and the evaluation of these explorations.

Activities will include poetry and play readings, happenings, visits by practising writers, examinations of works from rough draft to finished product, visits to theatres both front and backstage and rehearsals, tapes of readings and interviews with overseas writers, workshop and discussion sessions on writings produced by the group.

Preliminary reading


Textbooks

Detailed reading lists will be available before the end of first semester 1977 from either of the departments of Literature or Media studies.

**GS271 Literature 2A**

(Plays of Shakespeare)

Four hours per week (three hours evening)

One lecture, three tutorials

Prerequisite, GS171 Literature 1A or GS172 Literature 1B or approved equivalent

Assessment is continuous

The following plays will be studied intensively: Henry IV Parts I and II, Hamlet, A Midsummer Night's Dream, The Tempest, Troilus and Cressida, and Othello. There will be a preliminary study of the history plays, 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


Gurr, A. _The Shakespearean Stage_. CUP, 1970

Recommended reading

Nil

**GS272 Literature 2B (i)**

(Restoration and Augustan literature)

Four hours per week (three hours evening)

One lecture, three tutorials

Prerequisite, GS171 Literature 1A or GS172 Literature 1B or approved equivalent

Assessment is continuous

The relationship between literature and society in late 17th and 18th century England; the social values that are expressed by the Augustans; the satirists, especially Swift and Pope as critics of their society; the decline of the drama and the rise of newspapers; journals and the novel; the beginnings of Romanticism.

Preliminary reading


Recommended reading

Nil

**GS272 Literature 2B (ii)**

(Medieval literature)

Prerequisite, GS171 Literature 1A or GS172 Literature 1B or equivalent

Students will study both literature and language through a limited number of texts – mainly Chaucer, Langland, and lyric poetry. The course will also examine the distinctively different assumptions concerning both literature and society which distinguish the medieval period.
Preliminary reading

Hussey, M. *Chaucer’s World*. CUP, 1967

Ker, W.P. *Medieval English Literature*. OUP, 1969

Wilson, R.M. *Early Middle English Literature*. Methuen, 1968

Students should indicate when enrolling whether they would prefer syllabus (i) or (ii). The alternative syllabus will be taken only if sufficient students elect to do so.

**GS371 Literature 3A – diploma**

 *(Literature of the United States)*

Five hours per week

Two seminars: one of two hours, one of three hours

Prerequisites, GS271 Literature 2A and GS272 Literature 2B or equivalent

Assessment is continuous

An intensive study of representative works of the nineteenth and twentieth century, their relation to social movements and the current of ideas, and to modern European literature. Authors selected included Stevens, Eliot, Pound and Lowell; the main stream of novelists from Hawthorne to Bellow; and dramatists of the twentieth century.

**Preliminary reading**

Cunliffe, M. *The Literature of the United States*. Penguin, 1963

**Recommended reading**

Nil

**GS372 Literature 3B – diploma**

 *(Australian literature)*

Five hours per week

Two seminars: one of two hours, one of three hours

Prerequisites, GS271 Literature 2A and GS272 Literature 2B or equivalent

Assessment is continuous

Students will be encouraged to read widely in nineteenth and twentieth century Australian literature, to associate the creative works with the general cultural environment, observing both those elements which may be claimed to be distinctively Australian and those deriving from English and European sources. Poetry studied will range from the ballads to contemporary verse; narrative fiction will be studied from Lawton to the present; the drama will be chosen mostly from the period after 1950.

**Preliminary reading**


**Recommended reading**

Nil

**GS336 Literature 3A – degree**

 *(American literature)*

Eight hours per week

Two three-hour seminars, one two-hour seminar

Prerequisites, GS171 Literature 1A or GS172 Literature 1B and GS271 Literature 2A and GS272 Literature 2B

Assessment is continuous

Preliminary reading

As for GS371, Literature 3A (diploma)
This unit is an examination of contemporary and avant-garde writing in conventional and experimental forms. Participants should have the desire to explore their own creative potential in these forms, and an important part of the work will be concerned with the opportunity for statement and the evaluation of these explorations.

Activities will include poetry and play readings, happenings, visits by practising writers, examinations of works from Gardner, H. Dada: Art and Anti-Art, London, Thames and Hudson, 1972

Textbooks

Preliminary reading


GS203 Media Studies 2A

(Print media)

Four hours per week (three hours evening)

Assessment is continuous

This is an introductory course in print media, examining aspects of the press, journalism and book publishing. The character trends and problems of book and newspaper publishing are discussed, including the role of editors and designers. There is an analysis of the readership and editorial policies of Australian press, tabloids and magazines. Case studies of journalism include an analysis of the work situation of Australian journalists, press radicalism, alternative presses, and forms of journalese such as political speech writing, issue of columns, investigative or expose reporting. Wide opportunities are provided for original writing – general and specialist press articles, including news reports, feature articles, daily columns or fiction, such as short stories for magazines. Individual criticism of writing style and techniques is discussed in workshop sessions.

Preliminary reading


Recommended reading

The Book Under Challenge, 1972 International Book Year, Australian UNESCO Seminar

Evans, H. Editing and Design. Heinemann, 1972


Braine, J. Writing a Novel. London, Methuen, 1974

GS204 Media Studies 2B

(Mass media)

Four hours per week (three hours evening)

Prerequisite, nil

Assessment is continuous

This course forms an attempt to demystify the nature and processes of mass communication in its major forms, and its inter-relationship with society. Specific research into television, radio, the press, film and advertising will be undertaken in the context of a developing overall theory of mass media, and comparison with existing theories of writers like Barthes, Carpenter and McLuhan will be invited. There will be a continuing examination of ethical codes and responsibilities of the mass media and attention may be given to specific interest groups and their relation to the mass media in terms of use and interference. Alternatives to mass culture, such as community access television and the underground and counter-culture may also be considered.

Preliminary reading

It is suggested that students acquaint themselves with the large range of material available on this subject (located generally at 301.16-301.24 in the library) and make selective readings.

Recommended reading


GS303 Media Studies 3A – diploma

Five hours per week

Prerequisites, GS203 Media Studies 2A and GS204 Media Studies 2B

Assessment is continuous:

One seminar paper; one long essay (5,000 words) on film or television; one radio script or production

This course involves the critical analysis of individual works written for radio, television and film. These will then be examined in the light of evolving an overall aesthetic of the medium concerned. In addition students will be required to complete a work for radio (either in script or realised tape form) and several afternoons will be set aside for production in the recording studio. It is hoped that most completed works will be broadcast either through the ABC or one of the Melbourne access stations.

Recommended reading


Students are advised also to read widely on Surrealism and Dada

Textbooks

For Radio:

Stopford, T. Artist Descending A Staircase and Where Are They Now? London, Faber & Faber, 1973


Haworth, D. We all Come Down to it in the End. London, BBC, 1970


Pinter, H. Landscape and Silence. London, Eyre Methuen, 1970
Students may consider the question: given that radio's characteristic tension is between sound and silence, might it be more useful to consider radio-play in musical rather than theatrical frames of reference?

Textbooks

Tapes of all works for study will be available for listening from BA610.

GS306 Media Studies 3B — degree

Seven hours per week

Prerequisites, GS203 Media Studies 2A, GS204 Media Studies 2B

Assessment is continuous

The course details are the same as for GS304 (diploma). Students enrolled in the degree stream will select specific topics relevant to the course, for study in greater depth.

Recommended reading

As for GS304 (diploma)
Languages

Diploma subjects offered

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<tr>
<th>Code</th>
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<th>Course</th>
<th>Unit value</th>
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<td>Stage 1</td>
<td>Italian 1</td>
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<tr>
<td>GS162</td>
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<td>Basic Japanese</td>
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<td>GS161</td>
<td>Stage 2</td>
<td>Japanese 1</td>
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<td>Italian 2</td>
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<tr>
<td>GS363</td>
<td>Stage 3</td>
<td>Japanese 3</td>
<td>3</td>
</tr>
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</table>

Degree subjects offered

All stage 1 and 2 subjects, as listed above.

The following stage 3 subjects:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
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</tr>
<tr>
<td>GS367</td>
<td>Japanese 3</td>
<td>4</td>
</tr>
</tbody>
</table>

GS157 Italian 1

Eight hours per week (day); six hours per week (evening)
Prerequisite, nil
Assessment partly continuous, partly by examination

This is a practical introduction to the language. The systematic and progressive study methods are based on language laboratory facilities. A general introduction to the study of Italian civilisation and the Italian way of life will also be given as well as lectures on Italian history and elementary linguistics. Students with proven ability in Italian may be required to undertake special studies in addition to prescribed course work.

Prescribed texts
Brigola, A. *Practising Italian*. (revised), Holt, Rinehart and Winston, 1972

Reference
Elia, P. *I verbi italiani ad uso degli stranieri*. Edizioni Scolastiche Mondadori

GS257 Italian 2

Eight hours per week (day); six hours per week (evening)
Prerequisite, Italian 1 or approved equivalent
Assessment is continuous

Emphasis will be on the development of practical skill in the use of the language, and language laboratory facilities will be provided. Literary studies will be undertaken, aimed at broadening practical knowledge of the language, and at inculcating an interest and understanding of social, political and cultural aspects of modern Italy. A continuation of the Italian linguistics program commenced in stage 1.

Prescribed texts
As for Italian 1, and:
Additional material will be provided.

GS359 Italian 3 – diploma

Six hours per week
Prerequisite, Italian 2 or approved equivalent
Assessment is continuous

The student will be expected to concentrate on developing a knowledge of the language and to expand this knowledge of Italian culture.

Prescribed texts
ALM, *Italian Level Two*. Harcourt, Brace and World Inc., 1965
Babou, V. *L'Italia del nostro tempo*. Le Monnier, 1972
Silone, I. *Fontamara*. Edizioni Scolastiche Mondadori.

Additional material will be provided.

GS364 Italian 3 – degree

Two hours per week in addition to six hours of Italian 3 (diploma)
Prerequisite, a high level of achievement in Italian 2, as determined by the Degree Selection Committee
Assessment is continuous

In addition to requirements for Italian 3 (diploma), students will undertake a more intensive study of twentieth century Italy.

Prescribed texts
As for Italian 3 (diploma).

GS162 Basic Japanese

Four hours per week, daytime
Prerequisite, nil
Assessment is by assignments and tests

A basic but practical conversational course. With use of language laboratory, intensive drills in modern spoken Japanese will be given. No Japanese script will be used. Students intending to proceed to Japanese 2 should take Japanese 1 instead of Basic Japanese.

Textbook
Alfonso, A. and Niimi, K. *Japanese, A Basic Course*. Tokyo, Sophia University, 1968

GS161 Japanese 1

Eight hours per week daytime, or six hours per week evening
Prerequisite, nil
Assessment is by assignments and tests

A thorough course which forms a major sequence with Japanese 2 and Japanese 3. Emphasis will be on mastery of basic spoken patterns and vocabulary, with intensive oral and aural training. The Japanese writing system will be gradually introduced.

Recommended studies
Units on Japan in Asian Studies
Faculty of Arts

Textbooks
Alfonso, A. and Niimi, K. *Japanese, A Basic Course*. Tokyo, Sophia University, 1968
Alfonso, A. *Japanese, A Basic Course, Reader 1*. Tokyo, Sophia University, 1974

**GS261 Japanese 2**

Eight hours per week daytime, or six hours per week evening
Prerequisite: Japanese 1 or approved equivalent
Assessment is by assignments and tests

An extended course which forms the 2nd stage of the major sequence. More colloquial and elaborated expressions will be learned. Students will be expected to learn the language mostly through the Japanese script at this stage. Additional reading materials will be used.

Recommended studies
Units on Japan in Asian Studies

Textbooks
Alfonso, A. *Japanese Language Patterns, Part 2*. Tokyo, Sophia University, 1976

**GS363 Japanese 3 – diploma**

Eight hours per week daytime or evening
Prerequisite: Japanese 2 or approved equivalent
Assessment is by assignments and tests

A consolidating course. Two alternative courses are open. Either to continue the language studies for one year at an approved language institution in Japan and to be examined upon return or to undertake the course offered at Swinburne where, together with expanded conversational training, advanced reading materials which deal with Japanese history, geography, literature and so on will be studied.

Recommended references

Textbooks
Young, J. and Nakajima, K. *Learn Japanese*. College Text Vols III and IV.
Tokyo Shoseki, ed. *Atarashii Shakai*. Vol. 3 to 6, Tokyo, Tokyo Shoseki, 1975

**GS367 Japanese 3 – degree**

Six hours per week common with Japanese 3 (diploma) and two additional hours daytime
Prerequisite, high standard of performance in Japanese 2 as determined by the Degree Selection Committee
Assessment is by assignments and tests

A course for highly advanced studies of the language. For the additional two hours students are expected to read a quantity of unabridged reading materials which deal with linguistic, cultural, social and philosophical aspects of Japan. Conversational students may undertake special assignments in place of the common six-hour course.

Recommended references

Textbooks
Kokusai Gakuyukai, 1973
Kindacchi, H. *Nihongo*. Tokyo, Iwanami Shoten, 1967
Oish, H. *Tadeshi Keigo*. Tokyo, Oizumi Shoten, 1971
*Kawabata, Y. Iwano Odoriko*. Tokyo, Akane Shobo, 1972
*Nihon Kyoku Kenkyukai. Nihon Rekishi*. Tokyo, Mikunido, 1974
*Takahashi, O. Kateira Nakano Nihonjin*. Tokyo, Hara Shobo, 1971

*Subject to change
Psychology

Diploma subjects offered

<table>
<thead>
<tr>
<th>Code</th>
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Stage 2

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<td>GS278</td>
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Stage 3

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<td>GS376</td>
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<tr>
<td>GS378</td>
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</tbody>
</table>

* An approved pair of stage three diploma subjects earns a total of three units.

Degree subjects offered

All stage 1 and 2 subjects, as listed above

The following stage 3 subjects:

<table>
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<td>GS377</td>
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<tr>
<td>GS379</td>
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</table>

Psychology

The three-year course aims to provide students with a broad introduction to psychology in the first two years and, for those majoring in psychology, the third year places emphasis on vocational skills and knowledge relevant to applied fields.

From 1977, the first year course in psychology combines courses previously offered as Psychology 1 and Introduction to Design and Measurement. Students intending to major in the subject are required to take Psychology 1A and Psychology 1B. Each of these units comprises lectures, practical work and statistics.

An alternative unit (Psychology 1T) is provided for students who desire only to gain an introduction to the subject and who do not wish to proceed to further units. This course is of one semester’s duration and does not qualify for entry into Psychology 2 units.

GS174  Psychology 1A

Five hours per week daytime
Three and a half hours per week evening

Psychology 1A and 1B are designed to provide students with an introduction to the content and method of psychology. At the same time it is hoped that the course will serve to dispel a number of the more persistent myths which continue to surround the analysis of human behaviour. Topics covered in Psychology 1A include the origins and methods of modern psychology, basic learning theory, and an introduction to the study of personality. The teaching program includes lectures, tutorials and a number of practical laboratory sessions. Statistical analysis of data obtained in laboratory exercises is an important element.

Preliminary reading


GS175  Psychology 1B

Five hours per week daytime
Three and a half hours per week evening

Prerequisite, Psychology 1A

Topics covered in this unit include biological bases of behaviour, sensation, introduction to perception, and basic concepts in motivation. Design and measurement again forms a significant part of the teaching program.

GS176  Psychology 1T

(Terminal course)
Four hours per week daytime
Three hours per week evening

This course provides an introduction to psychology. It has a non-professional emphasis and centres on current controversies and social issues. Topics include aggression, bio-feedback, anti-psychiatry movement, psychotherapies, human sexuality, issues relating to urban life and population control. Satisfactory completion of this unit does not qualify for entry into Psychology 2 units.

Preliminary reading


GS281  Psychology 2A

Five hours per week daytime
Three and a half hours per week evening

Prerequisites, 1977: Psychology 1B and Introduction to Design and Measurement, 1978: Psychology 1A and Psychology 1B

A course of two lectures, one two-hour experimental class and a one-hour tutorial per week for one semester.

This unit will cover the following areas:

(a) Basic concepts and theoretical approaches to social psychology
(b) Affiliation; attraction and liking; altruism and helping behaviour
(c) Person perception, impression formation
(d) Attitude, theory and measurement; attitude formation
(e) Group dynamics; co-operation and competition; leadership, conformity and compliance
(f) Current issues – collective behaviour; minority group issues; aggression.

Preliminary reading

Aronson, E. The Social Animal. Freeman, 1973
The aspects of psychology to be dealt with in this subject are concerned with the development of behaviour in humans from birth to the age at which their most important functions have become mature. The course will outline the basic factors in development, and trace the development process as this applies to physical, social, emotional and intellectual abilities and to personality. The teaching program will involve two lectures per week, plus tutorials and one practical session.

Preliminary reading

Stage 3 Psychology

In the third year, the course provides an opportunity for students to undertake studies directed towards the understanding and application of psychological principles. Courses will be offered in organisational and applied social psychology, together with the psychology of personality and personality adjustment. In addition, core studies in interviewing and assessment, and training in research methods will be offered to students taking degree studies.

Students may take either Psychology 3A (GS381 or GS374) or Psychology 3B (GS383 or GS375) in the first semester and either Psychology 3C (GS376 or GS377) or Psychology 3D (GS378 or GS379) in the second.

For students wishing to take Psychology 3A, B, C or D, completion of Design and Measurement 2A and 2B, or equivalent is strongly recommended.

GS383 Psychology 3B – diploma

(Psychology of personality)
Four hours per week
Prerequisite, Psychology 2A and 2B
This course is designed to introduce students to a number of influential theories of personality and to the problems associated with personality assessment.
(a) Research methods and problems in personality; stability of personality – individuality; socio-cultural influence on personality
(b) Psychoanalytic theory; the psycho-sexual theory of Sigmund Freud; the psycho-social theory of Erik N. Erikson
(c) Existential theory; the humanistic theory of Abraham Maslow and the self theory of Carl Rogers
(d) Objective personality theory; the factor analytic theories of H. Eysenck and R. Cattell
(e) Behaviourist approaches to personality.

Preliminary reading

GS374 (A) Psychology 3A or B – degree

(Core Unit – first semester – methodology)

GS375 (B) Three hours per week in addition to Psychology 3A or B, diploma hours
One hour lecture and two hours’ laboratory
Assessment is continuous and counts as thirty percent of a total Psychology 3A or 3B subject.

A component of the course for students taking either Psychology 3A or 3B as a degree subject will be an introduction to research design and methods. This unit will be concerned with the construction, reliability and validation of attitude scales, the purpose and effectiveness of different types of research design, the selection and use of appropriate statistical measures, the use of the computer as an analytical tool, and the evaluation and critique of experiments and research designs.

Recommended reading
Matheson, DW., Bruce, R.L. and Beauchamp, K.L. Introduction to experimental psychology. 2nd edn, New York, Holt, Rinehart and Winston, 1974

Textbook
GS376  Psychology 3C – diploma
(Psychology of adjustment)
Four hours per week
Prerequisite, Psychology 2A and 2B
This course will consider the concept of ‘adjustment’ and related theoretical, social, moral and ethical issues. More specifically some critical periods of human life will be selected for study; periods which require quite major changes in coping behaviour. Included will be: changes and adjustments in childhood, adolescence and maturity. An experiential component will also be part of the course, whereby students will be given the opportunity to work alongside people in the various ‘helping’ professions.
(a) The concepts of adjustment and maladjustment, normality and abnormality coping and adaptation – cultural relativism – ethical and moral issues pertaining to adjustment
(b) Theoretical views of the ‘coping’ process and the various therapies
(c) Coping in childhood, adolescence and maturity – specific ‘coping’ problems and difficulties
(d) Conflict, frustration, aggression and anxiety
(e) Towards behavioural change – different approaches.

Preliminary reading
Harris, T.A. I’m O.K. You’re O.K. London, Jonathan Cope, 1974

GS378  Psychology 3D – diploma
(Applied social psychology)
Four hours per week
Prerequisite, Psychology 2A and 2B
This course will deal with issues of current interest and real-life relevance to which social psychologists are or will be expected to contribute.
Students will complete a project of their own choice within a general topic area, e.g. Health Care Delivery Systems; the Influence of Environment on Individuals. It is intended that some of the projects be presented to an invited audience at the end of the semester.
A few weeks are set aside for experiential work. This will enable students to become familiar with some of the techniques social scientists use e.g. current approaches to group work, as well as providing an opportunity for increased self-awareness.
The main theoretical inputs will relate to organisation development and change; the role of social scientists/ change agents; ethical issues and other specific areas as are of interest at the time.

Preliminary reading

GS377 (C) Psychology 3C or D – degree
or
GS379 (D)  Core Unit – second semester – interviewing and assessment
Three hours per week in addition to 3C or D, diploma hours
One hour lecture and two hours’ practical work
Assessment is based on project work and counts as thirty per cent of a total Psychology 3C or 3D subject
A component of the course for students taking either Psychology 3C or 3D as a degree subject will be an introduction to the theory and practice of interviewing and assessment. Subject matter covered will include interviewing for counselling, employee selection, and assessment of abilities and aptitudes.
Social and Political Studies

Diploma subjects offered

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<th>Code</th>
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<tr>
<td>GS126</td>
<td>Asian Studies 1B</td>
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</table>

*An approved pair of stage three diploma subjects, taken in the one area of study, earns a total of three units. Subjects which can be paired are bracketed. Contemporary history 3A may be paired with any of these stage three subjects.

Degree subjects offered

All stage 1 and 2 subjects, as listed above.

The following stage 3 subjects:

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<th>Code</th>
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<td>GS394</td>
<td>Sociology 3C</td>
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Asian Studies

The Asian Studies program is planned to provide students with some understanding of contemporary Southeast and East Asian societies. The units in this course cover not only historical, political and economic aspects of the area, but are designed to encourage an interest in the activities of the countries to our north and an ability to analyse the challenges and problems faced by these Asian states.

GS125 Asian Studies 1A

(Southeast Asia: early social and commercial developments)

Daytime four hours per week or evening three hours per week

Prerequisite, nil

Assessment by tutorial paper, short assignments and/or an examination

This subject will concentrate on the evolution and organisation of societies in Southeast Asia. Topics include the early kingdoms of Malacca and Angkor; religion – the impact of Indianisation and the growth of Islam in the archipelago; development of the plantation system; the problems of improving traditional peasant agriculture; a village study; the development of Singapore as a port.

Recommended reading


Legge, J.D. Indonesia. Spectrum

GS126 Asian Studies 1B

(Southeast Asia: developments since 1945)

Daytime four hours per week or evening three hours per week

Prerequisite, nil

Assessment by papers and/or an examination

An examination of some of the features of Southeast Asian countries since 1945.

(a) The role and practice of government: experimentation with democracy; the emergence of authoritarian rule; the characteristics and effects of revolution; the nature and impact of communism; racial conflict

(b) The growth of towns and cities and the socio-economic setting: urban-rural migration; village influences in the cities; the interaction between rural-urban lifestyles; the growth of the services sector and the employment pattern; squatter settlements and strategies for housing the urban poor.

Reading guides will be distributed.

GS225 Asian Studies 2A

(Modern Japan)

Daytime four hours per week or evening three hours per week

Prerequisite, GS125 Asian Studies 1A or GS126 Asian Studies 1B or any Contemporary History 1 or Modern Government 1

Assessment by tutorial participation and 3 papers (including 2 tutorial papers) or, 2 papers (including 1 tutorial paper) and an examination

The subject aims to achieve some understanding of contemporary Japan. Discussion will centre around the problems of modern Japanese nationalism together with the interaction of historical and geographical circumstances and their influence on the organisation of agriculture and industry. Emphasis will be placed on discussion of the post-1945 period in domestic politics, education, business, the family and religion.

Recommended reading


Reading guides will be distributed.

83
This study includes examination of contemporary Chinese society in order to provide some understanding of domestic China today.

Schram, S.

Special emphasis is placed on cultural, social and institutional change in China after 1949 and on an examination of contemporary Chinese society in order to provide some understanding of domestic China today.

Recommended reading

GS26 Asian Studies 2B
(Modern China)
Daytime four hours per week or evening three hours per week
Prerequisites, GS125 Asian Studies 1A or GS126 Asian Studies 1B, or any
Contemporary History 1 or Modern Government 1
Assessment is by seminar participation, tutorial paper and short exercises

This study includes an examination of the role of students in Chinese politics, the Nationalist regime, agricultural change and development, the growth of industrialisation. Special emphasis is placed on cultural, social and institutional change in China after 1949 and on an examination of contemporary Chinese society in order to provide some understanding of domestic China today.

Reading guides will be distributed.

GS37 Asian Studies 3A – first semester
GS38 Asian Studies 3B – second semester
(diploma)
(Problems and conflicts in Asia)
Five hours per week
Prerequisites, GS225 Asian Studies 2A and GS226 Asian Studies 2B or approved equivalent
Assessment is by seminar participation and papers

(a) Topics include population growth, unemployment, underemployment and uneven income distribution; strategies of economic development; plans for rural change and the Green Revolution; policies for technological and industrial development of the role of foreign investment in this sphere.

(b) A study of those forces and elements which facilitate an understanding of problems and relationships in the East and Southeast Asian areas in the twentieth century. Special attention will be given to the foreign policies of Asian countries in the post-1945 era and their interaction with European powers. Topics include the Sino-Soviet conflict, Japanese-American relations, China's entry into the UN, the prospects for Japanese militarism, Japan's defence options and the changing balance of power in Asia.

Reading guides will be distributed.

GS39 Asian Studies 3A
GS30 Asian Studies 3B
(Problems and conflicts in Asia)
(a) Seven hours per week
As for Asian Studies 3A (diploma)
Students will also be required to deal with theories on rural change, population and industrial development and apply these to several comparative case studies. Students will be expected to participate in weekly seminars and complete some exercises.

(b) Seven hours per week
As for Asian Studies 3B (diploma)
Students will also examine, and apply to Asian case studies, some analyses of international politics. Students will be required to participate in weekly seminars and present papers.

Contemporary History subjects

History subjects in the Swinburne Faculty of Arts are designed with a contemporary approach – that is, they are relevant to the needs of students and to the needs of contemporary society. The subjects are problem-oriented, with particular attention to new themes and new interpretations.

The contemporary history subjects are related to other subjects taught in the Department of Social and Political Studies (Sociology, Modern Government and Asian Studies). Students may include a contemporary history unit as part of another major or sub-major. Before embarking on any mixed major, a student must obtain the approval of the head of the appropriate department.

One example of a mixed major (for degree): Modern Government 1A and 1B; Contemporary History 2A (or 2B); Modern Government 2A (or 2B); Modern Government 3A and 3B.

One example of a mixed sub-major: Contemporary History 1A; Modern Government 1A (or 1B); Contemporary History 2A and 2B.

GS121 Contemporary History 1A – degree & diploma
(Sociological history)
Daytime four hours per week or evening three hours per week
Prerequisite, nil
Assessment is by assignment and a one-hour examination

An introduction to new concepts and methods in sociological history. The subject examines the relations between three social sciences – social history, sociology and modern government. It explores ways in which an historical perspective can contribute to the other social sciences and ways in which the other social sciences can be applied to the study of the past. An introduction is given to new themes such as urban history, working people's history and women's history. Attention is given to the theory and techniques of documentary research, especially oral history (i.e., creating new documents by means of interviews). Students will undertake a case study concerning the experiences of a particular generation (e.g., their parents' age group) or a particular social group or community (e.g., working people, business people, women, immigrants, non-whites). The subject is based on seminar methods (i.e., extensive reading, fieldwork and conference discussion). The emphasis is on a student-centred learning, rather than subject-oriented instruction.

Preliminary reading
Barker, P. ed. The Social Sciences Today. London, Edward Arnold (chapter by E.J. Hobsbawn on economic and social history)
Runciman, W.G. Sociology in its Place. Cambridge University Press, 1971, chapter 1

84
Contemporary History 1B – degree & diploma
(Asia's interaction with the West)
Daytime four hours per week or evening three hours per week
Prerequisite, nil
Assessment by short exercises, tutorial discussion, optional examination

This subject consists of a study of change and the growth of nationalist movements as a result of European expansion in the Asian area. In the examination of selected case studies, attention will be focused on ideological and social change in urban and village situations in China, Indochina and Indonesia.

Preliminary reading:
Steinberg, D.J. ed. *Search of Southeast Asia*. Praeger, 1972
Chesneaux, J. *Peasant Revolts in China*. Thames & Hudson paperback, 1973

Contemporary History 2A – degree & diploma
(Modern social movements)
Daytime four hours per week or evening three hours per week
Prerequisite, any stage 1 unit in Contemporary History or Sociology or Modern Government or Asian Studies;
Contemporary History 2A or 2B may be combined with these to form a sub-major or major
Assessment is partly by seminar work and partly by examination; the ratio is agreed to beforehand in consultation with each student.

This study combines the perspectives of three social sciences – social history, sociology, and modern government. The focus is on themes and case studies, rather than countries and periods. The approach is analytical and comparative. The main themes are: the origin of modern movements concerned with social change; and the evolution of the modern ideological spectrum. The course examines a variety of movements and issues: face-to-face movements and international mass movements; informal movements and structured movements; movements for 'micro' or 'macro' change; reform, revolution, counter-revolution; authority and freedom; social change and personal liberation.

In the first semester (Contemporary History 2A), the case studies include: pre-Marxian communes and Utopias; the origins and evolution of the Marxian socialist movement; anarchist movements. In the second semester (Contemporary History 2B), the case studies include: the early Leninist movement; non-Leninist social-democratic movements; the international Stalinist and Trotskyist movements; fascist and nazi movements. In both semesters, these case studies are discussed in the light of issues that are being faced by the counter-culture, alternative-society and personal-liberation movements of today.

Preliminary reading:
Caute, D. *The Left in Europe since 1789*. World University Library paperback
Kanter, R.M. *Commitment and Community: Communes and Utopias in Sociological Perspective*. Harvard University Press paperback
Rowbotham, S. *Hidden from History: 300 years of Women's Oppression and the Fight Against It*. Penguin

Contemporary History 3A – diploma
(Urban case studies)
Daytime or evening five hours per week
Prerequisites, stage 2 units in sociology or modern government or Asian studies or contemporary history; Contemporary History 3A may be combined with another stage 3 subject in sociology or modern government or Asian studies to form a diploma major.
Assessment is by assignment and examination

This study combines the perspectives of three social sciences – social history, sociology and modern government. The main themes are: researching the evolution of urban environments (e.g., industrial, working-class suburbs, compared with residential, white-collar suburbs); researching the evolution of community power structures; researching the background to issues in urban government; researching the origins of urban problems such as slums and pollution; researching the history of non-elite urban groups.

Preliminary reading:
Cahrian, W.J. and Boskoff, A. ed. *Sociology and History: Theory and Research*. New York, Free Press, 1964 (especially the introductory and concluding chapters by the editors)

Contemporary History 3B
Not available in 1977.

Modern Government
The courses are designed to equip students with the knowledge of the structures and processes of government. The primary emphasis is on developing skills in the analysis of politics, decision-making, administration, and the complexities of the interaction between public and private sectors in a modern industrial society. A secondary emphasis is to create an awareness and understanding of political problems facing the people and governments of some non-European, agricultural societies.

Modern Government 1A
(Australian politics)
Daytime four hours per week or evening three hours per week
Prerequisite, nil
Assessment is by essays and examination

This subject examines the framework of Australian government and politics. It considers the following topics: voting behaviour, the electoral system, parliament, cabinet and the public service, political parties, pressure groups, the constitution and its politics. In addition, students are asked to discuss relevant issues in Australian politics, such as education, civil liberties, freedom of the media. Reference will be made to theories of society, to the political, economic and social values stemming from them, and their bearing on Australian politics.

Recommended reading
Forell, C.R. *How we are Governed*. Cheshire. 1973
or Jones, A. *ABC of Politics*. Cassell, 1973
GS132  Modern Government 1B
(The third world)
Daytime four hours per week or evening three hours per week
Prerequisite, nil
Assessment is continuous

The course is an introduction to the conditions of poverty, exploitation, and economic development in 'third world' countries, to the ways we explain these conditions, and to some of the reasons we have for adherence to these explanations. Centred on the theme 'Who benefits, who loses?', the course will examine examples from Indonesia, China, and Latin America.

Textbooks

GS136  Law and Society 1
(Law and society)
Daytime four hours per week or evening three hours per week
Prerequisite, nil
Assessment is continuous

The subject examines basic formal aspects of the law as well as relationship to social institutions and social classes. The aim is to strip laws and legal processes of their sense of mystery.

Recommended reading

GS231  Modern Government 2A
(Political sociology)
Daytime four hours per week or evening three hours per week
Prerequisites, GS131 Modern Government 1A, GS132 Modern Government 1B, Sociology 1 or equivalent
Students may choose one of the political sociology subjects, GS231 Modern Government 2A or GS290 Sociology 2D, but not both

This subject examines the influence of society upon politics. Topics to be considered include the historical background to political sociology, classic views about the nature of man and society and a consideration of the nature of sociology, an examination of the concepts of power, authority and influence, with special emphasis on Max Weber; the problem of locating power in modern society, Marxist and elitist theories, community power studies; implications of elitism for democracy and the relationship between social science and political theory.

Recommended reading

GS232  Modern Government 2B
(Comparative government: Indonesian politics)
Daytime four hours per week or evening three hours per week
Prerequisite, GS131 Modern Government 1A
Assessment is continuous

This subject examines the bases of political action in Indonesia. The course will begin with an outline of the political forms government has taken in independent Indonesia and then will examine the economic, social, and religious patterns as they relate to and underlie Indonesian politics. A secondary theme of the course will be the ideological connotations of the various phases of American and Australian scholarship in the analysis of Indonesian politics.

Reading lists will be distributed.

GS331  Modern Government 3A – diploma
(Politics in industrial society)
Daytime five hours per week
Prerequisite, GS231 Modern Government 2A, GS232 Modern Government 2B or a unit of Contemporary History 2, or equivalent
Assessment by written assignments and tutorial participation (precise details to be decided)

This subject examines the social relations of science and technology in contemporary industrial societies. There are three sections. In the first, the social processes of the production of scientific and technical knowledge are examined, with particular emphasis on the relationship between science and ideology, and the social and political role of the scientific community. The second is concerned with the relationship between science and government, especially the emergence of government-sponsored 'big science' and the institutions and functions of government science politics. The third section will encompass some of the following topics of interest; the ethical and social implications of advances in biological knowledge, the social and political consequences of automation, technology assessment and environmental control, scientists and social responsibility.

Recommended reading
Wilson, A. The Concorde Fiasco. Penguin, 1973
Jungk, R. Brighter than a Thousand Suns. Penguin, 1965

Textbooks
This subject provides students with an understanding of how governments administer complex industrial societies. This aim will be pursued through a study of Australian government administration. The course consists of three sections. In the first, the structure and formulation, and the third will be a case study approach to the politics of policy making.

Recommended reading
Juddery, B. At the Centre – The Australian Bureaucracy in the 1970s. Melbourne, Cheshire, 1974

Textbooks

GS321 Contemporary History 3A
(Urban case studies)
This subject may be paired with another stage three subject in modern government to form a diploma major in modern government. See details in 'contemporary history' section.

GS332 Modern Government 3B – diploma
(Public administration)
Daytime five hours per week
Prerequisite, GS231 Modern Government 2A, GS232 Modern Government 2B or a unit of Contemporary History 2, or equivalent
Assessment by written assignments and tutorial participation (precise details to be decided)

This subject provides students with an understanding of how governments administer complex industrial societies. This aim will be pursued through a study of Australian commonwealth government administration. The course consists of three sections. In the first, the structure and role of the Commonwealth Public Service is discussed. The second examines the processes of economic policy formulation, and the third will be a case study approach to the politics of policy making.

Recommended reading
Juddery, B. At the Centre – The Australian Bureaucracy in the 1970s. Melbourne, Cheshire, 1974

Textbooks

GS331 Modern Government 3A – degree
(Politics in industrial society)
Seven hours per week
As for Modern Government 3A (diploma). In addition, degree students will be expected to deal with particular issues in greater depth; attend weekly seminars and present papers for discussion.

GS334 Modern Government 3B – degree
(Public administration)
Seven hours per week
As for Modern Government 3B (diploma). In addition, degree students will be expected to deal with particular issues in greater depth; attend weekly seminars and present papers for discussion.

GS185 Sociology 1A
(Introduction to sociology)
Daytime four hours per week or evening three hours per week
Prerequisite, nil

The purpose of this subject is to introduce students to the basic issues and topics that sociology deals with. Areas covered include society and culture, group behaviour, socialisation, roles, organisations and social stratification. Students will be asked to complete two minor exercises during the semester and to write an examination paper at the end. Lectures and tutorials form the core of work done in Sociology 1A.

Preliminary reading
Berger, P. Invitation to Sociology

References
De Fleur, M. Sociology: Man in Society
Mills, C.W. The Sociological Imagination
Ritzer, G. Issues, Debates & Controversies

GS186 Sociology 1B
(Introduction to sociology)
Daytime four hours per week or evening three hours per week
Prerequisite, GS185 Sociology 1A

In this subject, students should become more familiar with some theoretical approaches to and the mechanics of, sociological inquiry. Methods of data gathering and data analysis will be considered. As a major part of their work in this subject, students will, in consultation with their tutors, design, carry out and present an original research project on a subject of special interest to them.

Suggested reading
Thompson, J. and Tunstall, J. Sociological Perspectives
Aron, R. Main Currents in Sociological Thought

References
Wiseman and Aron. Field Projects for Sociology Students
Freeman, L. Elementary Applied Statistics

GS285 Sociology 2A
(Social change)
Daytime four hours per week or evening three hours per week
Prerequisites, GS185 Sociology 1A and GS186 Sociology 1B
Assessment will consist of one essay and two brief, prepared examinations as well as tutorial contributions.

This course deals with issues of identifying and analysing social change. This is done on two levels: the first involves tracing the factors which contribute to specific social trends (in this case family and consumption patterns) and the second involves studying major models of social change including the theories of some prominent sociological thinkers.

Recommended reading
Galbraith, J.K. The New Industrial State
Edwards, J. The Family and Change
Cohen, P. Modern Social Theory
Rex, J. Key Problems in Sociological Theory

GS288 Sociology 2B
(Methodology of social research)
Daytime four hours per week or evening three hours per week
Prerequisites, GS185 Sociology 1A and GS186 Sociology 1B
Assessment is continuous

The focus of this unit is not so much on particular methods of gathering data as on the interplay between theoretical orientations and methodology, i.e., the theory-research relationship. The aims of sociology and the development of different theoretical orientations are important to any consideration of research and methodology. Thus major 'theoretical schools' in sociology are viewed within the context of their methodological emphases.

With this framework as a background, the unit focuses on two different aspects of methodology –
(i) Lectures and tutorials focus on issues important to any sociological research including topics such as the role of values (and the question of value-free research), ethics in research, the aims of research (and the distinction between explanation, description and prediction), the importance of research design, the function of models in research and theory-building etc.

(ii) Practical sessions will combine lecture-practical on areas such as content analysis, experimental design, sampling and scaling.

The assessment will include a tutorial paper and a major assignment (involving planning and pre-testing a research project) and a choice of mid-year test or take-home essays.

There will be no final exam.

Preliminary reading
Wiseman and Aron. Field Projects for Sociology Students

Prescribed text
Denzin, N. Sociological Methods: A Source Book
Mills, C.W. The Sociological Imagination

GS289 Sociology 2C
(Sociology of deviance)
Daytime four hours per week or evening three hours per week
Prerequisites, GS185 Sociology 1A and GS186 Sociology 1B

In an attempt to understand deviance, the varying perspectives used in the study of deviance will be used. A discussion of the concept of deviance and problems of definition will precede a comparison of the 'old' and 'new' perspectives in the sociology of deviance. Important theories and frameworks within each perspective will be analysed and evaluated in terms of their applicability to various types of deviant behaviour. The production, maintenance and change of those rules whose violation constitutes deviant behaviour will be examined. Specific types of deviant behaviour to be discussed will include suicide, crime and delinquency, drug use, mental illness and deviance in everyday life.

Recommended reading
Rubington and Weinberg, Deviance: The Interactionist Perspective, 1972
Edwards, A. and Wilson, P. Social Deviance in Australia, 1975
Cheshire, 1975
Taylor I., Walton, P. and Young, J. Critical Criminology, 1976

GS290 Sociology 2D
(Political sociology)
Daytime four hours per week or evening three hours per week
Prerequisites, see GS231 Modern Government 2A
(Students may choose one of the political sociology subjects, GS290 Sociology 2D or GS231 Modern Government 2A, but not both)

Assessment is by written assignments

This subject is an introduction to Marxist theory, emphasising Marxism as an alternative sociological orientation for the analysis of society. Areas to be covered include the fundamental philosophical and methodological assumptions of Marxism, Marx’s analysis of capitalism – the centrality of Marxist political economy for the study of class, power, state and ideology. Also an attempt to indicate the usefulness of Marxism for analysing key areas of social conflict and power in society (especially Australia) will be made. This will involve an examination of industrial relations, corporations, trade unions and the state.

GS385 Sociology 3A – diploma
(Urban sociology)
Daytime five hours per week
Prerequisites, 2 sociology stage 2 units

The course will consider various theoretical positions taken by sociologists with respect to cities and city life. Specific considerations will be given to theories of urban growth and change, urban spatial and social structure, the analysis of power and decision-making in cities and the character of social relations at metropolitan and local scales. There will also be some analysis of the relevance of sociological theory to some problems of urban policies, e.g., the situation of minority groups in the city, social aspects of housing policy etc.

Preliminary reading
Rubington and Weinberg, Deviance: The Interactionist Perspective, 1972

Recommended reading

GS386 Sociology 3B – diploma
Prerequisite, two sociology stage 2 units

This course combines elements of the studies commonly referred to as ‘organisational theory’, ‘industrial sociology’ and ‘sociology of work’. It includes the study of the various ways that organisations have been identified and analysed and a consideration of the social contexts in which they operate. Organisational structures are controversial because they engage the interests of different social groups for a variety of reasons which are perceived by their proponents as rational or moral. Particular organisational forms are not merely more or less efficient for the achievement of goals, they have a political and therefore problematical content and it is important that both of these main themes be emphasised.

The major sections of the course are:
(i) Major schools of organisational theory
(ii) Weber and bureaucracy
(iii) The relationship between organisation and society
(iv) The contemporary pressure for organisational change
(v) An examination of either professional organisations or organisations with extensive worker participation in their management (West Germany).

Texts
Fox, A. Man Mismanagement
Silverman, D. The Theory of Organizations
Electives taught by other faculties

The following units are taught by departments in other faculties.

Mathematics Department

GS183 Introduction to Design and Measurement
Four hours per week for one semester
Prerequisite, nil
Assessment may be continuous or by examination

A first year subject in experimental design and elementary statistics. Topics will include: types of data, levels of measurement, collection and collation of data, histograms, frequency polygons, ogives, significance testing and correlation, analysis of journal articles in experimental psychology. Use of electronic calculators.

Recommended reading
Langley, P.D. Elementary Statistical Methods for Students of Psychology. Department of Psychology, University of Melbourne.

Textbook
Miller, S. Experimental Design and Statistics. London, Methuen, 1975

GS278 Design and Measurement 2A
Five hours per week during second semester
Prerequisite, GS183 Introduction to Design and Measurement, or new syllabus Psychology 1A plus 1B
Assessment is continuous

A second year subject in research design and statistical analysis. Topics include: normalising data. Correlation coefficients including point biserial, phi, tetrachoric. Correlation tests of significance. Non-parametric tests of significance including Mann-Whitney, Wilcoxon, Chi-square, median, Fisher, Kolmogorov, and Kolmogorov-Smirnov tests. Analysis of variance both one- and two-dimensional; parametric and non-parametric, and including Scheffe and Dunnett tests. Regression analysis including simple and multiple regression, standard error of estimate, analysis of regression. Ideas on the use and limitations of the computer.

Recommended reading

Textbook

GS279 Design and Measurement 2B
Five hours per week during second semester
Prerequisite, GS278 Design and Measurement 2A
Assessment is continuous

A second year subject in research design and statistical analysis. Probability associated with the binomial distribution and its approximations. Sample statistics and their relation to population parameters. Introduction to research, Sample designs including Latin squares. Analysis of covariance. Programming the computer, and use of statistics packages. Introduction to factor analysis. Approximately one third of the course is devoted to experiments, practice sessions, and projects in which students are expected to make full use of the computer and machine calculators.
Recommended reading

Textbook

**SM107 Mathematics**

Five hours per week, including practice classes
Prerequisite, pass in an HSC mathematics or its equivalent
Assessment is continuous for pass level; a final honours paper of three hours' duration for higher grades

A first year subject which lays the foundation for **SM207** and covers a broad range of topics of use to students of psychology and sociology. Topics include: logic, algebra, data processing, probability and statistics, linear algebra, linear programming and Markov chains, series and calculus.

Recommended reading
Moroney. M.J. *Facts from Figures.* Ch. 1—5, Pelican, 1973
Schaum Series: *Calculus.* Prescribed chapters
*Probability.* Prescribed chapters

Textbook
SCT, SM107 notes

**SM207 Mathematics**

Five hours per week, including practice classes
Prerequisite, **SM107** or its equivalent
Assessment is continuous for pass level
A final three-hour Honours paper for higher grades

A second year subject designed for students of the behavioural and social sciences. By the end of this subject, students will be able to cope with the mathematics and statistics of any research paper in their major field of study.

Topics: Computer programming
Advanced statistics and probability
Fourier, harmonic and spectral analysis
Differential equations/Laplace transforms
Mathematics and the environment
Journal readings.

Preliminary reading
Spiegel, R.M. *Advanced Calculus.* Schaum, 1974, Ch. 13, 14.

References
SCT notes. Library as prescribed

**Faculty of Business**

**Economics**

Economics is offered by the Faculty of Business as a degree or diploma major in the Arts course.

If intending to take an economics major, Arts students should take care to discuss their overall course plan with an Arts course adviser to ensure that they will meet all requirements for qualification.

The economics department offers a wide range of units which may be taken to form a major sequence. Degree students are required to complete seven semester units for a major, while diploma students may complete a major by taking six semester units.

For degree students a typical course plan would look like this:

**Stage 1**

- **BS111**

**Stage 2**

- BS211 and BS212 or one of these followed by
  - any stage 3 unit

**Stage 3**

- Any three other units chosen from BS311—318

The same provisions apply for diploma students except that they are required to take only two units at stage 3 level.

Students wishing to enrol for economics units should consult the Head of the Economics Department or the department's secretary who is located in BA918.

**Brief descriptions of economics subjects are given below, more information is available in the 'Faculty of Business' section of this handbook.**

**BS111** Managerial Economic Analysis, seeks to show how economic analysis can be used to assist in the formulation of business decisions, for example, demand-forecasting and pricing policies.

**BS211** Managerial Economic Analysis, seeks to show how economic analysis can be used to assist in the formulation of business decisions, for example, demand-forecasting and pricing policies.

**BS212** The Firm and its Environment, analyses the environment within which firms make decisions, and considers the interplay between the environment and the conduct and performance of firms.

**BS311** Public Finance, analyses the economic rationale of government expenditure and revenue-raising with particular emphasis on taxation policy and cost-benefit analysis.

**BS312** Economic Research, aims to widen students’ familiarity with the nature of research work carried out by economists, and to increase students’ ability to analyse and carry out research of a qualitative nature.

**BS313** International Trade, combines a study of trade theory with a detailed examination of present Australian trading trends and problems.

**BS315** Monetary Economics, provides a study of the nature and developments in Australian finance markets and considers various aspects of monetary theory and policy.

**BS316** Labour Relations, examines the nature of an industrial relations system with emphasis on the Australian experience.

**BS317** Labour Economics, incorporates a study of factors influencing the supply and demand for labour, wage and price levels and labour’s share of national income.

**BS318** Urban Economics, aims to develop an economic approach to appraising urban issues such as location, decentralisation, transport, housing and the environment.
BS091  Personal Typing – degree & diploma
Four hours per week
Prerequisite, nil
Assessment by tests
A semester subject designed to teach the student to type by touch, to a minimum speed of 35 wpm; to produce personal business letters; to set out and type correctly, a report in its entirety.
Textbook

Physics Department

SP151/ SP152  Science and Man
Four hours per week
Prerequisite, nil
These are single semester units for students in the Arts faculty who need not have had any formal training in mathematics or science. Usually four different topics will be treated in each semester and these will be chosen from a range of subjects covering either the application of science to everyday experience or activity, or developments in science which are of intrinsic interest or importance. Typical examples are: sounds, speech and music; the physics of sports; light and colour; energy resources; astronomy; recent developments in science.
There is no prescribed text.

Also offered
Listed below are subjects taught by other faculties which may be chosen to form part of an Arts course. Other subjects may be approved, and students interested should make enquiries. An Arts student wishing to take an elective taught in another department must obtain the approval of both the Faculty of Arts and the other department concerned, as entry to such may depend on the availability of places and satisfactory prerequisites.

No student may, without special permission, include more than the equivalent of six units from courses offered by departments outside the Faculty of Arts. Of all subjects offered by other faculties, only Economics has approval as a degree major for Arts students.

Faculty of Business
Accounting 1, Business Law, Administrative Studies 1,
Computing Methods.
Refer: Business Studies section.

Faculty of Applied Science

Faculty of Engineering
Geology. Refer: Engineering section.

Liberal Studies
The following subjects are offered for students in the Faculties of Engineering, Applied Science and Art.

Engineering
Diploma subjects GS195/6, GS293, GS295/6, GS395.

GS195/6  General Studies – diploma
(Man and his environment)
Two hours per week for two semesters
Assessment is continuous
A first-year course for all engineering students. The course is an inter-disciplinary study of the individual's development and role in an urban/industrial society. The student is also introduced to a comparative study of scientific method and the techniques and skills of the social sciences, as a means of broadening the capacity to handle social questions and social issues which impinge on the decisions of a trained technologist.
The program falls into two parts:

Man and his relationships
This part considers the institutions which have fashioned our society and the relation of the individual to political, economic and social institutions in the urban/industrial society.
The family, marriage and other matters of sexuality and the relationships of the two sexes is considered in the light of social norms and conditioning factors experienced in varying degrees, by all members of our society.

The urban industrial society
On the basis of the study of the individual in the first semester, the second semester is concerned with the individual in an industrialised society. An analysis is made of the city in history and its relation to industrialisation, capitalism and the process of economic growth. World population growth and its impact on Australia and the influence of population growth and technological development is considered, along with immigration to Australia in the role of the post 1939-45 era. A case study will also be made of the labor movement in the industrial society.
The social implications of urban/industrial living is looked at in the recent social dysfunction study of metropolitan Melbourne, by the MMBW.
Students are also given some insight into the psychological implications of urbanisation on individual life styles. Anxiety-producing situations are reviewed, and the student is shown how people often adapt to the environmental situation by aggression, or by withdrawal, or through drugs.
The program is concluded with a look at the major characteristics of the modern Australian society, and the way in which these characteristics affect the individual citizen.
Contemporary society demands specialisation of employment in respect of the individual. The aim of this course is to introduce the student to the various concepts surrounding employment in a modern industrial society. As a result of this introduction, the student will be aware of the necessity for an inter-disciplinary approach to industrial affairs.

Areas to be covered in this course are:
(i) Industry – community relations
(ii) Specialisation of labour
(iii) Minority groups in industry – women, migrants, disabled
(iv) Behaviour of work groups – the Hawthorne experiments.
(v) Industrial democracy – trade unions, employer groups, industrial conflict.

A second year subject in the engineering diploma. Students may choose an elective from the following areas of study, subject to the availability of staff and suitable time-table arrangements.

Introduction to international relations
The aim of this course is to introduce students to the role of Australia in international politics; this will be done by the study of the theoretical aspects of foreign policy formation and conduct. Once this theoretical conceptual framework is established, the following areas will be studied (this will enable contemporary issues to be discussed):
(i) Australia’s relationship with the USA, USSR, Japan and China
(ii) Australia and South-East Asia
(iii) Australia and New Guinea
(iv) Australia and the South-West Pacific
(v) Australia and the Indian Ocean with emphasis on the Soviet naval presence and our relations with the Western littoral states of the Indian Ocean.

Industrial sociology
The course is designed to give students an understanding of the nature and processes operating within industry. The first part of the course covers the rise, growth and development of industrial society. Topics covered include the relationships between industry and society, as well as the structure and functioning of work organisations. The second section covers a smaller field, concentrating on relations between employer and employee. Topics covered include industrial conflict, structure of unions and employer organisations, nature of industrial relations and their mediation in Australia. Particular reference is paid to Australian labour relations readings.

Recommended reading
Miller, D. and Form, V. Industrial Sociology. Harper and Rowe, 1975

Politics of law and order
Law and order encompasses the main issues and problems to which politicians refer when campaigning on a law and order program; e.g., violent crime, police powers, demonstrations, drugs, pornography and punishment.

It is intended that within this course the student will study the function of police in a democratic system. Within the law and order debate, the police occupy a crucial position – and this position is often misunderstood. The concept of policing is fundamental to the legal system under which we live and cannot be seen as something apart from society. As community values change so then the law changes – and as the law changes so do the methods of policing. An examination will be made of the relationships between politics, the law, the police and society.

Psychology
The course will deal with the following areas: learning, motivation, personality and the individual in society.

Emphasis will be placed on the practical application of the psychological principles involved.

Recommended reading
Krech, D., Crutchfield, R.S. and Livson, N. Elements of Psychology. 3rd edn, N.Y., Alfred A. Knopf, 1974

Australian studies
In the 1960’s, Donald Horne saw Australia as the lucky country; the political events of November 1975 changed his view. Others have analysed Australia and Australians in a different way. The course is designed to review events in Australian history which have formed the basis of our culture and the forces which have contributed to what we might call the characteristics of Australia and Australians. In seeking an explanation of the structure of our society, students will be encouraged to analyse and perhaps better understand the political, economic and social development which have built the Australian society. Some time will also be devoted to Australia’s overseas relations.

Recommended reading

Australia and developing countries
The developing societies, also known as ‘emerging’, ‘under-developed’ or ‘backward’ countries, or ‘the third world’, can be arbitrarily defined as those with an average annual per capita income of $300 or less, approximately ten times lower than that of Australia, Canada, Sweden or the United States. They comprise some two-thirds of the human race, and are found in Africa, Asia and the Western Hemisphere, south of the United States. Their growing dissatisfaction with their poverty and their relations with the industrially developed countries have been the source of both increasing domestic turmoil and international friction. One of the two or three most critical problems facing the whole of humanity today is that of substantially alleviating, if not eliminating, the stresses which are currently threatening to reach explosive levels in many developing societies.
The origin, nature and 'cure' of underdevelopment is the general topic of this course. It will be conducted in seminar form and therefore will involve the active participation of students.

**GS395 Report Writing – diploma**

One hour per week for two semesters
Assessment is continuous

A third year subject in the engineering diploma.

Outline of syllabus:
(i) The use of the resources, facilities and services of a modern, technical library.
(ii) The compilation of topic bibliographies and the evaluation of information sources.
(iii) The collection, collation, organisation and retrieval systems, literature searching by computer, and its interpretation in the light of the students' own findings and opinions.
(iv) The presentation of written and oral reports on technical topics, in accordance with the format, style and conventions required by the appropriate professional body.
(v) The technical topic chosen will, in some cases, be an investigation carried out as part of the practical course for final year.

Recommended reading

Degree subjects for engineering students GS493, EE481, EM465, EC505.

**GS493 General Studies – degree**

*(Production engineering)*

Three hours per week for fifteen weeks
Assessment is continuous

The course seeks to encourage the student to be an ongoing self-teacher. To this end the content is eclectic with a strong psychological and self-development bias. Topics covered will include technological and social change and individual adjustment to this change, divergent and convergent thinking, defence mechanisms and early-learning experience, conflict and anxiety, marriage, family and interpersonal relations with application of the family paradigm to relations in industry. The learning situation will include the use of audio/video and film. Students will be required to deliver a class paper as well as to participate actively in the seminar-type learning situation. Evidence of active reading in mutually agreed areas will be required.

There is no prescribed preliminary reading.

**EE481 Psychology – degree**

*(Electrical engineering)*

Two hours per week for one semester
Assessment is continuous

The course will deal with aspects of learning principles, communication processes and role development.

These areas will be discussed in relation to general living skills and human aspects of job settings.

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**Faculty of Arts**

Recommended reading
Oakley, A. *Sex, Gender and Society*, Sun Books, Melbourne, 1972

**EM465 General Studies – degree**

*(Mechanical engineering; part of engineering, art and behavioural science)*

A forty-hour program over two deca-weeks
Assessment is continuous

The course seeks to encourage the student to be an ongoing self-teacher. To this end the content is eclectic with a strong psychological and self-development bias. Topics covered will include technological and social change and individual adjustment to this change, divergent and convergent thinking, defence mechanisms and early-learning experience, conflict and anxiety, marriage, family and interpersonal relations with application of the family paradigm to relations in industry. The learning situation will include the use of audio/video and film. Students will be required to deliver a class paper as well as to participate actively in the seminar-type learning situation. Evidence of active reading in mutually agreed areas will be required.

There is no prescribed preliminary reading.

**EC392/3 Professional Practice**

*(Civil engineering)*

One hour per week for two semesters
Assessment is continuous

Engineering reports (oral and written); communications; information systems, including traditional library methods; as well as new information-gathering techniques.

**EC505 Public Speaking – degree**

*(Civil engineering)*

Two hours per week for one semester
Assessment is continuous

Communications – information systems, data banks, retrieval systems, literature searching by computer, communication between data banks, technical report writing and oral presentation of reports.

**EE353/4 Electrical Engineering Design**

**EE355/6 Electronic Engineering Design**

One hour per week for two semesters
Assessment is continuous

A part of this program involves a segment on communications.

*For further details concerning these subjects, see the Faculty of Engineering section of this handbook.*
Gepartment of Civil Engineering.

Graduate diploma subject in urban systems – Department of Civil Engineering.

EC423 Urban Sociology
Three hours per week for one semester
Assessment is continuous

This seminar course involves some introduction to sociological concepts, particularly theory of social stratification. Emphasis is placed on the relationships between social structure and some aspects of inequality in Australian cities. There will also be some discussion of the relevance of social science to some areas of public policy e.g. poverty, housing, transport.

Applied Science
Diploma subjects GS111/112, GS292, GS395.

GS111 Health and Society – diploma
Two hours per week for one semester
Assessment is continuous

A first year subject in the diploma course in applied science (environmental health).

An examination of some psychological principles in human behaviour: learning principles applied to human behaviour, the role of reinforcement in enhancing desired behaviour. Communication processes and the practical application of these in one-to-one communication. Role development and how society reinforces different role patterns in people of different age, background and sex.

Recommended reading
Oakley, A. Sex, Gender and Society. Sun Books, 1972
Psychology Today, CRM Books, 1973

GS112 Health and Society – diploma
Two hours a week for one semester
Assessment is continuous

A first year subject in the diploma course in applied science (environmental health).

An examination of some psychological principles in human behaviour. Emphasis in this course will be on communication skills, especially listening and helping skills. Attention will also be given to attitudes towards drugs, environmental stress and the development of anxiety.

Recommended reading
Cooper, D. The Death of the Family, Penguin Books, 1972

*For further details concerning these subjects, see the Faculty of Engineering section of this handbook.

GS292 Social Science 2 – diploma
Two hours per week for two semesters
Assessment is continuous

A second year subject in the diploma course in applied science (applied chemistry).

Details of the program to be followed will be made available from the Chairman of the Department of Liberal Studies.

GS395 Report Writing – diploma
One hour per week for two semesters
Assessment is continuous

A third year subject in the diploma course in applied science (applied chemistry) and (biochemistry).

There is no formal syllabus, but training is given in the efficient use of library facilities for the investigation of technical topics at final year level. A detailed study is undertaken of the techniques of report writing, including the search for and the collation of information, its organisation and presentation in oral and written form.

Recommended reading

Degree subjects for applied science students, GS906, GS908, GS909.

GS906 Complementary Studies A – degree
Four hours per week for one semester (2nd semester in 1977)
Assessment is continuous

The use and application of ‘science’ is not value free but has implications for society as a whole, as well as for individuals who comprise our social world.

As most scientists in advanced industrial societies work in large organisations, the content of the course will be twofold.

(i) Students will examine the effect that large organisations have on communities; as well as the employees themselves. Areas of study include, What is an organisation? Possible areas of conflict between organisations. Possible areas of conflict within organisations. Do large organisations contribute to or impede the standard of living and well-being of people generally, and employees more specifically?

and

(ii) The role of the scientist.

Can he absolve himself of the effects, the repercussions intended, or otherwise, of his work? What are some of the likely ramifications of the scientist’s work on the way people live and interact?

Recommended reading
GS908  Communication Studies -- degree
One hour per week for one semester (first semester in 1977)
Assessment is continuous
A third-year subject in the degree course in applied science (double major in applied chemistry).
Training in the efficient use of library facilities for the investigation of technical topics; detailed study of report writing, including the search for and collation of information, its organisation and presentation in oral and written form.

GS909  Report Writing -- degree
One hour per week for one semester (first semester in 1977)
Assessment is continuous
A third-year subject in the degree course in applied science (applied chemistry -- biochemistry option).
Training in the efficient use of materials and services available in a technical library. The preparation of a critical assessment of a biochemical topic and presentation of the review in a written and oral form.

GS193, GS297, GS382

GS193  Social Science 1 -- diploma
See course outline for GS195/6

GS297  Social Science 2 -- diploma
(Communication studies)
Two hours per week for two semesters
Assessment is continuous

Note: Unless otherwise advised, students will have a choice of one of the following courses.

A second-year subject in the diploma course in art.
1 The study of all communications media, including oral and written communication. Communication through music; the study and writing of short stories, radio plays, films, T.V. sketches and cartoons. Advertising in the media; market research and its effect on advertising design.
2 This course involves analysis and appreciation of various forms of media, particularly written and visual communication in print and electronic media. Students are provided with wide opportunities to experiment with original writing and illustration, for fiction and journalism. Individual criticism of writing style and techniques is discussed in workshop sessions. The theoretical aspects examine book publishing and newspaper presses, with particular reference to the role of authors, editors and designers in production processes. Specific research into television, radio, film and advertising are undertaken in the context of examining the use, ethics and responsibilities of the mass media. The work of communicators -- journalists, graphic designers, film directors, cartoonists -- is discussed, together with theories of writers such as Barthes and Marshall McLuhan.

Recommended reading
Berry, R. Communication Through the Mass Media. Edward Arnold, 1971

GS380  Report Writing -- diploma
Two hours per week for two semesters
Assessment is continuous

A first-year diploma subject designed to increase perceptual skills using specific areas of psychology. This course embraces social and inter-personal relations, dynamics of behaviour and creative thinking.

Degree subjects for art students, GS380, AR421

GS380  Psychology -- degree
Two hours per week for two semesters
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 the student demonstrate a knowledge of concepts and research in psychology, and to help understand the application of psychology to the area of marketing. It aims also to have the student 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 media material in second semester.

AR421  Theory of Communication -- degree
Two hours per week for the year
Assessment is continuous
This course aims to develop a critical awareness of the function, problems and issues relating to the field of mass media. The character, trends and problems of book and newspaper publishing are discussed. The publishing process is analysed, including ownership and economics of Australian publishing, the role of designers and editors, forms of books, newspapers or magazines, and related production processes. Examples of writing are discussed, such as short stories, science fiction, speech writing, investigative journalism and feature columns.

The nature and processes of electronic media, film, radio and television, and issues involving their interrelationship with society, are discussed. Study is made of AM and FM broadcasting, community or alternative radio, access and cable television, commercial and national media programming and potential. The changing character of film medium, from silent movies to Hollywood to the rise of the 'auteur' is introduced. It is intended that individual research will follow group discussions of the general issues concerning the media and society.

Recommended reading
The Book Under Challenge, 1972 International Book Year, Australian Unesco Seminar
Evans, H. Editing and Design. Heinemann, 1972
Faculty of Business

Dean
M.H. Hunter, BCom, MAdmin, DipEd, IASA

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Department of Accounting

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N.J. Allport, BCom, BEd, AASA

Principal Lecturers
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W.C. Nash, BCom, DipEd

Senior Lecturers
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J.C. Gregory, BCom, BEd, MBA, AASA
I.A. McCormick, BCom, MAdmin, AASA
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D.E.W. Green, BCom, AASA(Prov)
M. Haskin, BA, BCom, AASA
P. Haslock, BEd(Hons), AASA(Sen)
D.V. Hawkins, BCom, DipEd, AASA
P.J. Monaghan, BCom(Hons)
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D.G. Vinen, BEd, DipEd, ACA

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C.A. Reid, BCom, FCA, ACIS
S. Kodeck, BSc, BBus, AASA(Prov)

Department of Administration and Law

Head
W.T. White, BCom, MBA, FRMIT, FIM(Lond), AIMktg

Senior Lecturers
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H. Zimmerman, BA(Hons), LLB, DipEd
L.A.J. Zimmerman, BCom, MBA

Lecturers
G.W. Bell, LLB, ACTT
C. Christodoulou, BAppSc, MSc, MAdmin
P. Godfrey, BLiuris, LLB
R. Ives, MA, DipEd
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G. Watts, BCom, MBA, DipEd

Principal Tutor
V.J. Thompson, DipComPrac, TTTC

Senior Tutor
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Department of Data Processing and Quantitative Methods

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Principal Lecturer
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Senior Lecturer
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W.D. Wilde, BCom

Lecturers
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P. Herborn, BSc, FRMIT
E.C. Lindeboom, Drs
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D. Paranthoene, BCom
B. Thompson, BEd, TPTC

Senior Tutor
M. Lo, DipBusStuds, ACIS

Department of Economics

Head
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B.N. Oakman, BCom, MSc, DipEd

Lecturers
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K.P. Crane, BEd, DipEd
G.M. Parrington, BEd
J.B. Weilgosz, BCom(Hons), MA, DipEd
P.O. Xavier, BEd(Hons)

Senior Tutor
J. Gerstman, BA, DipEd
Courses offered in the Faculty of Business

<table>
<thead>
<tr>
<th>Course title</th>
<th>Length of course</th>
<th>Entrance requirements</th>
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<tbody>
<tr>
<td></td>
<td>full-time</td>
<td>part-time (min.)</td>
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<tr>
<td>Diploma of Business</td>
<td></td>
<td></td>
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<tr>
<td>– Accounting</td>
<td>3 years</td>
<td>6 years</td>
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<tr>
<td>Associate Diploma of Business</td>
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<tr>
<td>– Private Secretarial Practice</td>
<td>2 years</td>
<td>–</td>
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<tr>
<td>Bachelor of Business</td>
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<tr>
<td>– Accounting</td>
<td>3 years</td>
<td>6 years</td>
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<tr>
<td>– Data Processing</td>
<td>3 years</td>
<td>6 years</td>
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<tr>
<td>– Quantitative/Economics</td>
<td>3 years</td>
<td>6 years</td>
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<tr>
<td>Graduate Diploma in Business</td>
<td></td>
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<tr>
<td>– Accounting</td>
<td>–</td>
<td>2 years</td>
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<tr>
<td>– Administration</td>
<td>–</td>
<td>2 years</td>
</tr>
<tr>
<td>Degree conversion</td>
<td>–</td>
<td>1½ years</td>
</tr>
</tbody>
</table>

Entrance requirements
The minimum entrance standard for all undergraduate courses is four Higher School Certificate subjects (including English Expression) or equivalent. Owing to the fact that the number of applicants exceeds the number of places available, selection for admission to these courses is based on the prior results of each student. Intending students should be aware of the importance of mathematics in these courses. Preferably they should have continued with a study of mathematics at least up to Leaving level.

Preliminary year
The preliminary year is an HSC equivalent year that precedes the common year. It is mainly available for full-time students from technical schools in the Knox region. These students must possess a minimum of five Leaving subjects (including English and preferably Mathematics). Full details of this year are available from Swinburne Technical College.

Common year
The undergraduate degree and diploma students study a common first year program. This program comprises an introduction to accounting, economics, administration, data processing, quantitative methods, and business law. At the end of the common year students are selected for the degree course on the basis of their results.

Exemptions
Exemptions from diploma or degree subjects are only granted on the basis of equivalent university subjects or approved tertiary subjects passed. The maximum number of exemptions that can be granted is six subjects or one-half of the course of study. All applications for exemptions must be made on the appropriate form available from the student records office.

Verification of previous studies
When submitting certificates of previous studies in order to gain entry or to claim subject exemptions, students should forward original documents plus one photo-copy; the original will be returned.

Notice boards
Notice boards are located on level 2 of the Business and Arts building in John Street. Information for business students is displayed there, and they should check these boards frequently. General enquiries may be made at the general office on level 9.

Standards of progress
All students, both full and part-time must maintain a minimum academic standard in order to be allowed by the faculty to continue their studies.

The following criteria are those usually applied by the faculty in deciding whether a student may continue and unless otherwise specified these
criteria refer to students enrolled in all Faculty of Business courses:

1 Minimum standard of progress
   (a) both full-and part-time students will be expected to pass each year in at least 50% of the subject/units for which they remain formally enrolled at the examination date;
   (b) full-time students are required to complete the requirements of the first (common) year of the degree/diploma course within two years;
   part-time students will be required to complete the requirements of the first (common) year of the degree/diploma course within four years;
   (c) degree conversion – students will be required to complete the selected units of this course within four semesters;
   (d) further provisions apply in postgraduate courses (see course descriptions in this handbook).

2 Review
   The faculty will review the progress of students at the completion of each year, except where the mid-year results may affect a student’s second semester enrolment.

3 Failure to meet standards
   Full-time and part-time students who fail to satisfy these standards are liable to be rejected from further study in the faculty. In special circumstances however, a student may be allowed to continue on probation. Degree students may be transferred to the diploma course.

4 Probation
   Students who are allowed to continue on probation will be expected to meet the minimum standards of progress as outlined in (1) above, except in certain cases where the faculty may require an individual student to meet certain other course requirements. The students placed on probation who fail to meet the minimum standards of progress or the course conditions as laid down by the faculty will usually be rejected from further study.

5 Rejection
   Students rejected by the faculty will not be considered for re-enrolment within a minimum period of two years, under normal circumstances.

6 Appeals to the Re-admissions Committee
   Students who are deemed not to have satisfied the faculty standards of progress will be notified in writing of the decision and advised by the faculty of the course of action approved in their case. This letter will include a final date by which students may appeal against the decision.

   Students who feel they have grounds for appeal may do so in writing to the Faculty Secretary outlining their reasons for consideration by the Re-admissions Committee.

   Students who appeal will be required to attend an interview with the Re-admissions Committee to discuss the grounds for their appeal.

Conditions of Enrolment

7 Number of subjects/units
   (a) Full-time
      Usually full-time students will remain enrolled for 4 – 5 units per semester.
   (b) Part-time
      Usually part-time students will remain enrolled for 2 units per semester.

8 Withdrawal from subjects or units
   The college requires students to withdraw from a subject/unit by a date specified for each semester (usually the seventh week of the semester), otherwise, the result in that subject/unit will be shown as a fail. Provided a student withdraws in the correct manner and in due time from a subject or unit, the subject withdrawn will not be counted as a fail or used in the assessment of progress. However, attention is drawn to (7) above, outlining the faculty expectations as to a standard enrolment per semester.

9 Transfer between part-time and full-time study
   A student can transfer between full and part-time study at normal re-enrolment times without special request, provided no special conditions (as in para. (4) above have been placed on that student’s enrolment.

10 Admission to examinations
   Enrolment and satisfactory completion of prescribed assignment work, are normal prerequisites for admission to any final examination.

11 Withdrawal from study
   (a) A student who wishes to withdraw from study or to change a unit at any time during the year, should first discuss the difficulties with the tutors concerned.
Degree courses

Bachelor of Business (BBus)

In 1970 the Victoria Institute of Colleges granted approval, commencing in 1971, for the school of business to conduct a degree course leading to the award of Bachelor of Business.

The course offers specialisation in either accounting or data processing or quantitative/economics. Elective areas of study are available in economics, data processing, business environment, quantitative methods and law. Introductory comments regarding career potential in each area are outlined in the separate brochure – 'Courses in Business'.

Each course may be briefly introduced as follows:

Accounting course

The training program will provide the graduate with a nucleus of accounting skills necessary for a variety of employment opportunities in the accounting field. It should enable the student to adapt to changing occupational demands and, in particular, enable him to adapt to any one of the various accounting specialties. It is recognised that the array of techniques available to management has multiplied (operations research, statistics, data processing, etc.) and the accountant must at least be aware of what is involved in other areas without necessarily specialising in them.

Data Processing course

The use of data processing by industry, commerce and government departments is increasing locally and on a world-wide scale. The traditional shortage of trained data processing professionals is a continuing problem for data processing management. Many organisations are attempting to recruit overseas personnel because of the acute local shortage. Employment opportunities for graduates in data processing are extensive and varied.

Most students will study accounting, economics, business environment or quantitative methods in some depth as well as covering a wide spectrum of data processing topics. Although the graduate's initial job would probably be in the field of programming more options would be available in a career. Knowledge of other business-oriented disciplines together with a basic training in systems analysis and design would lead most graduates into the fields of computer systems design or applications systems analysis.

Quantitative/Economics course

There is a growing need for economics, with an emphasis on quantitative analysis both locally and overseas. The current pattern of increasing demand for graduates in this field is expected to continue. The strength of a Swinburne graduate in this stream will lie in the combined studies of economics and quantitative methods which would be substantially integrated. An emphasis would be placed on the more practical aspects of both areas.

It is envisaged that the majority of Swinburne graduates in the economics/quantitative stream in the immediate future would be employed mainly in planning and research areas of large organisations, e.g. banks, government and semi-government departments and larger companies. Graduates from the course will also be readily employable in the teaching profession.

Selection of degree students

At the end of year one or the 'common year', those students who have shown by their aptitude and ability to work independently that they would benefit from a more rigorous course of study will be invited to study for the degree during the final two years.

In addition, second year diploma students may be admitted to degree studies if their standard of performance is consistently high and provided they have to complete at least eight degree units. In these cases the post-common year diploma subjects passed will qualify for exemptions from degree units embodying similar subject matter.

Part-time students

The degree course is mainly for full-time students but subjects are being progressively offered in the evenings on a part-time basis. Part-time students may complete the common year in the evening but for the remainder of the degree course one out of the two units taken each semester must be studied during the day. Part-time degree students must therefore obtain at least four hours day release from employment to be eligible to study for the degree on a part-time basis. Students who are offered a place in the degree and cannot obtain day release may finish the part-time diploma course in the evening and then apply for entry to the degree conversion course.

Degree course structure

The course comprises 26 units made up as follows:
10 units – common year
16 units – post-common year of which 10 units are in a major stream. The major stream of study includes more than one academic discipline and guides students into desirable unit combinations. The major streams at the present time are:
Accounting
Data Processing
Quantitative/Economics
First year
The first year of the course is common to all streams both in degree and diploma (1 unit = ½ subject).

First year
BS101 Accounting 1
BS111 Economics 1
BS121 Administrative Studies 1
BS122 Introduction to Data Processing (1 unit)
BS108 The Australian Legal System (1 unit)
SM145 Quantitative Analysis for Business

Second and third degree years
Students will study 4 units each semester for 4 semesters full-time, or 2 units for 8 semesters part-time. These 16 degree units are divided into 10 mandatory units and 6 elective units for each of the three streams. Students will meet with faculty advisers before selecting their major stream of study and the faculty advisers will assist the student in planning a course of study.

Mandatory units (10)
Accounting
Cost Accounting for Control
Management Accounting
Law of Business Organisations
Taxation
Financial Management
Systems Investigation and Analysis
Advanced Accounting Theory
Data Processing
Cobol Programming 1
Cost Accounting for Control
Systems Investigation and Analysis
Cobol Programming 2
Conversational Computing
Management Information Systems
Operating Systems
Quantitative/Economics
Managerial Economics Analysis
The Firm and its Environment
Linear Programming
Applied Statistics
Economic or Public Finance or International Trade
Economic Research
Operations Research Methods
plus one approved unit

Elective units (6)
The six elective units may be chosen from any of the units listed below (except those mandatory units already completed). Students may not include in their course more than 10 units. From the one discipline, Elective units may be chosen from other faculties if special approval is obtained from the faculty of business. There are many ways a student could choose elective units to support a major field of study and sample courses will be available during the enrolment period.

Disciplines and unit codes
Accounting
BS101 Accounting 1 (2 Units)
BS201 Corporate Accounting
BS202 Cost Accounting for Control
BS203 Management Accounting
BS301 Financial Management
BS302 Advanced financial Management
BS303 Advanced Accounting Theory
BS304 Auditing
BS306 Taxation
BS310 Budgeting
Economics
BS111 Economics 1 (2 units)
BS211 Managerial Economic Analysis
BS212 The Firm and its Environment
BS311 Public Finance
BS312 Economic Research
BS313 International Trade
BS315 Monetary Economics
BS316 Labour Relations
BS317 Labour Economics
BS318 Urban Economics
Business Environment
BS132 Administrative Studies I (2 units)
BS231 Marketing I
BS232 Marketing 2
BS331 Organisational Behaviour
BS332 Business cases
Law
BS108 Australian Legal Systems
BS206 Contract Law
BS207 Law of Business Organisations
BS208 Industrial law
BS209 Legal Aspects of Commercial Paper
BS307 Law of Marketing
BS308 Advanced Company Law
BS309 Law of International Trade
Data Processing
BS121 Introduction to Data Processing
BS221 Cobol Programming 1
BS222 Systems Investigation and Analysis
BS223 Cobol Programming 2
BS224 Commercial Applications Packages
BS321 Systems Design
BS324 Management Information Systems
BS325 Conversational Computing
BS326 Operating Systems

Quantitative
BS145 Quantitative Analysis for Business (2 units)
SM223 Applied Statistics
SM224 Statistical Decision Theory
BS241 Fundamentals of Operations Research
BS342 Linear Programming
BS343 Operations Research Methods
US344 Simulation
BS345 Quantitative Cases
Faculty of Business

Not all units will be offered every year, but will be offered according to demand and the availability of staff.

Professional institutes

Provided suitable units in the accounting stream are chosen, graduates are eligible at the completion of this course for admission to the Australian Society of Accountants, or to the professional year of the Institute of Chartered Accountants.

In order to qualify for full Associate membership of the Society, a student who elects to do the accounting stream will have to include auditing as an elective unit. Completion of the mandatory units in the accounting stream qualifies a student for provisional membership A.S.A.

Students who may later study the Graduate Diploma in Accounting with the aim of achieving membership 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 i.e. BS212, The Firm and its Environment and BS211 Managerial Economic Analysis.

Bachelor of Business conversion course

This is a three-semester (1\%2F2 year) part-time course for those students who have completed the diploma of business with good results and who wish to qualify for a degree.

Students will be selected on the basis of their results together with a recommendation from the college where the diploma was obtained.

Students who possess prior qualifications to the DipBus such as the Diploma of Commerce or the Accountancy Certificate, should upgrade their qualification to the equivalent of the DipBus(Acc) at a college other than Swinburne before applying for entry to the degree conversion course.

Structure

The conversion course comprises six units taken two per semester over three semesters. (A unit usually involves four hours of seminars per week per semester.) The units selected for the conversion course will be those units presently offered in the degree course. Each student's course will be planned in consultation with a senior member of staff. Generally students are required to choose units in areas which they have not previously studied intensively. The course structure will be flexible to cater for the wide variety of students taking the course.

Course structure provisions

(i) Students are required to take six units.
(ii) Students will be precluded from attempting units for which the subject matter has been substantially covered in prior courses.
(iii) DipBus(Acc) students must pass at least one of the following units: advanced financial management, advanced accounting theory, budgeting. DipBus(EDP) students must pass at least one of the following units: operating systems, management information systems, conversational computing.
(iv) Provision (iii) must be satisfied before the final semester of the conversion course is taken. Usually students should complete the course in not more than four consecutive semesters. Only in very special circumstances will students be allowed to suspend or prolong their studies.

Every unit will not be offered every year, and students will be advised of the units available on enrolment.

Diploma courses

General

(a) Most subjects in first year are common to all courses in business.
(b) Part-time students generally study only two subjects each year.
(c) Usually four hours per week are provided for full-time lectures and tutorials in each subject. Prescribed assignment work will be included in the assessment for each subject.
(d) Students are strongly advised to attempt at least the first year of these diplomas full-time.
(e) Enrolment and satisfactory completion of prescribed assignment work are normal prerequisites for admission to any final examination.

Accounting

Diplomates are eligible at the completion of this course to apply for admission to the Australian Society of Accountants, or to the professional year of the Institute of Chartered Accountants.

Data Processing

This course is being phased out as the data processing degree stream is being introduced. Refer to previous handbooks for details of this course.
Diploma of Business (Accounting)

YEAR 1 (Common year)
BS103 Accounting 1A (1 unit) or
BS104 Accounting 1B (1 unit)
BS109 Accounting 1C (1 unit)
BS111 Economics 1
BS121 Introduction to Data Processing (1 unit)
BS108 The Australian Legal System (1 unit)
SM145 Quantitative Analysis for Business

YEAR 2
BS251 Accounting 2A
BS252 Accounting 2B
BS261 Economics 2
BS255 Commercial Law (1 unit)

YEAR 3
BS135 & BS352 Accounting 3A
BS353 & BS354 Accounting 3B
BS355 & BS356 Accounting 3C
plus two elective units from
BS278 Business Systems
BS274 Introduction to Operations Research
BS367 Economic Policy
BS381 Behaviour in Organisations
BS382 Public Administration
Total number of units = 25

Pre-1975 diploma enrolments
Students who began diploma studies prior to 1975 should check with previous handbooks or course advisers regarding the course requirements.

Associate Diploma in Private Secretarial Practice (AssocDiplPSP)

YEAR 1 (Common year)
BS103 Accounting 1A (1 unit) or
BS104 Accounting 1B (1 unit)
BS109 Accounting 1C (1 unit)
or
BS102 Accounting 1S
BS111 Economics 1
BS132 Administrative Studies 1
BS191 Private Secretarial Practice A

YEAR 2
BS281 & BS282 Administrative Studies 2
BS291 Private Secretarial Practice B
BS108 The Australian Legal System (1 unit)
BS255 Commercial Law (1 unit)
plus an elective subject (2 units)
Total number of units = 16

Graduate Diploma in Business (Accounting)

The graduate diploma course in business (accounting) is designed to provide an opportunity for students who have an undergraduate qualification in accounting and suitable work experience, to pursue an advanced course of study in accounting and to enhance their career opportunities.

The object of the course is:
Firstly, to assist students to have a deeper understanding of the theory and practice of accounting in specialized areas.
Secondly, to develop an awareness in students of current problems and issues in accounting, to develop the ability to evaluate these problems critically and to participate actively in programs aimed at their solution.
Finally, to develop further, the students' awareness of the relationship between the accountant and other members of the organization in which they are employed.

The program will build on undergraduate studies.

Entrance requirements
(i) Applicants with approved tertiary qualifications in fields of business, commerce or economics, plus at least one year's suitable work experience.
(ii) Diplomates in commerce (pre-1967 courses) and other members of The Australian Society of Accountants who have not completed a tertiary course of education over three post-Higher School Certificate years may be admitted to the course, provided they complete certain bridging studies to the satisfaction of the faculty. For example, a diplomate in commerce would need to complete the following units of the diploma of business:
BS351 Accounting 3A/
BS353 Contemporary Accounting Problems
BS354 Accounting 3B/Capital Budgeting
BS355 Accounting 3B/Advanced Cost Accounting

The accountancy certificate student will have to pass in the above three units, plus Administrative Studies 1, before being allowed to progress to the graduate diploma. The extent of such bridging courses will be
Course structure

The course comprises eight units, plus a research paper. Students must take at least four units from group 1 including BS451 Current Issues in Accounting and at least two units from group 2. Not all units will be offered every year but will be conducted according to demand and the availability of staff.

Group 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>BS451</td>
<td>Current Issues in Accounting – (compulsory unit)</td>
</tr>
<tr>
<td>BS452</td>
<td>Profit Planning and Control</td>
</tr>
<tr>
<td>BS453</td>
<td>Auditing and EDP</td>
</tr>
<tr>
<td>BS454</td>
<td>Contemporary Auditing</td>
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<tr>
<td>BS455</td>
<td>Corporate Tax Planning</td>
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<tr>
<td>BS456</td>
<td>Estate Planning</td>
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<tr>
<td>BS458</td>
<td>Quantitative Approaches to Financial Policy</td>
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<tr>
<td>BS459</td>
<td>Investment Analysis</td>
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<tr>
<td>BS471</td>
<td>Management Systems</td>
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<tr>
<td>BS472</td>
<td>Systems Analysis</td>
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</tbody>
</table>

Group 2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>BS462</td>
<td>Australian Labour Relations</td>
</tr>
<tr>
<td>BS463</td>
<td>Current Issues in Economics</td>
</tr>
<tr>
<td>BS581</td>
<td>Administration of Organisational Systems</td>
</tr>
<tr>
<td>BS582</td>
<td>Administration of Human Resources</td>
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<tr>
<td>BS583</td>
<td>Marketing Administration I</td>
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<tr>
<td>BS584</td>
<td>Marketing Administration II</td>
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<tr>
<td>BS585</td>
<td>Secretarial Practice and Procedures</td>
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<tr>
<td>BS586</td>
<td>Personnel and General Administration</td>
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<tr>
<td>BS588</td>
<td>Administrative Policy</td>
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<tr>
<td>BS591</td>
<td>Quantitative Methods in Accounting</td>
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<tr>
<td>BS592</td>
<td>Applied Linear Programming</td>
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<tr>
<td>BS593</td>
<td>Applied Quantitative Analysis</td>
</tr>
<tr>
<td>BS551</td>
<td>Research Paper</td>
</tr>
</tbody>
</table>

The 'Standards of Progress' approved by the Faculty of Business also apply to students in this course. The following should be read in conjunction with paragraph 1 (d) of the requirements as a provision applying to Graduate Diploma in Business (Accounting) students.

At least one unit must be attempted, and passed, each semester until all course work is completed, unless a student is granted a deferral of study by the Graduate Diploma in Business (Accounting) Standing Committee.

The BS551 Research Paper must be submitted for examination in the semester following completion of the course work. An extension of one further semester may be allowed to students who are required to re-submit the research paper.

Professional Institutes

Students who are Associates of The Australian Society of Accountants are eligible to advance to Senior Associate status upon completion of the course. In addition, students completing the graduate diploma may satisfy the educational requirements of the Institute of Chartered Secretaries and Administrators.

Students intending to gain admission to The Institute of Chartered Secretaries and Administrators should contact the Institute about entrance requirements prior to commencing the graduate diploma and must include units BS585 Secretarial Practice and Procedures and BS584 Personnel and General Administration, the co-examined units, in their course of study. Generally, students who have a major in accounting together with taxation, company law and two years of economics, will satisfy the entrance requirements of the Institute on satisfactory completion of the graduate diploma course.

Graduate Diploma in Business (Administration)

General objectives

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 seek to broaden their knowledge in this area.

The program intends to give candidates:

- A working knowledge of the factors that affect the task of the manager and methods of analysing these factors. Particular emphasis will be placed on the needs of middle management of large organisations and top management of small and medium-sized organisations.
- An opportunity to examine and to gain practice in, problem-solving and decision-making in management situations, which should equip students in business and the government sector with the ability to develop logical and creative approaches to their jobs.

Specifically 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

Entry will be open to graduates who hold a degree or diploma or its equivalent. The program will also be available to a restricted number of candidates whose positions or experience is sufficient indication of their capacity to complete the course.

Admission is determined by a selection committee. In addition to academic achievements the selection criteria include 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 qualifica-
tions with two years of part-time study, and in
order to continue in the course students must
obtain a satisfactory standard of progress.
There will be two periods of selection for enrol-
ment. The closing dates for applications will be in
January and June 1977. Notification of selection or
otherwise will be given as soon as possible after the
closing date.

Course structure

Year 1
BS457 Introduction to Financial Management
BS461 Economics
BS581 Administration of Organisational Systems
BS594 Quantitative Methods
BS595 Marketing Management 1

Year 2
BS582 Administration of Human Resources
BS583 Financial Structures and Policy
BS587 Business Policy
BS596 Marketing Management 2

Standards of Progress
The results of any candidate who fails to achieve a
satisfactory standard in any unit, will be examined
by a sub-committee who will recommend whether
or not the candidate be allowed to continue with
the course.

Preclusions
Depending on previous training, candidates may be
precluded from some of the first year units and in
their place be assigned 'alternative' units.

Alternative units
These units are available in the evening for those
students who are precluded from more than one
first year unit. Students in this category who have
not previously studied labour relations (BS462)
must select this unit as their first alternative. Other
alternative units will be chosen after consultation
with members of staff.

The following units may be available in 1977:
BS451 Current Issues in Accounting
BS452 Profit Planning and Control
BS453 Auditing and EDP
BS454 Contemporary Auditing
BS455 Corporate Tax Planning
BS456 Estate Planning
BS459 Investment Analysis
BS462 Australian Labour Relations
BS463 Current Issues in Economics
BS471 Management Systems
BS472 Systems Analysis
BS585 Secretarial Practice and Procedures
BS586 Personnel and General Administration
BS591 Quantitative Methods in Accounting
BS592 Applied Linear Programming
BS593 Applied Quantitative Analysis

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), may be required to complete
five. All four second-year units are compulsory.
The first year introduces candidates to current
thought in the area of economics, marketing, fin-
ance and organisation theory. This phase equips
students for the second year which looks, in an
integrated fashion, at the import areas of marketing
strategy, financial management, human relations
and organisational change. These aspects are viewed
in the overall light of corporate strategy. Thus, the
emphasis in the second year is on the effective
application of knowledge acquired in the first year.
Because of the integrated nature of the course,
students will be required to complete all first-year
studies before attempting second year.

Methods of study and instruction
In a course of this nature active participation by
candidates is essential. More than one method of
instruction will be used to achieve this objective.
During formal sessions ample opportunity will be
given for questions and discussion. In addition to
case studies, short papers prepared by the staff will
be presented for analysis and discussion. Participants
will work in groups or syndicates to encourage
co-operative thought. In addition to class time,
formal syndicate studies are programmed for each
week and rooms and staff will be allocated for this
purpose. It is anticipated that the nature of the
work schedule will require participants to engage in
further syndicate work of a less formal nature.
Students are usually expected to attend a residenti-
atical weekend seminar in the second year of the
course.

Time-table
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 8.00
a.m. and 10.00 a.m. and between 10.30 a.m. and
12.30 p.m. In addition, special seminar/syndicate
sessions will be scheduled for one evening between
6.00 p.m. and 9.00 p.m.

The units listed as alternative units are offered on
various evenings.

Enquiries
Application should be made on the official part-
time college application form. Applicants are invited
to attach a curriculum vitae. Further enquiries
should be made to Mr. L.A.J. Zimmerman,
Swinburne College of Technology, John Street,
Hawthorn 3122, telephone 819-0111.
Faculty of Business

Prizes for high academic achievement

Annual awards are made by the following sponsors:

**Accounting**
The Australian Society of Accountants prize

**Economics I**
The Economic Society of Australia and N.Z. prize

The Firm and its Environmental/Managerial Economic Analysis

Advanced Financial Management

Final year
Degree Economic Units

Final year
Data Processing Units

Management
Information Systems

The Hungerford prize

The Economic Society of Australia and N.Z. prize

The Australian Computer Society prize

The Datec prize

BS091  Personal Typing

Prerequisite, nil

A one-semester subject designed to teach the student to type by touch to a minimum speed of 35wpm; to compose letters relating to personal business and to set out and type correctly, a report in its entirety.

Textbook

Common year = degree and diploma subjects

**BS102  Accounting IS**

Prerequisite, nil

A terminal first-year subject in the diploma course in private secretarial practice, in which a basis of accounting theory and techniques is related to the work of the private secretary.

Topics include:
(i) Basic accounting concepts
(ii) Data processing = recording techniques and preparation
(iii) Office accounting techniques and controls = mechanised and one-writing systems payroll preparation, asset valuations (book and tax records) inventory control relationships to computer systems
(iv) Accounting for different forms of ownership = sole proprietorships partnerships, clubs and societies, manufacturers, contractors and service performers
(v) Interpretation of the balance sheet.

Recommended reading

Textbooks

BS103  Accounting IA

Prerequisite, nil

An introduction to accounting methods and techniques for students with no prior knowledge of bookkeeping or accounting.

The course is divided into four segments. Topics covered include the accounting function; basic concepts and terminology; status reports; performance reports; the accounting equation; recording methods; balance day adjustments; final reports; accounting procedures for control; ledger recording for inventories, profit distribution.

References

Textbook: A comprehensive set of exercises is published by the Swinburne College Press under the title 'BS103 – Accounting 1A Student Guide'.

**BS104  Accounting IB**

Prerequisite: a result of 'C' or better in HSC Accounting or equivalent experience.

The object of this course is to provide a supplementary course in accounting methods and techniques for students with some prior knowledge of bookkeeping or accounting. The course content is as for BS103 – see above.


**BS108  The Australian legal system**

This course is designed to introduce students to the working of our legal system: how laws are made, what courts and parliaments do. It deals with case law and statute law, the distinction between common law and equity, between criminal law and its various branches: contracts, tort. It will also deal with interpretation of statutes.

Textbooks:

References:

**BS109  Accounting IC**

Prerequisites: BS103 Accounting 1A or BS104 Accounting 1B.

The unit provides an introduction to accounting theory and concepts. By contrast to its prerequisites which concentrate on basic accounting practices and techniques, this unit is concerned with current issues and problems of accounting principles.

The course includes the following topics: accounting standards; income recognition; depreciation; evaluation of fixed asset acquisitions; inventory valuation; performance evaluations; financial risk evaluation; funds statements; accounting for inflation.

References:
- Carrington, A.S. and Battersby, G. *Accounting*. Whitecombe & Tombs, 1971


**BS111  Economics I**

This course will look at the scope and methodology of economics, the basic economic problems, and Australian contemporary capitalist market system with particular emphasis on the economic role of government.

It will cover the theory of income determination with an analysis of the forces which determine the level of economic activity within the economy. Throughout, the emphasis will be on the Australian situation, with the theory being used as a basis for analysing government performance in both the domestic and external sectors.

References:

**BS121  Introduction to Data Processing**

This unit is designed as an introduction to data processing for business students majoring in accounting and other disciplines, and also for business students majoring in data processing. The general aim is to show how data processing relates to the business world and to illustrate the problems faced by both the business man and the data processor in developing data processing applications. Students are introduced to the basic elements of computer hardware to their commercial utilisation. The following broad areas are covered:

- Commercial applications – payroll, inventory control, accounts receivable, etc., and the methods of processing these on a computer.
- Flowcharting techniques
- COBOL programming
- Input and output devices
- Magnetic tape and direct access devices
- The central processing unit (CPU)

The student will be given practical experience in computer programming.

References:
- Berkowitz, N. and Munro, R. Jr. *Automatic Data Processing and Management*. Dickensen
- Awad, E. *Business Data Processing*. Prentice-Hall

**BS132  Administrative Studies I**

This subject aims to introduce the student to the body of knowledge relating to administrative theory. Students should develop an appreciation of the problems and functions of management, together with a conceptual context in which to synthesise the other subjects studied in the business courses. Emphasis is given to those aspects of the behavioural sciences which are relevant to administration.

The subject is structured as follows:

**Topics:** Management and its environments
- Evolution of management thought
The organisation as a psycho-social system –

Personality theory
Perception and cognition
Attitudes and values
Learning theory
Motivation
Group dynamics
Role and status
Leadership and managerial style

Managerial functions in the organisation system.

Textbook
Webber, R.A. Management, Homewood, Richard Irwin, 1975

Additional references are prescribed throughout the year.

BS191 Private Secretarial Practice A
Prerequisite, nil
A first year subject designed to introduce the skills of shorthand and typewriting to trainee secretaries, to use these in a practical manner and at the same time gain background knowledge of business practices and activities.

Final speeds of 80/40 respectively are required.

Textbooks
Complete booklist available upon enrolment

SM145 Quantitative Analysis for Business

The prime purpose of this subject is to bring all students up to a level of higher 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 subject 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 studies 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; an introduction to integral calculus, matrix algebra; introductory mathematics of finance; presentation of statistical data; measures of central tendency and dispersion; probability theory and probability distributions; sampling theory and design; statistical inference including estimation, confidence intervals, tests of hypotheses; chi-square tests; correlation and regression; time series analysis; an introduction to non-parametric statistics.

References

Degree subjects

BS201 Corporate Accounting
Prerequisite, BS109 Accounting 1C
A second year subject in the accounting degree course in which there will be integration of the relevant law with accounting. For this to be achieved, emphasis will be placed upon the Companies Act and relevant case material.

BS202 Cost Accounting for Control
Prerequisite, BS109 Accounting 1C
This unit introduces the student to the role and functions of the management accountant within the firm with particular emphasis on the design and operation of systems for product costing, planning and control.

Topics will include:
(a) Basic cost concepts for product costing, planning and control
(b) Procedures for accounting for overhead costs under job and process costing systems
(c) Standard costing, variance analysis and performance reporting
(d) Variable and absorption costing
(e) Flexible budgeting and responsibility accounting – their significance for cost control

In addition to the above, the unit attempts to:
(a) Acquaint the student with the major theoretical and practical problems associated with the provision of cost data for product costing, planning and control
(b) Develop the students’ problem-solving skills and powers of judgement in applying costing principles to the solution of practical costing problems

During the course of the semester a number of films from the Hardy Heating BBC TV series will be shown.

Prescribed Text

References
Burke, W.L. and Smyth, E.B. Accounting for Management. 2nd edn, Law Book Co., 1972
BS203 Management Accounting
Prerequisite. BS202 Cost Accounting for Control

This unit is concerned with the role of the management accountant in the decision-making processes of the firm. Topics will be selected from the following areas:

- The study of cost-volume-profit relationships and discounted cash flow analysis and their application to typical decision situations.
- The behavioural implications of alternative decision models.
- The relevance of cost data for pricing decisions.
- Internal performance reporting and evaluation at both the corporate and divisional level.
- The role of the management accountant in providing information for decision-making, planning and control in areas other than manufacturing.

References
Solomons, D. Divisional Performance: Measurement and Control. Irwin, 1965
Shillinglaw, G. Cost Accounting, Analysis and Control. 3rd edn, Irwin, 1972
Burke, W.L. and Smyth, F.B. Accounting for Management. 2nd edn, Law Book Co., 1972
Benston, G.S., ed. Contemporary Cost Accounting and Control. Dickenson, 1970
Thomas, W.J., ed. Readings in Cost Accounting, Budgeting & Control. 4th edn., South-Western
Capon, E.H. Management Accounting and Behavioural Science. Addison-Wesley, 1971

BS207 Law of Business Organisations
Prerequisite. BS206 Contract Law

This unit is compulsory for students in the accounting stream; optional for others.

The course involves an examination of the law applicable to organisations which enter into business transactions: in particular the legal nature of and the legal rights and obligations arising from the law of agency of members of unincorporated associations, partnerships, companies, trusts and other business organisations.

Prescribed texts

Other references will be recommended in lectures.

BS208 Industrial Law

This unit will investigate the law relating to employer/employee relationships and will include:

- The nature of contractual obligations.
- The continuing development of this area of law.
- Some specific torts, including negligence.
- Remedies for breach.
- The nature of tortious obligations.
- Consumer protection.
- The debtor/creditor relationship.
- Types of securities.
- Types of finance transactions.
- Bankruptcy as a mercantile remedy.

References
Students must have their own copies of one of the following:


Other references will be recommended in lectures.
History of the intervention of the law in the employer/employee relationship; the growth of trade unions; contract of employment; the constitutional powers; the industrial tribunals; legislative provisions; workers' compensation.

Textbooks
Other references will be given in lectures. Students will require the relevant Acts, both Federal and State.

**BS209 Legal Aspects of Commercial Paper**

Prerequisites: BS108 Australian Legal Systems and BS206 Contract Law

This course will review selected credit and security practices currently employed in commerce, with consideration of the related questions of 'interest' and 'consumer entitlements'. It is also proposed to canvass alternatives to the existing powers; the industrial tribunals; legislative provisions; workers' compensation.

References
Bills of Exchange Act (Commonwealth).

Other references will be given during the course.

**BS211 Managerial Economic Analysis**

Prerequisite, BS111 Economics 1

This unit seeks to show how economic analysis can be used to assist in the formulation of business decisions. Empirical studies will be used as a means of illustration. Following an introductory discussion of the decision-making role of management and of the value of economic analysis in this regard, the unit deals with the following topics:

- demand analysis (the general determinants of demand, methods that can be used to determine demand relationships and demand forecasting);
- cost analysis (the role of opportunity cost in decision making, the derivation of cost curves from production theory and their modification according to technological variations between firms);
- profit and goals of firms;
- product and pricing policies.

References
Lancaster, K. *Introduction to Modern Microeconomics*. Rand McNally
Leflitch, R. *Introduction to Microeconomics*. Holt, Rinehart and Winston
Savage, S.I. and Small, J.R. *Introduction to Managerial Economics*. Hutchinson
Watson, D.S. *Price Theory in Action*. Houghton-Mifflin

**BS212 The Firm and its Environment**

Prerequisite, BS111 Economics 1

This unit analyses the environment within which firms make decisions and considers the interplay between the environment and the conduct and performance of firms.

Topics covered include: the market framework; market structure, conduct and performance; the labour market; and government economic policies with respect to trade, tariffs, trade practices, incomes and prices control.

References
Prentice Hall
Holt, Rinehart and Winston, 1970

Current newspapers, journals and government publications.

**BS221 Cobol Programming I**

Prerequisite, BS121 Introduction to Data Processing

This unit presumes a knowledge of the fundamentals of program flowcharting and procedural coding in COBOL as well as an understanding of basic computer concepts.

1 Cobol features
- The *major* COBOL features studied are in the areas of:
  - Input-output utilising magnetic storage devices
  - Table processing
  - Advanced aspects of data formatting
  - Advanced aspects of arithmetic manipulation
  - Sort feature
  - Report writer feature

2 Program structure
- The following aspects of computer hardware are studied with a systems utilisation bias:
  - Internal and external data representation and organisation.
  - Input-output processing on non-overlapped systems through to cycle stealing systems
  - Multi-processing
  - Time-sharing

- Where applicable, the related software characteristics and capabilities will be integrated with these studies.
- The concept of an operating system as a set of programs on which the resources of a computer system is developed.

3 Practical work
- At least *five* COBOL programs of varying complexity must be completed during the semester.

Prescribed textbooks

References
Appropriate manuals from computer manufacturer.
Flores, *Computer Software*. Prentice Hall
Flores, *Computer Organisation*. Prentice Hall
Flores, *Data Structure and Management*. Prentice Hall
BS222 Systems Investigation and Analysis

Prerequisites. BS21 Introduction to Data Processing, BS101 Accounting I, BS202 Cost Accounting for Control, should be completed prior to, or concurrently with this unit.

This unit is intended to develop an awareness of the suitability of system analysis as means of integrating a number of skills for problem-solving purposes. The principal emphasis will be towards commercial applications, although the technique should be appreciated for its broader applicability. The unit will provide an overview of the discipline for students taking no further systems units as well as being a basis for those who are proceeding further.

It should be stressed that the approach will be directed to identifying the problem rather than finding a hardware solution, (i.e. finding equipment appropriate to processing the system). However, students will be expected to acquire and develop a broad knowledge of the equipment available, extending on that already learned in IDP.

Topics covered include:
- Investigation methods
- Flowcharting
- Form design
- Code design
- System controls
- Project selection & evaluation
- Processing alternatives.

The theory is closely related to practical assignments and a major case study of an investigational nature.

References
- A detailed reading guide will be issued for each topic.
- General references however, include:
  - Bingham, J.J. and Davies, G.W. A Handbook of Systems Analysis, Macmillan
  - Alexander, M.S. Information Systems Analysis, S.R.A.

BS223 COBOL Programming 2

Prerequisite. BS221 COBOL Programming 1

This unit presumes a thorough knowledge of basic programming techniques and the COBOL Programming language obtained in COBOL Programming 1.

1. General programming
   - Examination of latest programming techniques available
   - Structured programming
documentation
   - Development support library
   - Team operations
   - Structured walk-throughs

2. More facilities in COBOL
   - Examination of available facilities in the COBOL language not yet considered in COBOL programming 1

3. File organisations and program access methods.
   - An examination of direct access storage devices and the relationship between different file organisations and their respective access methods.

4. Other language considerations
   - Brief look at FORTRAN, PL/I, RPG

5. Practical work
   - Each syndicate group will be expected to develop and implement a number of programs of a system from supplied specifications. The lecturer will adopt the role of a senior programmer and act in an advisory capacity to each group.

    In order to enforce introduced programming standards a different student will be involved in the three development stages of each program, viz.
    - Program flowcharting
    - Program coding
    - Program testing

    The types of programs will include:
    - Input data validation (including batching)
    - Master file maintenance (direct and sequential)
    - Master file updating (direct and sequential)
    - Tabulation and reporting
    - Multiple file match-merging.

    Prescribed textbook
    - Feingold, Fundamentals of COBOL Programming, Brown

    Relevant journals available.

BS224 Commercial Applications Packages

Prerequisite, BS222 Systems Investigation and Analysis

This unit presumes knowledge of systems requirements and their documentation in a commercial data processing environment. A basic understanding of computer hardware features and capabilities is also required. The rapid development in the small computers area will make it possible for more and more companies to use some sort of electronic data processing.

This unit endeavors to provide understanding of proposal evaluation, computer selection, batch system design and with the same guidelines, computer application package evaluation.

References
- Thierauf, R.J. Data Processing for Business and Management, Wiley, 1973
- Judd, D.R. Use of Files, London, MacDonald, 1973

BS231 Marketing 1

Prerequisite, nil

Marketing 1 and 2 deal with the fundamentals of business planning with particular emphasis on the market place.

The course has been designed to provide students with an opportunity to relate their knowledge obtained in other disciplines to business situations.

Objectives
- To give students a broad understanding of the marketing environment.
To give students 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, economics and quantitative methods to business decisions. To increase the practicality of business education by introducing students to business situations. To achieve this, emphasis is placed on case study analysis and management games.

Marketing 1 deals with the fundamentals of marketing and consumer behaviour. The course provides for a broad understanding of marketing problems and introduces the student to the techniques of dealing with such problems.

Syllabus
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.

Method of instruction
In a course of this nature active participation is essential. The theoretical aspects of marketing will be supplemented by practical problems through the use of case studies. Students are required to submit group as well as individual assignments.

Relationship with other units
Students are strongly advised to undertake both Marketing 1 and 2 and this combination provides a basis for the formulation of integrated marketing strategies and aids in equipping decision-makers to analyse competently the business environment.

It is important nowadays for students to select an integrated course. The following sample of combinations of optional units are recommended for students undertaking marketing in the accounting stream.

Combination 1
Marketing 1, Marketing 2, Auditing, Organisational Behaviour, Advanced Financial Management, Business Cases.

Combination 2
Marketing 1, Marketing 2, Auditing, Managerial Economic Analysis, Advanced Financial Management, Business Cases.

Combination 3

Combination 4

Degree conversion students who wish to major in the business environment are advised to undertake the marketing units before attempting business cases. Moreover, it is recommended they include Advanced Financial Management in their course.

References
McCarthy, E.J. Basic Marketing, 4th edn, Irwin
Simmonds, K. and Leighton, D. Case Problems in Marketing. Nelson

BS232 Marketing 2
Prerequisite, BS231 Marketing 1
This unit enables students to study the marketing environment and the elements of the marketing mix in more depth. The course is concerned with the formulation of integrated marketing programs. The course framework is organised around the following topics:

The assessment of marketing opportunities, marketing research, the analytical use of data, the marketing planning process. On completion of the course students will have developed an understanding of marketing problems and of the techniques of dealing with such problems.

Syllabus
Marketing research – survey methods, sampling, research strategy. Analytical use of data – the application of accounting and statistical techniques to decision-making in the market place. Product/service policy – life cycle; adoption process; planning; differentiation; packaging; branding. Pricing policy – cost and market considerations; competition. The communications mix – advertising; personal selling; promotion. Distribution policy – channel selection; physical distribution.

Method of instruction
Emphasis will be placed on case studies and management games as vehicles for active participation by students. Throughout the semester students will be required to submit individual as well as group assignments. Relationship with other units: for details refer Marketing 1.

References
McCarty, E.J. Basic Marketing, 4th edn, Irwin
Seibert, J. and Wills, R. Marketing Research, Prentice-Hall
Holloway, R. and Hancock, R. Marketing in a Changing Environment, 2nd edn, Wiley
The Dryden Press
Robertson, T.S. Consumer Behaviour. Scott Foresman and Company

BS241 Fundamentals of Operations Research
Prerequisite, SM145 Quantitative Analysis for Business or equivalent.

The unit aims to provide:
An awareness of a range of quantitative techniques and their application to a variety of accounting, economic and business problems.

An understanding of the inter-relationships between operational research methods 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 will be placed on the practical solution of specific business problems and in particular on the recognition, formulation and interpretation stages of solution. Areas of study will include:
the general problem of resource allocation with emphasis on linear programming including a study of duality, an introduction to post-optimal analysis and the determination of transfer prices in a decentralised organisation; use of quantitative analysis to plan and control working capital requirements, including an evaluation of approaches to inventory and cash management problems; forecasting with particular emphasis on short-term product demand forecasting; general approaches to planning and decision-making including the application of decision theory and network analysis.
Case studies and assignments will be an integral part of the course and will be evaluated as part of the overall assessment in the unit.

Preliminary reading


References

A detailed list of references will be made available during the course.

BS242 Linear Programming

Prerequisite, BS241 Fundamentals of Operations Research or equivalent

This unit generally aims to examine the application of linear programming within the context of realistic business and economic problems. The emphasis of the course will be on formulation and the interpretation and analysis of results.

Topics covered will build on the principles developed in BS241 and will include: duality – its applications and economic significance; post-optimality analysis with consideration being given to variations in prices, costs, resources, demands and outputs; solution of problems involving choices of production processes and fixed charges, consideration of situations where some or all variables are discrete, multiple objective problems.

Consideration will be given to specific industry problems in areas such as capital budgeting, sequencing and scheduling.

Throughout the unit students will be required to use the Faculty of Business optimisation library of computer programs.

Case studies and assignments will be an integral part of the course and will be evaluated as part of the overall assessment in the unit.

References

A detailed list of texts and journal articles will be made available throughout the unit. Two commonly used texts will be:


SM223 Applied Statistics

Prerequisite, SM224, Statistical Decision Theory usually should have been passed before this is attempted

See details for SM224 to which this unit is complementary. Topics will include the application of chi-square and other non-parametric tests, the analysis of variance for the completely randomised design and the randomised block designs, Bayesian decision analysis, and the application of multiple regression to business and economic relationships.

References


Wonnacott, R.J. and T.H. Econometrics. Wiley and Sons, 1970


SM224 Statistical Decision Theory

Prerequisite, SM145 Quantitative Analysis for Business

A second year subject in business degree courses which aims to give future graduates a sufficient mathematical and statistical background to allow them to make meaningful decisions on tests they have designed on available data. To this end, SM224 and SM223 are seen as complementary units. Topics will include procedures for the estimation, testing and comparison of decision parameters, explicit treatment of errors in testing, statistical quality control, sampling and sampling designs.

References


Diploma subjects

BS251 Accounting 2A

Prerequisite, Accounting 1C

A second year subject in the accounting diploma course. This subject deals with the formation, growth and termination of partnerships and companies with the major emphasis on companies.

The course of study embraces accounting and the legal aspects of:

- Partnerships
- Company formation
- Creation and disposal of surpluses available for distribution
- Reconstruction of share capital
- Business combinations
- Group accounting
- Company liquidations
- Presentation of company reports.

Recommended reading


Bruce, J.H. and Dowd, J.M. Australian Company Accounting. Jacaranda Press

References


Victorian Companies Act and Regulations

BS252 Accounting 2B

Prerequisite, BS109 Accounting 1C

A second year subject in the diploma course in accounting.

The course is primarily concerned with the problems of establishing product costs for manufacturing enterprises. These costs are needed for income determination, inventory valuation, planning, cost control and decision-making.

Topics will include: alternative systems for collecting, recording and classifying costs so that unit product costs can be determined. Job costing and process costing are both covered.

The concept of using predetermined costs instead of actual costs is covered when a standard costing system is compared with an historical system.

The alternative treatments of fixed factory overhead as a product cost under absorption costing and a period cost under variable costing.

The behavioural implications of alternative systems and the relevance of this in determining their effectiveness.
Costs for decision-making, including the techniques of cost-volume-profit relationships and discounted cash flow analysis.

The use of budgets for controlling and evaluating performance.

References
Burke, W.L. and Smyth, F.B. Accounting for Management, 2nd edn, Law Book Company, 1972
Welsch, G.A. Budgeting, Profit Planning and Control, 4th edn, Prentice-Hall, 1975

BS255 Commercial Law
Prerequisite, BS108 The Australian Legal System
This course involves a study of the following areas of law which are of special significance in commercial dealings: contract; consumer and debtor protection; agency; legal capacity; legal entities; business torts; and negotiable instruments.

References
Yorston and Fortescue, Powell, P.E. QC, ed. Australian Mercantile Law, 14th edn, Law Book Co. 1971
Starcke, J.G. and Higgins, P.P. Law of Contract. 3rd Australian edn, Cheshire & Fifoot

BS261 Economics 2
Prerequisite, BS111 Economics 1
This subject examines the environment within which firms (and, to a lesser extent, households) make their decisions, and which seeks to show how economic analysis can be used to assist in the formulation of these decisions.

Attention is given to the impact of these decisions upon society’s welfare, with the emphasis throughout on the Australian economy. Topics analysed include: the market framework; demand analysis, especially from the firm’s point of view; cost and profit analysis, the conduct and performance of firms; product, pricing and selling policies of firms; government economic policies with respect to labour markets, restrictive trade practices, trade and tariffs, economic planning.

References
Hellbroner, R. Understanding Microeconomics. 3rd edn, Prentice-Hall
Savage, C.L. and Small, J.R. Introduction to Managerial Economics. Hutchinson
Current Newspapers, Journals and Government Publications

BS274 Introduction to Operations Research
Prerequisites, usually all first year units should have been passed
A third year unit of the diploma course in accounting
The aim of the course is to provide an introduction to some of the more common operations research techniques with which the modern accountant is likely to be concerned. Emphasis will be placed on the recognition of situations to which the techniques could be applied in solving business problems and interpretations of solutions.

Topics will include: linear programming, including specific application to transportation problems; short-term forecasting techniques applicable to inventory management; network analysis with emphasis on PERT; decision theory.

Recommended reading
Taylor, T.H., Introduction to Linear Programming, methods and cases, Wadsworth, 1971
Sasieni, M., Yaapan, A. and Friedman, L., Operations Research, Methods and Problems, Wiley
Coutie, G.A., Short-term Forecasting, Edinburgh, Oliver Boyd, 1964

Textbooks

BS281 Administrative Studies 2
Human Behaviour in Organisations
Prerequisite, BS32, Administrative Studies 1
This one-semester unit is primarily concerned with work problems related to or arising from human behaviour in business organisations. The teaching method will be based on a combination of lectures, case-studies and class discussions.
Where appropriate, structured games and experimental exercises will be employed to facilitate the learning of theoretical concepts.

Topics include
Personality theory
Values and values classification
Learning, perception, motivation
Role theory
Group dynamics and interaction theory
Interpersonal communications and perception
Conflict and importation
Change and the resistance to change
The effects of the organisation’s structure on human behaviour
Organisation development (OD)

Recommended reading
Leavitt, H.J., Managerial Psychology. 3rd edn, Chicago, University of Chicago Press, 1972

Textbooks

BS282 Administrative Studies 2
(Secretarial Administration)
This one-semester unit is designed to provide potential private secretaries with an understanding of:
(i) The nature, objectives and characteristics of the business organisation and its environment;
(ii) The functional activities of an problems associated with the general, financial, personnel, production, marketing and data processing managers and the company secretary.

The teaching method will be based on a combination of lectures, case-studies, tutorial papers and class discussions.

115
Recommended reading

BS291 Private Secretarial Practice B
Prerequisite, BS191 Private Secretarial Practice A

A second year subject in which more advanced practical application of the stenographic skills will be made. Shorthand and typewriting speeds of 110/55 respectively will be required for a pass. Together with corresponding stenography ability, assignments given on secretarial knowledge and duties.

Textbook Complete booklist available upon enrolment.

Degree subjects

BS301 Financial Management
Prerequisite, BS201 Corporate Accounting

This unit aims to provide the student with the analytical methods and techniques required to assess a company’s performance. The interpretation of the analytical data assess a firm’s long-term financial strength, profitability and intrinsic value of share capital form a major part of the unit.

Various budgets and projected funds statements are used to show the inter-relationship between the specific topics considered, which include the choice between debt and equity capital, dividend policy, and working capital management.

Receivables policy, cash management, investment opportunities in the short-term money market and long-term versus short-term financing are specific items of working capital management that are considered.

Discounted cash flow methods compared to other techniques of evaluating fixed asset acquisitions are covered, together with a financial analysis of take-over proposals.

Students are required to submit a major case study and/or regular seminar presentations.

References
Doctoroff, M. Company Take-overs and Mergers in Australia, Gower Press.

McCarthy, G.D. Acquisitions and Mergers, Ronald Press.

BS302 Advanced Financial Management

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 analyzing risk in this manner are discussed.

References

Harvard Business Review, Finance Series

BS303 Advanced Accounting Theory

A study of the theoretical aspects of income determination and asset valuation. Specific topics to be studied include the allocation problem in financial accounting theory, current value accounting, the profit concept and its usefulness, income tax allocation, lease reporting, the need for, and the development of, accounting standards.

References
Hendrikson, E.S. Accounting Theory, Revised edn, Richard Irwin.
Parker, R.H. and Harcourt, G.C. Readings in the Concept and Measurement of Income, Cambridge University Press.
Thomas, A.L. The Allocation Problem in Financial Accounting Theory, American Accounting Association, Parts I and II.

Textbook

BS304 Auditing

Prerequisite, BS201 Corporate Accounting

This unit involves a study of the theory and practice of auditing. The theoretical aspects of the unit will be dealt with in a series of lectures and complementary seminars throughout the semester. Theoretical topics to be studied will include the concepts, postulates and standards of
auditing; audit independence and evidence; the rights, duties and legal liability of auditors; the audit report and the concept of truth and fairness; internal control; statistical sampling; computer, internal and management audits and materiality. The practical aspects of the unit will be dealt with in seminars only and will essentially study the concepts, objectives and methodology involved in interim and final audit procedures.

References
Mannix, E.F. Professional Negligence. 2nd edn, Butterworths, 1976

BS306 Taxation
Prerequisite, BS201 Corporate Accounting
This unit involves a study of Australian income tax law and practice with particular attention given to its significance in business decision-making. Topics to be covered will be the nature of assessable income, allowable deductions and the provisions relating to companies, partnerships, trusts, primary producers and international taxation agreements.

Preliminary reading

References
Mannix, E.F. Australian Income Tax Leading Cases. Butterworths

BS307 Law of Marketing
Prerequisite, BS108 Australian Legal Systems and BS206 Contract Law.

Introduction – relationship between the protection of customers and freedom to market. The protection of proprietary interests available on registration of patents etc. The control of labelling, packaging, quality, safety and price of products.

Liability of manufacturers and sellers for defective goods, both under statute (e.g. Goods Act, Trade Practices Act) and at common law. Restrictions on advertising one’s product. Legislation aimed at restrictive trade agreements and misleading and deceptive trade practices.

References
A An Introduction to Trade Practices and Consumer Protection in Australia. (CCH) Australia Limited, 1974
Trade Practices Act, 1974
Various other statutes as advised in lectures.

BS308 Advanced Company Law
Prerequisite, US207 Law of Business Organisations.

This subject involves a study of various aspects of company law, especially relevant for students in the accounting stream contemplating public practice. Topics will include constitutional considerations, takeovers, liabilities and duties of company directors and controllers, raising of equity and loan capital, receivership, official management, schemes of arrangement and liquidation.

Prescribed texts
*Companies Act
*Securities Industry Act

References
Baxt, R. Second Australian Supplement to Gowers Modern Company Law. Law Book Co., 1974
Afterman, A.B. Company Directors and Controllers Law Book Co., 1970
Afterman, A.B. and Baxt, R. Cases and Materials on Corporations and Associations. Butterworths, 1972

Other references will be given during lectures.

BS309 Law of International Trade
Prerequisite, BS206 Law of Contract.

This unit will consider legal aspects of international trade including private international law, contacts between persons in different countries, insurance, shipping law, protection and free trade.

The unit will also consider trading agreements and the effect of such agreements as the Common Market.

Reading guides and references will be issued during classes.

BS310 Budgeting
Prerequisites, BS203 Management Accounting, BS301 Financial Management

This is a final year unit designed to develop and integrate the planning, control and decision-making techniques and skills introduced in management accounting and financial management.

The unit will also draw on the areas of operations research, economics and marketing. The course will include a study of the objectives of budgeting and the behavioural implications of alternative approaches to budget formulation. Both the operating and financial budgets will be studied in detail with emphasis on the inter-relationships and interdependencies between the various components.

Techniques such as cost-volume-profit analysis, discounted cash flow analysis, standard costing and a number of optimisation models will be studied in the context of their uses as aids to budgetary planning.

The implications of alternative cost and financial structures for risk and return on investment.

Budgeting problems during times of rapidly changing prices. The zero-base approach to budget formulation.
BS311 Public Finance
Prerequisites, BS211 Managerial Economic Analysis or BS212 The Firm and its Environment

This unit involves analysis of the economic rationale of government expenditure and revenue raising. It will cover the following topics:

1. An introduction to welfare economics and its implications for government economic policy.
2. Techniques to assist the efficient provision of goods and services in the government sector with particular emphasis on cost benefit analysis. Evaluation of government expenditure programs and policy in areas such as health, education, and the environment.
3. Taxation analysis: welfare foundations, introduction to the allocative and distributional effects of the major income and consumption taxes in Australia; taxation and stabilization policy — taxation and inflation.

References
Due, J.F. and Friedlander, A.J. Government finance: Economics of the Public Sector. 5th edn, Irwin, 1973
Matthews Committee, Inflation and Taxation, Report of Committee of Inquiry into Inflation and Taxation, May, 1975
Taxation Review Committee, Full Report, January 1975

BS312 Economic Research
Prerequisites, BS211 Managerial Economic Analysis or BS212 The Firm and its Environment

The intention is to broaden students' familiarity with the nature of research work undertaken by economists, and to increase students' ability to analyse and carry out economic research. It is assumed that students enrolling in this course will have an understanding of the fundamental statistical techniques covered in SM145 Quantitative Analysis for Business.

Topics will include:
- economics and scientific methodology; data sources and interpretation macro-economic research (forecasting, consumption, investment and wage models); micro-economic models (demand analysis and forecasting, production and cost analysis, pricing); selected topics in micro-economic research.

References
Nevile, J.W. Fiscal Policy in Australia, Theory and Practice. 2nd edn, Melbourne, Cheshire, 1975

BS313 International Trade
Prerequisites, BS211 Managerial Economic Analysis or BS212 The Firm and its Environment

This course will combine a study of trade theory with a detailed examination of present Australian trading trends and problems. The topics to be covered include the reasons for trade, the case for free trade, restriction of trade, problems relating to trade protection in Australia, the role of the Industries Assistance Commission, problems posed by the changing composition and direction of Australia's trade, an evaluation of recent capital controls, Australia's participation in various trading agreements and a discussion of the weaknesses in the present international monetary system.

References
Snape, R.H. International Trade and the Australian Economy. Longmans, 1974
Root, F.R. International Trade and Investment. South-Western, 1973

BS315 Monetary Economics
Prerequisites, BS211 Managerial Economic Analysis or BS212 The Firm and its Environment

This course provides a study of the nature and developments in Australian finance markets and consider various aspects of monetary theory and policy. The topics to be studied include:

1. Finance markets: nature and role of finance: economic development and financial development; evaluating the performance of finance markets; short-term money markets — official, buy back, commercial bill, and inter-company loan; capital markets — primary and secondary; rigidities and distortions in the finance markets; the question of controls.
3. Monetary policy: choice of policy instrument; rules and discretion; strength of monetary policy; internal and external balance and the assignment issue.
4. International monetary arrangements: problems and policies.

References
Stanford, J.D. Money, Banking and Economic Activity. John Wiley and Sons, 1973

BS316 Labour Relations
Prerequisite, BS111 Economics 1

This unit considers the nature of an industrial relations system with emphasis on the Australian experience. Some comparative reference will be made to other countries, particularly the United Kingdom and United States of America. Topics to be covered include collective bargaining; arbitration; productivity and bargaining; union growth and structure; employers associations; trade union, government and industrial democracy. The Australian
emphasis will require a consideration of labour history in Australia and an analysis of government policy which impinges upon the Australian industrial relations system.

References
Hymen, R. Strikes Fontana, 1974
Martin, R.M. Trade Unions in Australia. Pelican, 1975

BS317 Labour Economics
Prerequisites, BS211 Managerial Economic Analysis or BS212 The Firm and its Environment

This unit will have a policy orientation and will concentrate on general and partial equilibrium analyses of the Australian labour market. Topics to be covered will include: the role of labour in industrial society; the supply of labour including the role of education and training; the demand for labour; wage determination including the role of institutional and social forces; wage differentials; general theories of employment and prices; real wages and labour’s share of national income; inequality, discrimination and poverty; techniques of job evaluation; manpower planning.

References

Faculty of Business

BS318 Urban Economics
Prerequisites, BS211 Managerial Economic Analysis or BS212 The Firm and its Environment.

This unit will aim at assisting students to develop an analytical approach to appraising urban problems and policies. While the emphasis will be on economic analysis, part of the course will be devoted to discussing sociological and town planning perspectives of urban problems. This recognises that urban problems are multi-faceted, demanding a multi-disciplinary approach. The course will cover the following broad areas: economic analysis and urban problems, urban location decisions, decentralisation, government and private sales in urban development, public policy and urban problems with particular reference to transport, real estate and the environment.

References
Hymen, R. Strikes Fontana, 1974
Martin, R.M. Trade Unions in Australia. Pelican, 1975

BS324 Management Information Systems
Prerequisite, BS321 Systems Design

The course is designed to enable the student to:
1. Assess the needs of various levels of management for information.
2. Fully appreciate the role which management should play in the development of an MIS.
3. Design and plan the development of an MIS.

Topics covered include:
- The development of management information systems
- The sub-system concept of systems development
- The development of sub-systems including project selection

Technical considerations:
- Hardware
- Software
- Support services

Data base concepts
- The effect of MIS on management and the management process
- How to achieve management involvement
- Future concepts

Each section of the course is backed by practical case study material.

References
Kanter, J. Management Oriented Management Information Systems. Prentice-Hall
Coleman and Riley. M.I.S. Management Dimensions. Holden-Day

BS325 Conversational Computing
Prerequisite, US221 Cobol Programming

A third year unit in which a great amount of practical work is done on the college’s PDP 11/40.

The structure of the machine is examined, and the major project will be programmed in Basic under RSTS-11 operating system.

Recommended reading
PDP Processor Handbook. Digital Equipment Corporation
PDP Peripherals Handbook. Digital Equipment Corporation
Basic Programming Manual. Digital Equipment Corporation
RSTS-11 System User’s Guide. Digital Equipment Corporation
BS326  Operating Systems  
Prerequisite, BS221 Cobol Programming I

This is a third year unit which covers the development categories and structure of operating systems. One major operating system is examined.

Recommended reading

BS331  Organisational Behaviour  
Prerequisite, BS312 Administrative Studies I

A third year subject in the degree course in business. One of the principle objectives of this unit is to help prepare students for their entry into organisational life, or in the case of part-time studies to allow them to better understand their organisational environment.

This is achieved through a detailed study of the psycho-sociological subsystem of organisations via the use of experiential activities, and the analysis of case studies and films. Students gain an insight into the behaviour of people as individuals and group members within the organisational context and as an important by-product, learn something about themselves.

Recommended reading
Webber, R.A. Management, Homewood, Irwin, 1975

Textbooks
Hampton, D.R. et al. Organizational Behaviour and the Practice of Management, Revised, Glenview, Scott Foresman, 1973

BS332  Business Cases  
This unit is concerned with how business and non-business organisations establish and carry out long-term objectives, strategies and plans in a changing environment.

There is strong emphasis on case work through syndicates, leading to the achievement of three objectives:
To give students an opportunity to inter-relate the various disciplines in which they will have acquired some expertise by this stage of their studies.
To give students an overview of the business entity.
To give students the opportunity to develop and practise their analytical and communications skills with particular reference to the business environment.

BS343  Operations Research Methods  
Prerequisite, BS241 Fundamentals of Operations Research or equivalent

This unit is designed to introduce students to a broader range of quantitative methods for the solution of day to day business and economic problems. The computer will be used to help solve many of the case problems presented throughout the course via FORTRAN or BASIC packages and/or programs written by students.

Emphasis will be placed on problem recognition and formulation and full interpretation of solutions.

Topics covered will include: elementary FORTRAN or BASIC and the use of computer packages; Markov Analysis applied to capital equipment purchase, accounting control and market research models; Queueing theory and its uses in the industrial and business context, including a consideration of information processing problems; replacement and renewal theory relating to capital expenditure analysis, elementary dynamic programming with particular reference to inventory control.

Case studies and assignments will be an integral part of the course and will be evaluated as part of the overall assessment in the unit.

References
A detailed list of texts and journals will be made available during the course.

BS344  Simulation  
Prerequisites, BS343 Operations Research Methods and preferably one of BS301 Financial Management, BS311 Public Finance, BS312 Economics Research or BS326 Operating Systems usually should have been passed before this unit is attempted.

This unit is intended to develop some of the analytical techniques appropriate to solving business problems that are quantifiable by conventional mathematical methods.

Teaching will be mainly by practical work, students being required to complete a number of small cases, using the ICL4/50 and PDP 11 simulation facilities.

During the first four sessions theory, fundamentals to simulation, will be introduced. This will include the examination of systems from the viewpoint of their components and the logical interactions. It will then go on to establish the techniques of using random numbers as a basis for creating systems models in conjunction with simple mathematical and logical programming.

The choice of cases will be fairly wide and appropriate to an individual's specific interests. Applications that could be drawn on will include:
Financial evaluation of alternative investments and their associated risk
Inventory modelling
Marketing programs
Computer operations systems evaluation
Corporate modelling
Economic modelling
Evaluation of transport systems
Evaluation of social systems
During the course, any additional theory e.g. validation techniques, appropriate to the unit will be covered in its practical context.

**Preliminary reading**

Jones, G. T. *Simulation and Business Decisions*, Penguin

References

Barton, R.J. *A Primer on Simulation and Gaming*, Prentice-Wall

Meier, R.C. *et al. Simulation In Businessand Economics*, Prentice-Wall

Tocher, R. *The Art of Simulation* EUP


Journal articles and other references will be given during the course.

**BS345 Quantitative Cases**

Prerequisites, BS242 Linear Programming and BS343 Operations Research Methods

The unit is designed to enable students to employ a multi-technique approach to problem-solving. As such it will provide them with the opportunity to fully integrate and apply their knowledge acquired in previous units. The unit will be based on three or four major case studies and is designed as a final unit for those students taking quantitative methods as a major area of study in their degree course.

Extensive use will be made of the FOBO1 library and computer facilities for problem-solving.

References

A detailed list of references will be made available throughout the unit.

**Diploma subjects**

**BS351 Accounting 3A**

(Contemporary Accounting Problems)

Prerequisite BS251 Accounting 2A

This unit will examine the problems associated with measuring the performance of business entities. Topics to be covered include a study of the objectives of accounting, accounting methodology and the formulation of accounting standards; depreciation concepts and the allocation problems; accounting for long-term leases corporate social responsibility, human resources and income tax allocation. The latter part of the unit is related to alternative concepts of income including an examination of the problems of measuring income in periods of changing money values.

Preliminary reading


Textbook


References


Hendriksen, E.S. *Accounting Theory*. Revised edn, Homewood Illinois. Irwin, 1970


**BS352 Accounting 3A (A i) Interpretation**

Prerequisite, BS251 Accounting 2A

The aim of the course is to introduce students to the various analytical methods and techniques used in analysing a company’s financial statements. This involves a major study concerned with logical interpretation of analytical data and ratio analysis for assessing a firm’s profitability, working capital management, long-term financial strength and intrinsic value of its share capital.

Topic coverage also includes the critical appraisal of working capital requirements, short and long-term financing methods, cash management and receivables policies, together with a detailed evaluation of take-over proposals. Further considerations such as dividend policies, investment opportunities and cash flow analysis are also introduced.

References

Weston, J.F. and Brigham, F. *Essentials of Managerial Finance*. Holt, Rinehart and Winston

Hunter, M.H. and Allport, N.J. *Accounting*. Holt, Rinehart and Winston


Serraino, W., Singhl, S.S. and Soldofsky, R.M. *Frontiers of Financial Management*. South-Western


**BS353 Accounting 3B**

(Capital Budgeting)

Prerequisite BS252 Accounting 2B

Different types of capital investment proposals are analysed and the necessity for a program to administer and review capital expenditures is examined in the light of the goals of the firm. Evaluation techniques such as the rate of return, payback period and discounted cash flow measures are considered assuming a state of certainty to exist. Further considerations such as taxation, inflation, the rate of interest, depreciation, abandonment, and budgeting techniques are introduced into the analysis.

Measures to allow for risk analysis in capital investment are considered so that the evaluation techniques can be applied under conditions of uncertainty. The importance of qualitative factors in investment decisions is stressed throughout.

Preliminary reading

*Middetton, K.A. The Economics of Capital Expenditure*. Australian Society of Accountants

Scorgie, Michael E., Uroghah Jan A. and Green Ian R. *Interest: A Programmed Introduction*.

References


Bierman, C. and Smidt, S. *The Capital Budgeting Decision*. Collier-MacMillan
Portcressle, J.T.S. *Investment Decisions and Capital Costs*. Prentice-Hall


Accounting Practice Report 7: *The Capital Expenditure Control Program*

**BS354 Accounting 3B**

(Advanced Cost Accounting)

Prerequisite: BS252 Accounting 2B

This unit expands concepts, introduced in Accounting 2B (BS252), in the areas of management planning, control and decision-making.

Topics covered include the measurement of divisional and managerial performance with emphasis on problems associated with the allocation of common costs and transfer pricing; application of variance analysis in analysing profit performance; tailor-making cost data for specific managerial decisions, problem areas in product costing; cost control techniques in non-manufacturing areas; consideration of recent developments in manufacturing cost control; critical assessment of inventory control techniques currently available to management which leads to the development of appropriate decision models, a study of their application and problems of implementation.

References


Hadley, G. and Whiten, T.M. *Analysis of Inventory Systems*. McGraw-Hill


Solomons, D. *Divisional Performance Measurement and Control*. Irwin


**BS355 Accounting 3C**

(Auditing)

Prerequisite, BS251 Accounting 2A

This year subject in the diploma course in business studies. The aim of this unit is to provide an introduction to auditing, whereby students can develop an understanding of the role of the independent auditor, as well as developing an awareness of the procedures used by the auditor on the job. Topics to be studied will include the postulates and concepts of auditing; the rights, duties and legal liability of auditors, including liability to third parties; the audit report and the concept of “true and fair” internal control; audit programs; working papers and internal testing procedures; revenue statement and balance sheet audits; audit evidence and statistical sampling techniques; computer audits; audit independence; materiality, and internal and management audits.

Recommended Reading


Irish, K.A. *Auditing*. Law Book Co. Ltd.


Textbooks

Mannix, E.F. *Professional Negligence*. 2nd edn, Butterworths

Stettler, H. *Systems Based Independent Auditing*. 2nd edn, Prentice-Hall

**BS356 Accounting 3C**

(Taxation Law)

Prerequisite, BS251 Accounting 2A

This unit consists of an analysis of income tax law in Australia. Topics to be studied include assessable income, taxable income and allowable deductions, and the special provisions relating to companies, partnerships, and primary producers.

References


Mannix, E.F. *Australian Income Tax Leading Cases*. 2nd edn, Butterworths


**BS367 Economic Policy**

Prerequisite, BS261 Economics 2

The broad objective of the course is to assist students to develop a rational approach to the analysis and evaluation of government economic policies, which, once developed should be useful beyond the duration and content of the present course.

Towards this aim, the course examines some of the difficulties confronting the Australian Government. Important among these are the twin problems of inflation and unemployment. To achieve this end, broad topics will include: Labour market policy and inflation; Industrial relations policy; The Australian capital market and momentary policy.

External policy

The Jackson Report and economic planning.

Reading

Because of the contemporary nature of the course, the reading guide will be distributed at the beginning of each semester.

**BS378 Business Systems**

Prerequisites, BS251 Accounting 2A or BS252 Accounting 2B

Course objectives

1. The student will understand the nature of a business system and the manner in which business systems can be best developed and maintained.

2. The student will be able to follow through the development of a system from the point of determining system requirements through to successful implementation.

3. The student will understand the processing alternatives available and the advantages and disadvantages of each.
Topics include:
- the nature of a business system
- selecting systems for development
- steps in system design
- flowcharting techniques
- decision tables
- forms design
- code design
- system controls
- system documentation
- evaluating processing alternatives
- implementation procedures

References
Points for Managers. NCC
Auerbach on Small Business Computers. Auerbach Publishers, 1973

**BS381 Behaviour in Organisations**

Prerequisite, Administrative Studies I

The object is, to provide an in-depth reinforcement and expansion of behavioural concepts presented in Administrative Studies I, with special emphasis on group experience.

This unit is concerned with administrative problems related to or arising from, human behaviour in various forms of business organisation. An experiential emphasis is given to the mastery of concepts by the use of 'games' case-studies and discussion. This is complemented by assignments, films, excursions and the presentation of papers.

Main topics include:
- The psychological contract and organisational socialisation
- Motivation and organisational climate
- The technological system and its impact on the psychosocial system
- Interpersonal perception
- Interaction theory and group dynamics
- Value systems and their implications for management
- Communication systems
- Managerial style
- Organisational structural effects on human behaviour
- Problems and techniques of organisational change and conflict management

References
Schein, E.H. *Organisational Psychology*. Prentice-Hall
Sayles, L.R. and Strauss, G. *Human Behaviour in Organisations*. Prentice-Hall
Kast, F.E. and Rosenzweig, J.E. *Organisation and Management*. McGraw-Hill
Huneyager, S.G. *Human Relations in Management*. South-Western
Case Studies from Whyte, W.F. *Men at Work*. SCP
Lau, J.B. *Behaviour in Organisation, An Experiential Approach*. Irwin
Webber, R.A. *Management*. Irwin

**BS382 Public Administration**

Prerequisite, BS132 Administrative Studies I

This unit will be restricted to students who are employed in government or semi-government organisations.

A third year subject in the diploma course in business

Attention will be focused on:
- the structure, function and organisational culture of the public service
- the role of the public service administrator and the forces and pressures which bear upon him in the performance of his duty
- pressures for change on the public service
- the application of modern management and organisational theories to the specific public service setting

The subject will be taught through formal lectures from, where possible, senior public service officials discussion, case studies, experiential exercises and the analysis of reports describing the results of investigations into the public service. The student will also be required to analyse his present work environment through appropriate assignments and projects.

Topics
- Application of current theories of organisation, management, job satisfaction, and employee motivation to the specific public service setting. Research into bureaucratic stereotypes and dysfunctions of bureaucracy.
- Results of recent approaches to job enrichment and organisational re-design within the public service.
- Analysis of recent reports and investigations into the public service i.e. the Bland and Coombs reports into the State and Public Service respectively.
- Personnel practices in the public service.
- Current issues in public service accounting.

A comparative perspective. Current major issues in public administration in Sweden, Germany, France, Great Britain, United States and New Zealand.

Recommended reading
- Spann, R.N. and Curnow, G.R. *Public Policy and Administration in Australia: A Reader*. Sydney, Wiley, 1975
- Textbook: Wiltshire, K. *An Introduction to Australian Public Administration*. Melbourne, Cassell, 1974
Graduate diploma subjects

BS451 Current Issues in Accounting
The course will cover current issues relevant to the accountant involving a study of exposure drafts, suggested reforms and theories, changes in government regulations and practices, developments in international and domestic public and private enterprise.

References:
Detailed each year by the lecturer in charge.

BS452 Profit Planning and Control

Prerequisites, nil
A subject in group A of the graduate diploma course in business (accounting), which is concerned with analytically developing profit plans for a business enterprise and the control of the resources invested in the enterprise.

Topics covered include:
- Profit planning both short-term and long-term
- Stages of evaluation, strategy, planning and reporting
- Controllership functions and responsibilities
- Control techniques
- Management information systems

References
irwin, P.H. Business Planning -- Key to Profit Growth. SIA Canada
Jerome, W.T. Executive Control -- The Catalyst. Wiley
Lewis, R.L. Planning and Control for Profit. Harper and Row
Prince, T.R. Information Systems for Management Planning & Control, Irwin
Steiner, G.A. Top Management Planning. MacMillan

BS453 Auditing and EDP

Prerequisite, Accounting 3C/Auditing and BS121 Introduction to Data Processing in diploma of business studies, or equivalent subjects in other approved courses.
The course will examine in detail the relationship between auditing and the computer. It is intended that the student will develop the ability to evaluate EDP controls and to be familiar with the techniques of using the computer to assist in the auditing function. Although students may have had some contact with EDP, a brief revision of the basic concepts of EDP will be included.
Numerous case studies have been built into the course to provide a practical approach. The following areas will be covered in detail:
- Degree of EDP knowledge required by an auditor
- Auditor's role in systems design
- Processing and programming controls
- Audit trails
- Audit techniques
- Appraisal of controls in a service bureau operation
- Auditing advanced systems
- Concepts of auditing through and around the computer
- Development of internal control questionnaire for EDP

Preliminary reading

References
Davis, G.B. Auditing and EDP. McGraw-Hill

BS454 Contemporary Auditing

Prerequisite. BS355 Accounting 3C Auditing or equivalent
It is essential that students be familiar with the subject matter of BS355 Accounting 3C Auditing, as some seminars will examine in-depth issues initially raised at the undergraduate level. The aim of this unit is to evaluate in a series of seminars, some of the more important issues facing the profession. This unit will be most beneficial to students who have had some previous auditing experience.

Seminars topics will include interalia an analysis of the attempts to postulate a conceptual framework of auditing; the general problems of auditing standards with specific reference to CS. 1-Statement of Auditing Standards (Institute of Chartered Accountants in Australia); a review of the importance of behavioural factors in auditing with particular reference to Goldman and Barley's Behavioural Model of Independence and an analysis of some recent empirical research into behavioural patterns in internal audit relationships; contemporary attempts to solve some of the traditional problems of internal control evaluation by the use of Bayesian probability and positional analysis, the implications for the profession of the decision in Pacific Acceptance Corporation v. Forth; contemporary developments in the law of negligence and the auditor's responsibilities for the detection of fraud; an examination of the Swedish audit report, post-balance date events, the social audit, and some philosophical constraints inherent in the concept of audit evidence and ethics.

References
Mannix, E.F. Professional Negligence. 2nd edn, Butterworths, 1976
Brasseaux, J.H. and Edwards, J.D. Readings in Auditing. 3rd edn, South-Western, 1973
Boutell, W.S. Contemporary Auditing. Dickenson, 1970

BS455 Corporate Tax Planning
This unit involves a study of those aspects of taxation law relevant to corporations and their shareholders.
Topics will include fringe benefits, trading stock, disposals of property, depreciation, bad debts, loss companies, tax consequences of liquidations, mergers and reorganizations, international tax planning, pay-roll tax and sales tax.

References
Australian Income Tax Assessment Act 1936-1976. CCH, Australia Limited or Government Printer
Australian Federal Tax Reporter. CCH, Australia Limited
Taxation of Corporations and their Shareholders. CCH, 2nd edn, Australia Limited
Taxation of Plant and Equipment. CCH, Australia Limited
Understanding the New Investment Allowance. CCH, Australia Limited
1976 Australian Muster Tax Guide. CCH, Australia Limited
**BS456 Estate Planning**

This unit involves a study of the concept, objects and techniques of estate planning. Particular attention will be given to the use of gifts, partnerships, companies and trusts.

References
- *Probate Duty Act* 1962 (Vic)
- *Gift Duty Act* 1971 (Vic)
- *Stamp Act* 1958 as amended (Vic)
- *Estate Duty Assessment Act* 1914 as amended (Commonwealth)
- *Gift Duty Assessment Act* 1941 as amended (Commonwealth)
- *Income Tax Assessment Act* 1936 as amended (Commonwealth)

**BS457 Introduction to Financial Management**

A first year subject in the graduate diploma course in business administration.

The general objective of the course is to educate candidates to become informed and intelligent users of accounting information.

The course will be 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 will be discussed.

No prior knowledge of accounting is assumed.

Applicants who have previously studied accounting at a tertiary level or are working as accountants will be advised to enrol for one of the subjects from the graduate diploma course in business (accounting).

Applicants who have studied accounting at sub-tertiary level or who finished their courses some time ago will be enrolled in this subject.

Topics will include:
- The objectives of business organisations and a comparison with the objectives of an accounting system.
- Costs for decision-making and specific techniques such as cost, volume, profit analysis and discounted cash flow analysis.
- Accounting reports for performance evaluation and the assumptions that are implicit in their compilation.
- Divisional performance evaluation and transfer pricing.
- Budgeting and profit variance analysis.

References
- Caplan, E.H. *Management Accounting and Behavioural Science*. Addison-Wesley series in Accounting, 1971

**BS458 Quantitative Approaches to Financial Policy**

Prerequisite, usually students would have completed an introduction to linear programming and capital budgeting at undergraduate level.

The object of this unit is to examine the use of linear programming models as a means of overcoming the problem of conventional investment analysis.

Specifically the course will include an evaluation of conventional capital budgeting techniques with reference to multiple period investments, project interdependence, uncertainty and the inter-relationship between investment, financing and dividend decisions.

Modelling will be studied as a solution to financial decision-making including the development of linear programming models and corporate models to take account of the above problems.

References
- Detailed references will be issued by lecturers.

**BS459 Investment Analysis**

Prerequisites: BS301 Financial Management or BS457 Introduction to Financial Management

The unit consists of two parts, security analysis and portfolio theory and practice. Course content includes consideration of techniques used by security analysts to assess and evaluate corporate financial performance, and a review of share valuation models.

In the second part of the course portfolio theory is covered, together with considerations of current Australian practice and the evaluation of portfolio performance.

References
- Markowitz, H.M. *Portfolio Selection. Yale U.P.*. 1971

Note: Reference is also made to a number of articles from journals such as The Financial Analysts Journal Textbook.

**BS461 Economics**

No prior knowledge of economics is assumed; however, given the vast area to be covered, students are strongly advised to undertake some preliminary reading. Applicants who have majored in economics at a tertiary level will be advised to enrol for another post-diploma subject.

Applicants who have studied economics at sub-tertiary level or who finished their courses some time ago will be enrolled in this subject. It is intended to introduce those economic concepts and methods of analysis that bear directly on the management of the firm. Consideration is given to the factors that determine the general level of business activity. Concepts of costs, demand, competition and profits that influence the operation of the firm are also examined as important elements in the decisions of managers.

The topics to be covered will be drawn from: economic methodology, demand analysis, production and cost analysis, pricing and profit, aggregate demand analysis, monetary and fiscal policies, exchange rate, capital flow and tariff policies, incomes policy proposals, restrictive practices policy and environmental policies.
BS462  Australian Labour Relations
This unit examines the role of conflict at the work place in contemporary capitalist economies. While emphasis is on the Australian experience, some comparative reference will be made to other countries, particularly the United Kingdom and the United States of America. Attention will be focused on the development of an Australian industrial relations system. Topics in the course include compulsory arbitration, collective bargaining, productivity bargaining, union growth and structure, union democracy, employer organisations and industrial democracy. The role of the government in an industrial relations system will be considered.

References
Hyman, R. Strikes. Fontana, 1974
Martin, R.M. Trade Unions in Australia. Pelican, 1975

BS463  Current Issues in Economics
Prerequisite, approved tertiary studies in economics
The basic objective of this unit is to examine and analyse important contemporary issues in economics with particular emphasis on economic policy implications. Particular topics covered will be determined by the contemporary situation, but will generally include:
- Incomes policies, industrial relations, capital markets and monetary policy.
- Balance of payments policies, industrial structure and economic planning.

References
Detailed each semester by the lecturer in charge. Major emphasis will be given to current newspaper, journal and government reports

BS471  Management Systems
Prerequisite, there is no prerequisite. However, BS472 Systems Analysis would most suitably be taken prior to this unit.

Course
The aim is to enable the student to understand:
- The information that management needs from a management information system;
- The role that the manager and the data processor must play in the development of such a system;
- What an MIS can and cannot do;
- The equipment and resources currently available in the field of MIS.

Topics covered include:
- The development of management information systems;
- The sub-system concept of systems development;
- The development of sub-systems including project selection;
- Technical considerations:
  - Hardware
  - Software
  - Support services
  - Computer evaluation and selection;
- Data base concepts:
  - The effect of MIS on management and the management process
- How to achieve management involvement

BS472  Systems Analysis
The scope of systems analysis is defined and the types of systems studies undertaken are described from the point of view of the study objectives and the specialist skills required to complete such studies.

Code design, systems standards and systems performance criteria along with fact-finding methods, systems documentation techniques and the methods of capturing, validating and controlling data are areas of study which are covered in depth.

Planning techniques and documentation aids are also studied with particular regard to feedback and control.

The underlying aim of this course is to develop a problem-solving ability which, though directed towards the data processing solution of management problems in this course, may be widely applied.

The method of teaching will be by lectures, seminars and case studies. Students will be expected to present a discussion paper and participate in small case studies.

References
A detailed reference list will be issued for each topic.
Bingham, J.E. and Davies, G.W.P. A Handbook of Systems Analysis. MacMillan
Daniels, A. and Yeats, D. Basic Training in Systems Analysis. Pitman
Joslin, E.O. Computer Selection. Addison-Wesley
Lucas, H.C. Computer Based Information Systems. SRA

BS551  Research Paper
The object of the research paper is to demonstrate the students’ ability to apply theoretical concepts, of their own choosing, to a practical situation. The paper may be a discussion of how the concept could be applied in an organisation, indicating likely difficulties of such an application; or alternatively, the paper could be an analysis of a concept actually in use, discussing either its usefulness, or the techniques that are necessary for its implementation. The length of the paper should be between 10,000 and 12,000 words.

To assist students to complete their research paper, there will be formal sessions in research methodology during the second semester each year.

References
BS552 **Financial Structures and Policy**
Prerequisite, no prior knowledge of administrative theory is assumed, but working experience in a business, public service, or any other form of organisation is essential.

A unit in the graduate diploma course in business – administration or accounting.

This subject introduces the 'body of thought' about the problems of management, with special emphasis on the relationships between people and technology.

The learning experience depends largely on the involvement and experience of the students, who bring knowledge and skill to the task.

The lecturers’ 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 case studies 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 with which the student is familiar.

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**
1. The process of organisational socialisation, including concepts of role theory and the 'psychological contract' of reciprocal employer/employee expectations.
2. Organisational climate and its relationship with power, affiliation and achievement motivation of managers.
3. The evolution of management ethics and values. The protestant ethic, *laissez faire*, social Darwinism. The social ethic, ethical pluralism. The relevance of these to current management practice.
5. Systems theory and organisations. An examination of the systems theory idea and its use as a tool of organisational analysis.
7. Technological systems and worker satisfaction. Case studies are used to highlight the special behavioural problems of selected types of technology. Appropriate action by management to minimise these problems is discussed.

**Recommended reading**


**Textbooks**


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Faculty of Business

BS581 **Administration of Organisational Systems**
Prerequisite. BS581 Administration of Organisational Systems

A unit in the graduate diploma course in business –administration or accounting.

**Course**

1. The contribution of the behavioural sciences in solving the ‘people’ problems of management arc studied so that the student will be able to interpret psycho-social aspects of organisations, and be better equipped for the successful management of people.

2. The student will be acquainted with current ideas of organisation theorists concerning organisation structure, communication channels, decision-making behaviour and organisation development.

3. The student will be able to use these concepts to plan and evaluate management processes.

4. The development of skills in communication and of self-reliance and self-knowledge are subsidiary aims.

More specifically, after completion of the course the candidate should have developed a sensitivity to organisational problems and become aware of the impact of personal behaviour patterns.

Class sessions will consist of lecture-discussions, group experiential exercises, case studies, tests, short student papers and films.

This will be complemented by extensive private reading and practical assignments out of class.

**Framework**

2 Motivation and job enrichment. Theories of Maslow and Herzberg. The 'needs' hierarchy, the 'hygienes and motivators'. Individual motivation differences – the 'rate-busters and restrictors' of W.J. Whyte. A comparison of the motivational assumptions of scientific management and the behavioural managers. Economic, social, self-actualising and the complex man.

3 Group dynamics and interaction theory. Group influences, status and role perception, informal leadership. Functional and dysfunctional groups. The social system concept.

4 Managerial style and influence system. The effect on managerial style of assumptions about people – Theories X and Y. Reddin's analysis, the managerial grid, participative management, the concepts of power, authority and leadership, autocratic, democratic and laissez faire management, the systems concept of managerial style.

5 T groups and interpersonal perception. The value of self-knowledge. Use and abuse of sensitivity training. The problems, in self and others of perceptual sets, fixations and defence and the function of T groups in tackling these problems. Games and tests used throughout the course will aim to support this topic.

6 Organisational change. The ever-present problem of dealing with changes so that they will help rather than harm an organisation is studied in the context of introducing planned changes. The topic is covered under the headings:
   (a) Causes and kinds of changes
   (b) Kinds of resistance, reasons for, resistance to change
   (c) Managerial techniques for successful introduction of changes.

Recommended reading

Textbooks

**BS583 Marketing Administration 1**
Prerequisite, nil
Marketing Administration 1 and 2 deal with the fundamentals of business planning with particular emphasis on the market place. The course has been designed to provide accountants with an opportunity to relate their special skills to business situations

Objectives
To give students a broad understanding of the marketing environment
To give students an overview of the total business function in particular with respect to planning and decision making
To introduce the student to marketing controls, particularly in areas of product line performance and sales territory performance

To provide students with the means of analysing the market information requirements necessary in evaluating capital expenditure proposals
To enable students to apply their knowledge of economics and quantitative methods to business situations
To achieve the above objectives, emphasis is placed on case study analysis and management games.

Course
Marketing Administration 1 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 and consumer behaviour.

Instruction
Emphasis will be shared between theoretical considerations 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.

Framework
Introduction – the marketing concept, the scope of marketing management. The market and an analysis of demand. 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.

**References**
Robertson, T.S. Consumer Behaviour. Scott Foresman Co.
McCarthy, E.J. Basic Marketing. 4th edn, Irwin
Cardozo, Cunningham, Salmon and Sultan, Problems in Marketing. McGraw-Hill
Simmonds, K. and Leighton, D. Case Problems in Marketing.

**BS584 Marketing Administration 2**
Prerequisite, BS583 Marketing Administration 1
This unit builds upon the knowledge that students have gained from Marketing Administration 1 especially in respect to the marketing planning process and the elements of the marketing mix. The aim of this unit is to:

(a) introduce the student to the fundamentals of marketing research
(b) identify the value of additional information and how this information can be used
(c) introduce the student to end-use analysis and also the various approaches to forecasting

Instruction
Class sessions will be composed of lectures relating to theoretical concepts and to case study analysis. Students are expected to participate actively throughout the semester, and are required to present individual as well as group assignments.

**References**
Dryden Press
Boyd, H.W. and Westfall, R. Marketing Research, Text & Cases. Irwin

**BS585 Secretarial Practice and Procedure**

The course is intended to equip potential company secretaries and their role.

Topics covered include:

- Meetings and conferences, duties of chairman, organisation, standing orders, terms and expressions, etc.
- Board meetings: preparation, agenda and minutes, quorum, voting rights, powers of members’ motions
- Meetings (general): privilege and defamation, libel and slander, admission of press
- The Board and the Stock Market: Functions and procedures, listing requirements and terminology, voluntary and statutory controls, etc.

The reading list will be made available during the semester.

**BS586 Personnel and General Administration**

A subject in the graduate diploma course in business – accounting

Four sessions are spent on industrial law. The remaining sessions cover the topics of personnel practice; 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 will be paid to

- Job satisfaction and morale. Indices of lack of job satisfaction
- Personnel forms and records
- Manpower planning
- Employee benefits and services
- Recruitment, selection and induction
- Training
- Performance appraisal
- Salary and wage administration
- Promotion, separation, demotion, transfer, redundancy, retirement
- Organisation development and human resource development and the ways these various aspects can be related into a comprehensive integrated system of personnel management.

Recommended reading


Textbooks


**BS587 Business Policy**

Prerequisites. Because of the nature of the subject, business policy will be given, preferably in the final semester of the course. Candidates must have completed all of group A subjects and preferably two of the group B subjects before commencing this unit.

Course

To integrate the philosophies discussed in all other units. Students will be required to incorporate behavioural, economic, financial and marketing concepts and demonstrate that they have a clearly defined understanding of administration. The unit provides an opportunity to improve capacity to identify, analyse and evaluate strategic business problems and opportunities.

Framework

1. Introduction. Business policy as a field of study.
2. The managing director’s job. As organisation leader, personal leader, architect of corporate purpose.

Managing the strategic process.

References

- Christensen, Andrews and Bower. Business Policy, Text and Cases. 3rd edn, Irwin, 1973
- Ansoff, Igor H. Corporate Strategy. Pelican

**BS588 Administrative Policy**

This unit is designed to provide students (who have a background of studies in finance) with an understanding of the management problems involved in developing strategic policies for organisations in both the public and private sectors. The student will be concerned with the development of corporate objectives and the translation of these objectives into strategic plans. Cases drawn from both business and government will be used as well as discussions of prepared readings to help students learn how to employ strategy in selecting appropriate administrative policies and in securing their effective implementation. It is desirable but not mandatory that students should complete BS583 Marketing Administration 1 or BS452 Profit Planning and Control before commencing this unit.

References

- Ansoff, Igor H. Corporate Strategy. Pelican
- Smith, R.G. Corporate Crisis. Doubleday and Co. Limited
BS591  Quantitative Methods in Accounting
Prerequisite, no formal prerequisites are required for this unit

The unit provides students with an introduction to some of the more common quantitative techniques applicable in accounting and allied disciplines.

Topics covered will depend on student background and interest and will be selected from linear programming with an emphasis on input data and the use and interpretation of output. Particular reference will be made to the transfer pricing problem in decentralised organisations; the use of quantitative decision analyses and modelling techniques for control and planning of inventory and cash requirements; forecasting procedures appropriate to working capital management; replacement and renewal and its relationship to traditional capital expenditure analysis.

Case studies and assignments will be an integral part of the course and will be evaluated as part of the overall assessment in the unit.

References
Detailed reference lists will be supplied throughout the course

BS594  Quantitative Methods
No formal prerequisites are specified beyond a previous knowledge of basic mathematics

This unit in the graduate diploma – administration course 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 relatively new quantitative techniques with practical application. These include the use of package programs on computer terminals.

The topics included are: analysis and presentation of data; significance testing; decision theory; forecasting (with emphasis on short-term models); simple linear programming; inventory management; critical path planning.

Recommended reading

Textbooks
None specified. During the course references and other material will be listed.

BS595  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 and consumer behaviour.

Methods of instruction
Emphasis will be shared between theoretical considerations 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.

BS596  Marketing Management 2
Prerequisites, BS583 Marketing Management 1

References
Kotler, P. Marketing management. 3rd edn, Prentice-Hall
Argenti, J. Systematic Corporate Planning. Nelson
Enis, B.M. and Cox, K.K. Marketing Classics, Allyn and Bacon
McCarty, E.J. Basic Marketing. 4th and 5th edn, Irwin, Inc.

Economics
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:
(a) introduce the student to the fundamentals of marketing research
(b) identify the value of additional information and how this information can be used
(c) introduce the student to end-use analysis and also the various approaches to forecasting
(d) examine the alternative approaches to organising marketing activities
(e) 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:
(a) The role of marketing within the objectives and constraints of corporate strategy.
(b) Forecasting – costs and benefits, demand determinants, predicting trends, simulation models.
(c) Marketing research – costs and benefit, marketing research strategy, evaluation of results.
(d) Test marketing – purpose of test marketing, the practical problems, applicability of Bayes theorem.

References
Brown, Cardozo et al. Problems in Marketing. 4th edn, McGraw-Hill
Brion, J.M. Corporate Marketing Planning. Wiley
Kotler, P. Marketing Management. 3rd edn, Prentice-Hall
Argenti, Corporate Planning. Nelson
Bursk and Grevser, Advanced Cases in Marketing. Prentice-Hall
Seibert, J. and Wills, B. Marketing Research. Penguin
Faculty of Engineering
Faculty of Engineering

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Tutor

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B.J. Costello, BEng(Prod), MIEAust

Courses offered

* Master of Engineering in Civil Engineering
* Bachelor of Engineering in Electrical Engineering
* Bachelor of Engineering in Mechanical Engineering
* Bachelor of Engineering in Production Engineering
Graduate Diploma in Biochemical Engineering
Graduate Diploma in Chemical Engineering
Graduate Diploma in Civil Engineering
Graduate Diploma in Air-Conditioning
Graduate Diploma in Industrial Management
Graduate Diploma in Urban Systems
Diploma of Engineering (Chemical)
Diploma of Engineering (Civil)
Diploma of Engineering (Electrical)
Diploma of Engineering (Electronic)
Diploma of Engineering (Mechanical)

* Diploma of Engineering (Production)

*(Cooperative/sandwich courses with periods of work experience)

Cooperative education

Cooperative, sandwich, integrated, are some of the terms used to describe planned courses of study in which the student learns in both an academic and a work situation. This work experience is a significant part of the total program and is planned to complement academic studies.

At Swinburne the term 'cooperative' is used, and the duration of the industrial periods represents up to 25% of the total course.

During the periods of work experience, the student follows a planned program of instruction which is agreed between the college and the employer concerned. Satisfactory completion of each period is a prerequisite for admission to the next academic stage of the course. Members of the academic staff supervise these programs and liaise with industry. Students receive recognised rates of pay during the training period, and in return are required to comply with the firm's normal conditions of employment.

Of the many benefits derived by students from a cooperative program, one of the most important is that practical applications of theoretical principles are seen at first hand, and subsequent theoretical instruction more readily assimilated. In addition, the experience gained during the period in industry enables students to decide the type of employment which will give them most satisfaction.
Structure and duration of engineering undergraduate courses

1st year | 2nd year | 3rd year | 4th year | 5th year

Chemical Engineering

Civil Engineering

Electrical Engineering

Mechanical Engineering

Production Engineering

Note: Students enrolled in cooperative courses at third and fourth year level may be required to undertake semesters in college and industry in a different order to that shown above. For further details refer to the course structure information given in the sections for the various engineering departments.

Entrance requirements:
Technical College Preliminary Year, HSC or equivalent.

| Full-time study in College | Work experience – cooperate courses | Industrial experience – mechanical engineering |
There are also advantages to be gained by the potential employer who appreciates that graduates and diplomates who already have a knowledge of industry, can be fully productive within a short time of taking up their first professional appointment. Evidence of employers' approval and support of cooperative courses is borne out by trends in the U.S.A., where over 400 institutions now offer these courses, and in Great Britain, where almost 40% of undergraduate engineering students are currently enrolled in sandwich courses.

The following are associated with cooperative courses in civil, electrical, and production engineering and with the degree course in mechanical engineering.

APM Ltd
AVH Electrical Industries Pty Ltd
Advance Industries Ltd
Aeronautical Research Laboratories
Ajax Pumps
Alcoa of Australia Ltd
Alex Folkeby Pty Ltd
A.W. Allen Ltd
Anthony Bearings Pty Ltd
Austral Standard Cables Pty Ltd
Australian General Electric (Appliances) Ltd
Australian Glass Manufacturers Co.
Australian Iron & Steel Pty Ltd
Australian Paper Manufacturers
Australian Portland Cement Ltd
B.X. Plastics (Aust) Pty Ltd
W.P. Brown & Associates
Brownsbuilt Ltd
CFM Aluminium Fabricators
CIG Ltd
CSIRO
Carlton & United Breweries Ltd
City of Box Hill
Brighton
Camberwell
Croydon
Dandenong
Doncaster & Templestowe
Eltham
Hawthorn
Knox
Malvern
Nunawading
Port Melbourne
Springvale
St. Kilda
Waverley
Commonwealth Aircraft Corporation
Companion Pty Ltd
John Connell & Associates
Containers Ltd
Country Roads Board
Cyclone KM Products Pty Ltd
Dalsonware Pty Ltd
Dandenong Valley Authority
W.A. Deutsher Pty Ltd
Department of Construction
Department of Defence
Department of Industry and Commerce
Department of Transport
Dudglen Industries Pty Ltd
Dunlop Australia Ltd
E.Z. Industries Ltd
Ensign Dry Cleaners (Vic) Pty Ltd
Emai Ltd
Englehard Industries Pty Ltd
L.M. Ericsons Pty Ltd
P.E. Frye Pty Ltd
GBS Hard Metal Co
Gardner & Naylor Pty Ltd
Gas and Fuel Corporation
General Motors — Holden's Pty Ltd
Gutteridge Haskins & Davey Pty Ltd
Hecla Rowe Manufacturing Pty Ltd
Holeproof Ltd
Housing Commission of Victoria
Humes Ltd
Ingersoll-Rand (Aust) Ltd
Insulwool Products
International Harvester Co. of Aust. Pty Ltd
Jewell Pty Ltd
James Miller Holdings Ltd
K. & G. Johnston Pty Ltd
Robert Jones Engineering Pty Ltd
Kenneth Lighting Co.
G. Kennon & Co. Pty Ltd
Kinnaird Hill DeRohan & Young
Kraft Foods Ltd
Krew Tradec Co.
David Linacre Pty Ltd
McPhersons Ltd
— Machine Tool Division
— Engineering Research Department
Master Steel Pty Ltd
Mansell & Partners
Melbourne & Metropolitan Board of Works
Mica & Insulating Supplies Co. Pty Ltd
Mobil Oil Aust. Ltd
Motorola Communications
Myton Rodd Ltd
Neta Industries
Ogden Industries Pty Ltd
P.B.R. Industrial Co. Pty Ltd
Patons Brake Replacements Pty Ltd
Philip Morris Ltd
Plasid Industries
Premwire Metal Industries Pty Ltd
Public Works Department
Raywood Electronics
Reed Paper Products Ltd
Reinforced Plastics Pty Ltd
Repo Engine Parts Pty Ltd
Reva Plastics Pty Ltd
Reyrole Ltd
Rheem Aust. Ltd
Rockla Industries Ltd
John Scroggie Pty Ltd
Selectronic Components
Shell Company of Australia Ltd
Siddons Industries Ltd
Silentbloc (Aust) Pty Ltd
Sperry New Holland
Telecom Australia (Victoria Division)
The Stanley Works Pty Ltd
State Electricity Commission of Victoria
Entrance requirements

Degree/diploma common years

Standard entry: To gain entrance to the first year of a diploma or degree course in engineering a student must have passed the examinations for the Victorian Higher School Certificate or its equivalent. It is recommended that students should have studied English Expression, Chemistry, Physics, Pure Mathematics and Applied Mathematics.

Students who satisfactorily complete the engineering and applied science stream of the preliminary year course offered by Swinburne Technical College (students enrolled for that stream will study Chemistry, English, Mathematics, and Physics — full details of the course are included in the Swinburne Technical College section of handbook) will be entitled to enter the first year of the degree/diploma course without quota restrictions.

Entry to Preliminary Year at the college may be possible for students who have gained their Leaving or Technical Leaving certificates in English, Mathematics, Physics and Chemistry.

Mature-age entry: The college has provision for mature entry to courses. Applicants in this category should forward details of their previous academic background (or reasons for the lack of it) to the Registrar. Offers of places at the college will be made on the merits of the particular case and the Registrar will notify successful applicants in writing.

It should be noted that the scheme is not intended for the rehabilitation of students who have recently failed the Higher School Certificate examinations.

Degree courses

Entry: Selection for the degree stream is made at the end of second year and is based on academic results and staff assessment of the ability of a student to cope with degree work.

Post-graduate courses

Graduate diploma courses: Candidates should have a degree or diploma in a field of engineering or applied science. Graduate diplomas offered by the faculty are designed to give graduates opportunity for specialist development in areas of importance to engineers.

Master's degree studies: Admission to candidature for a Master's degree may be granted by the Victorian Institute of Colleges on the recommendation of the college where prospective candidates have a first degree from the VIC or other recognised institution, or where they pass some other award acceptable to the VIC along with suitable practical experience. Study for a Master's degree may be undertaken as a research program either based on the college or based on some non-academic organisation.

Further details may be obtained by contacting the Secretary of the Faculty of Engineering, Mr A.J. Miles, 819 8281.

Industrial experience

To qualify for a diploma, a student is required to complete a minimum of twelve weeks' industrial experience. Approved vacation experience may be included in this period.

Evening and part-time study

It is possible to complete many of the courses given in the various departments of engineering by evening and part-time day attendance at the college. Part-time day classes are available in selected subjects to enable students whose employers grant them time for study to attend by half days. Part-time students are, in general, expected to obtain some day release.

Course revisions

Engineering courses are under constant review to ensure that they remain up to date. Adequate provision is made for students who commence a course under a particular syllabus to finish that course, by providing, where necessary, either equivalent or alternative subjects. Students who take an excessive time to complete their courses may be required to change to a later course of study. Enquiries concerning course changes should be directed to the appropriate heads of engineering departments.
Deferment
Students may apply for deferment of up to twelve months and if permitted to defer, may re-enrol for the course they were originally pursuing. Applications for deferment should be made in writing and directed to the head of department. Students who discontinue study without permission and later wish to renew enrolment will be required to apply for readmission as if they were new students. If accepted, they will be required to conform to the requirements of the course structure, current at the time of readmission.

Admission — ad eundem statum
A student may be admitted with advanced standing to a Swinburne course when he or she has successfully completed part of an engineering course at another tertiary institute in Victoria, or other comparable course. In certain circumstances, a student may also be given credit based on external practical experience, e.g. an experienced draughtsman may be credited for all or part of Engineering Drawing.

To apply for a credit, a student must register his intention to seek credit at the time of first enrolment. The registration of intent to seek credit must be made on the college enrolment form; supporting documents must then be lodged with the department within six months.

Academic work at other colleges
Students who wish to undertake subjects at some other educational establishment should consult with the head of department concerned, and obtain the approval of the Engineering Faculty Board. A student wishing to qualify for an engineering diploma or degree from Swinburne must complete at least the equivalent of a full final year at the college to be eligible for the award.

Scholarships
Scholarships and teaching studentships are available to students pursuing courses in engineering. Details of these are available from the Student Counselling Department.

Liberal Studies programs
A feature of engineering courses at Swinburne is the opportunity for students to consider the role of the professional engineer in Society. All courses in engineering include liberal studies programs designed to broaden the knowledge, skills and attitudes of students in order to develop their capacity to deal with rapid social and technological change. These programs enable students to examine critically, economic and social problems which arise as a result of an increasing demand for improved technology.

Passing by years
1. General
The Engineering Faculty Board operates a scheme of passing by years which enables an engineering student to be assessed on a block of work rather than on individual subjects. The scheme applies to the following students:

(a) All full-time and cooperative engineering diploma students.
(b) All full-time and cooperative degree students, in civil, electrical, and production engineering.
(c) For mechanical engineering degree students, the block passing concept operates on an omnibus subject basis rather than a year basis. See the section entitled 'Department of Mechanical Engineering'.
(d) All part-time engineering students whose weekly workload is 10 or more contact hours.

Students who have a workload in excess of 14 hours per week but who are not pursuing the course prescribed in the handbook of the particular year, must have this course approved by the head of department concerned before becoming eligible for consideration under block passing rules.

2. Full-time students
The Engineering Faculty Board system operates for full-time students as follows:

2.1 At the end of each year a student will —
(a) pass outright
or (b) be passed by the faculty board on the year as a whole (that is be granted a 'Faculty Pass' on the year).
or (c) not pass. A student in this group would, at the discretion of the faculty board —
(i) become a part-time student
(ii) return to a full-time study of the same year's work
(iii) be excluded from the course.

2.2 Students who achieve only limited success as full-time students and who elect (and are permitted by faculty board) to enter part-time study for rehabilitation 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 without any carry-over of subjects from earlier years.

2.3 Where a failed student is permitted to enrol in special remedial classes by the head of department responsible for the total program of the student, the lower of the two subject grades obtained in the original and the remedial subject will be ignored in the determination of overall results.

2.4 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.

3 Part-time students

Part-time students who qualify and enter for a faculty pass for a group of subjects will receive a faculty pass 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 still satisfy the course requirements for that subject.

4 Explanatory note – full-time and part-time students

Subject passes are classified in the following descending order of merit; HD, D, C, P, and 'N' classification is used for failed subjects.

The overall faculty result is calculated using a weighted average system involving the product of the assessment value and the formal contact hours for each subject. Where a student fails to satisfy the assessors in any given subject (~) the final decision for a faculty pass is made by the faculty board after consultation with the appropriate teaching department(s).

Special supplementary assessments may be made in some circumstances.

Professional recognition of courses

Degree and diploma courses are designed to prepare students either for direct entry into professional positions with Federal or State Government departments, local governing bodies and private industry or for advanced tertiary training.

Institution of Engineers, Australia: The courses for degrees of bachelor of engineering in civil, electrical, mechanical and production engineering and for diplomas of engineering in chemical, civil, electrical, electronic, mechanical and production 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 17 years of age may apply to the Institution of Engineers, Australia to become student members.

The Institution of Engineers has announced that from 30 June 1980 it will accept for admission to the grade of Graduate or of Member, only those qualifications obtained after that date which meet the following requirements:

1 A course must be of not less than four years' duration for a full-time course after a standard of secondary education not less than the general standard of examination for matriculation to an Australian university.

2 A part-time course must be of sufficient duration to attain a similar standard as a four-year full-time course, after a similar standard of secondary education.

Students should note that degree courses offered by the college will be acceptable for admission to the grades of Graduate and of Member of the Institution of Engineers, but after 30 June 1980, students qualifying for a diploma which takes less than four years of full-time study, or its part-time equivalent, will not be admitted to membership of the Institution.

It is probable that the Institution will provide a transition period of about five years. Under the terms proposed for that transition period, graduates who complete an accredited three-year full-time course after 30 June 1980 will be admitted to the existing grade of Graduate but only on the understanding that if they do not obtain, by 30 December 1985, such additional qualifications as would then be required for the grade of Member, they shall cease to be members of the Institution.

Other professional bodies: The course for the Diploma of Engineering (Chemical) is recognised by the Royal Australian Chemical Institute, the Bachelor of Engineering (Production) is recognised by the Institution of Production Engineers and the degrees and diplomas of engineering in electronic and electrical engineering are recognised by the Institution of Radio and Electronics Engineers (Australia) as sufficient academic qualification for membership.
Faculty of Engineering

Department of Chemical Engineering

General information

Chemical engineering is a modern technology which teaches the application of mathematics, chemistry, and physics to the large scale industrial processing of materials. The graduate from such a course of training can therefore find employment either in the design, development and fabrication of equipment, or in the operation, maintenance and management of processes using this plant and equipment. Traditionally, this has been connected with the processing of crude petroleum, petrochemicals, plastics, ceramics and metalliferrous ore extraction and refining, but increasingly, chemical engineers with training in biological science (biochemical engineering) are entering the fields of antibiotics, food processing, processing of plantation products such as sugar cane, vegetable oil seeds, alginates from seaweed and many other areas.

Chemical engineers have been closely associated with developments in nuclear power, space technology, and a host of new products unheard of less than twenty years ago. Now they are increasingly concerned with controlling these developments so that the quality of life will be preserved for future generations.

Courses offered

Diploma of Engineering (Chemical)
Graduate Diploma in Chemical Engineering
Graduate Diploma in Biochemical Engineering

The diploma course in chemical engineering is a fully recognised professional course requiring three years' full time or the equivalent part-time attendance following completion of sixth-form studies or equivalent. The course consists of lecture, tutorial and laboratory work integrated into a whole, with the laboratory work, including a minor investigational project in final year, being undertaken in the well-equipped laboratories of the department.

The diploma course can be followed either by full-time day or part-time evening attendance and appropriate advanced standing may be gained by students who have already completed diploma or degree examinations in science or engineering.

Subjects studied

First year (1972 revised course)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED155 Engineering Drawing</td>
<td>30</td>
</tr>
<tr>
<td>EE114 Applied Electricity</td>
<td>45</td>
</tr>
<tr>
<td>EM118 Thermodynamics and Mechanics</td>
<td>120</td>
</tr>
<tr>
<td>GS193 General Studies</td>
<td>30</td>
</tr>
<tr>
<td>SC125 Chemistry</td>
<td>120</td>
</tr>
<tr>
<td>SM105 Mathematics</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>405</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA118 Thermodynamics and Mechanics</td>
<td>120</td>
</tr>
<tr>
<td>ED156 Engineering Drawing</td>
<td>30</td>
</tr>
<tr>
<td>EE115 Applied Electricity</td>
<td>45</td>
</tr>
<tr>
<td>GS195 General Studies</td>
<td>30</td>
</tr>
<tr>
<td>SC126 Chemistry</td>
<td>120</td>
</tr>
<tr>
<td>SM106 Mathematics</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>405</td>
</tr>
</tbody>
</table>

Second year (1972 revised course)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA203 Chemical Engineering</td>
<td>90</td>
</tr>
<tr>
<td>EA212 Transport Processes</td>
<td>45</td>
</tr>
<tr>
<td>ED252 Chemical Engineering Design</td>
<td>30</td>
</tr>
<tr>
<td>MT221 Materials Science and Corrosion, Unit I</td>
<td>45</td>
</tr>
<tr>
<td>SC227 Chemistry</td>
<td>120</td>
</tr>
<tr>
<td>SK227 Computer Programming</td>
<td>15</td>
</tr>
<tr>
<td>SM205 Mathematics</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>405</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA204 Chemical Engineering</td>
<td>90</td>
</tr>
<tr>
<td>EA213 Transport Processes</td>
<td>45</td>
</tr>
<tr>
<td>EA222 Materials Science and Corrosion, Unit II</td>
<td>45</td>
</tr>
<tr>
<td>ED253 Chemical Engineering Design</td>
<td>30</td>
</tr>
<tr>
<td>SC228 Chemistry</td>
<td>120</td>
</tr>
<tr>
<td>SM204 Mathematics</td>
<td>15</td>
</tr>
<tr>
<td>SM206 Mathematics</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>405</td>
</tr>
</tbody>
</table>

Third year (1972 revised course)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA319 Chemical Engineering</td>
<td>135</td>
</tr>
<tr>
<td>EA332 Instrumentation and Control Engineering</td>
<td>45</td>
</tr>
<tr>
<td>EA353 Process Plant Design and Economic Evaluation</td>
<td>60</td>
</tr>
<tr>
<td>EA355 Project Thesis and Technical Report Writing</td>
<td>90</td>
</tr>
<tr>
<td>SC327 Chemistry</td>
<td>75</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>405</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA320 Chemical Engineering</td>
<td>135</td>
</tr>
<tr>
<td>EA333 Instrumentation and Control Engineering</td>
<td>45</td>
</tr>
<tr>
<td>EA354 Process Plant Design and Economic Evaluation</td>
<td>60</td>
</tr>
<tr>
<td>EA356 Project Thesis</td>
<td>90</td>
</tr>
<tr>
<td>SC328 Chemistry</td>
<td>75</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>405</td>
</tr>
</tbody>
</table>
Graduate Diploma in Chemical Engineering

This is a two-year, part-time course intended to provide the basic knowledge of chemical engineering for graduates in either applied science or engineering who are working or intend to work in the chemical industries. The course is planned to be completed in two years of 3 x 3-hour evenings per week throughout the academic year of thirty weeks.

Alternatively, facilities are available to undertake the course on the basis of one half-day and two evenings providing the employer will co-operate in providing this day release.

All the subjects studied are full credit subjects for the Diploma of Engineering (Chemical) and continuation of the course to include additional material to provide professional recognition is actively encouraged.

Course structure

<table>
<thead>
<tr>
<th>First year</th>
<th>Second year</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA201</td>
<td>EA311</td>
</tr>
<tr>
<td>Chemical Engineering 1A</td>
<td>Chemical Engineering 1A</td>
</tr>
<tr>
<td>EA211</td>
<td>EA312</td>
</tr>
<tr>
<td>Chemical Engineering 1B</td>
<td>Chemical Engineering 1B</td>
</tr>
<tr>
<td>EA202</td>
<td>EA313/314</td>
</tr>
<tr>
<td>Chemical Engineering Thermodynamics and Kinetics</td>
<td>Chemical Engineering 11C</td>
</tr>
</tbody>
</table>

Graduate Diploma in Biochemical Engineering

This is a course designed specifically for graduates in chemical engineering who are working in such areas as the food industry, processing of natural products, antibiotics and biological waste treatment. Suitable options are, however, available for biochemists and microbiologists who are interested in the engineering aspects of biological processes.

The course is scheduled to be undertaken over two years by 3 x 3-hour evenings per week over a thirty-week teaching year, but with the employers cooperation could be undertaken on a one half-day plus 2 x 3-hour evenings per week basis. Laboratory work is provided in all subjects but is not obligatory in engineering biochemistry.

Course structure

<table>
<thead>
<tr>
<th>First year</th>
<th>hours/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC571 Biology</td>
<td>90</td>
</tr>
<tr>
<td>SC572 Microbiology</td>
<td>90</td>
</tr>
<tr>
<td>EA411 Non-Newtonian Heat Mass and Momentum Transfer</td>
<td>90</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second year</th>
<th>hours/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC582 Engineering Biochemistry</td>
<td>90</td>
</tr>
<tr>
<td>SC583 Physical Biochemistry</td>
<td>60</td>
</tr>
<tr>
<td>EA491 Biochemical Engineering</td>
<td>90</td>
</tr>
</tbody>
</table>

Biochemists or similar who have covered appropriate parts of the course could attend the corresponding courses offered in chemical engineering.

<table>
<thead>
<tr>
<th>First year</th>
<th>hours/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA211 Chemical Engineering 1B</td>
<td>90</td>
</tr>
<tr>
<td>EA202 Chemical Engineering Thermodynamics and Kinetics</td>
<td>90</td>
</tr>
<tr>
<td>EA411 Non-Newtonian Heat Mass and Momentum Transfer</td>
<td>90</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second year</th>
<th>hours/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA311 Chemical Engineering 1A</td>
<td>90</td>
</tr>
<tr>
<td>EA312 Chemical Engineering 1B</td>
<td>90</td>
</tr>
<tr>
<td>EA491 Biochemical Engineering</td>
<td>90</td>
</tr>
</tbody>
</table>
Department of Civil Engineering

General
The civil engineering profession embraces a broad spectrum of work vital to the everyday life and prosperity of our modern society, with a choice of employment ranging from outdoor field work and site supervision to indoor work in a design office, laboratory or behind a manager’s desk.

The main areas of civil engineering are:-

Structural engineering
Design and construction of all types of office, industrial and residential buildings, power transmission and telecommunications towers, large tanks and water towers, dams, bridges, wharfs and piers.

Soil engineering
Geological investigations, site investigations, soil and rock sampling and testing. Design and construction of foundations, retaining walls, earth and rock embankments, reservoirs, cuttings and tunnels.

Hydraulic engineering
Foreshore protection and harbour design. All aspects of water supply including investigation of alternatives, water treatment and distribution, design and construction of urban water supply schemes, irrigation systems, flood control and drainage systems. Collection, treatment and disposal of sewage; public health engineering.

Municipal engineering
Town planning, highway and traffic engineering. Surveying, design and construction of municipal roads and streets. Storm water drainage, refuse collection and disposal. Public health engineering.

Transportation engineering
Planning, design, construction and operation of all transport systems, including freeways and roads, airports, railways and tramways.

Women in civil engineering
In recent years an increasing number of women have entered the profession of civil engineering and it can no longer be considered as specifically a man’s domain.

Civil engineering, with its wide range of specialist fields, provides women with an extensive choice of careers – all interesting, rewarding and challenging. Women in the civil engineering profession have proved to be extremely talented and have made a marked contribution to the field both in Australia and overseas.

Courses offered

Bachelor of Engineering (Civil)
Diploma of Engineering (Civil)
Graduate Diploma in Civil Engineering
Graduate Diploma in Urban Systems
Master of Engineering

These courses are designed to supply theoretical and practical training in basic sciences and civil engineering. Both diploma and degree courses give sound professional training, the degree course placing more emphasis on specialised study and making a feature of industrial training during the course. Graduate diploma courses enable graduate engineers to undertake further specialised studies in major areas of civil engineering and urban planning.

Bachelor of Engineering (Civil)

This course of study qualifies successful students for the Victoria Institute of Colleges’ degree in civil engineering. It is undertaken by a cooperative education program extending over five years and including two semesters spent working with professional civil engineers in industry.

The first two years can be undertaken either full-time or part-time, and are common with the diploma course. These early years of study provide the student with a sound scientific foundation as well as some basic engineering skills.

In the third and fourth years, students spend one semester of each year in the college and the remainder working in industry. This cooperative employment is arranged by the college and students receive a salary approximately two-thirds that of a graduate engineer. Students benefit greatly from this first-hand industrial experience and consistent liaison is maintained between the college staff, employer and student.

The fifth year is spent in the college.

Industrial sponsors

The civil engineering department gratefully acknowledges the assistance and cooperation of its sponsors.

Course structure

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC101</td>
<td>Engineering Profession</td>
<td>15</td>
</tr>
<tr>
<td>EC113</td>
<td>Applied Mechanics</td>
<td>75</td>
</tr>
<tr>
<td>EC123</td>
<td>Geology</td>
<td>50</td>
</tr>
<tr>
<td>ED157</td>
<td>Engineering Drawing</td>
<td>60</td>
</tr>
<tr>
<td>EM181</td>
<td>Mechanical Plant</td>
<td>45</td>
</tr>
<tr>
<td>GS195</td>
<td>General Studies</td>
<td>30</td>
</tr>
<tr>
<td>SM105</td>
<td>Mathematics</td>
<td>60</td>
</tr>
<tr>
<td>SP105</td>
<td>Physics</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>375</td>
</tr>
</tbody>
</table>

Semester 1
### Semester 2
- EC102 Workshop Practice 45
- EC114 Applied Mechanics 75
- EC124 Geology 30
- ED138 Engineering Drawing 60
- EE123 Electrical Plant 45
- GS196 General Studies 30
- SM106 Mathematics 60
- SP104 Physics 45

- **Total 390 hours**

### Semester 3

#### Second year
- EC212 Structures 105
- EC232 Hydraulics and Municipal Engineering 75
- GS244 Surveying 75
- GS258 General Studies 30
- SM206 Mathematics 60
- SK227 Computer Programming or 15
- SM204 Mathematics 45
- MT231 Engineering Materials 45

- **Total 405 hours**

#### Third year and fourth year

For each of these years the students are divided into two groups:

**Group A** first semester of each year
- industry
- college

**Group B** first semester of each year
- college
- industry

For students entering third year in 1976, the academic content of the course will be taught in the following order:

#### Semester 5/8
- EC477 Civil Engineering 315
- SM314 Mathematics 45

- **Total 360 hours**

#### Semester 6/7
- SK327 Computer Programming 15
- EC316 Structural Mechanics 45
- EC335 Hydraulics 90
- EC347 Surveying 120
- SM313 Mathematics 60
- MT325 Welding Technology 30

- **Total 360 hours**

(The order of teaching of these two blocks of subjects reverses in successive years).

### Semester 9

#### Fifth year
- EC505 Public Speaking 30
- EC555 Design Projects 105
- EC557 Student Investigations 60
- EC567 Highway Engineering 30
- EC566 Town Planning 30
- EC571 Engineering Practices 45

- **Electives (2) from**
  - EC515 Structures
  - EC524 Civil Engineering Systems
  - EC535 Hydraulics
  - EC581 Geomechanics
  - EC591 Economics
  - SM515 Mathematics 60

- **Total 360 hours**

#### Semester 10
- EC508 Art Appreciation 30
- EC537 Public Health Engineering 30
- EC556 Design Projects 75
- EC558 Student Investigations 90
- EC568 Highway Engineering 30
- EC572 Engineering Practices 45

- **Electives (2) from**
  - EC516 Structures
  - EC525 Civil Engineering Systems
  - EC536 Hydraulics
  - EC582 Geomechanics
  - EC592 Economics
  - SM516 Mathematics 60

- **Total 360 hours**

### Diploma of Engineering (Civil)

The diploma course requires three years of full-time study or can be spread over a longer period by part-time evening or day attendance. Students who commenced their courses prior to 1972 should consult staff of the civil engineering department for details of modifications and exemptions that may be necessary.

#### First year
- Semesters 1 and 2: as for degree course

#### Second year
- Semesters 3 and 4: as for degree course
Faculty of Engineering

Graduate Diploma in Civil Engineering
This course is designed to provide advanced studies in civil engineering for graduate engineers. The required entry qualifications are a diploma or degree in civil engineering or approved equivalent.

Three streams are available specialising in structures or hydraulics or municipal engineering. The course takes three years of part-time evening study at the rate of two nights per week for thirty weeks of each year. The municipal engineering stream can be used as preparation for the municipal engineers’ examinations conducted by the Department of Local Government in August of each year.

Course structure
Structural course
- EC411 Structural Mechanics
- EC451 Concrete Design and Construction
- EC452 Design Projects
- EC453 Design of Steel Structures
- EC481 Soil Mechanics
- SM401 Engineering Mathematics

Municipal and highway engineering course
- EC431 Hydraulics and Public Health Engineering
- EC441 Town Planning
- EC451 Concrete Design and Construction
- EC491 Powers and Duties of Local Government Engineers
- EC461 Municipal and Highway Engineering
- EC481 Soil Mechanics
- SM401 Engineering Mathematics
- EC442 Geology

Hydraulics course
- EC431 Hydraulics and Public Health Engineering
- EC441 Town Planning
- EC451 Concrete Design and Construction
- EC452 Design Projects
- EC481 Soil Mechanics
- SM401 Engineering Mathematics
- EC442 Geology

Certificated Engineer
The Municipal Engineers Board of Victoria conducts examinations leading to the qualification of Certificated Engineer (CE), a post-graduate qualification required by all municipal engineers in Victoria. To provide training for engineers for their CE, the following subjects cover the content of these examinations.

- EC431 Hydraulics and Public Health Engineering
- EC441 Town Planning
- EC491 Powers and Duties of Local Government Engineers
- EC461 Municipal and Highway Engineering
These subjects all form part of the municipal and highway engineering course as listed above.

Graduate Diploma in Urban Systems
This course is open to graduates with diplomas or degrees in engineering, architecture, surveying or other allied fields. Students qualified in science, mathematics or other fields and working at planning will also be considered for admission. The course provides specialist training in urban planning in the following areas:

- Urban economics and urban sociology.
- Urban water supply, waste disposal, energy systems.
- Systems planning and modelling.

The course emphasises a systems approach to planning in which information from a variety of disciplines is integrated for the solution of urban planning problems.

The course takes three years of part-time evening study at the rate of two nights per week for thirty weeks of each year.

Course structure

First year
- EC420/421 Urban Systems 1
- EC422 Urban Economics
- EC423 Urban Sociology

Second year
- ECS20/521 Urban Systems 2
- ECS22 Environmental Systems Management
- ECS23 Urban Transport

Third year
- EC620/621 Urban Systems 3
- Electives from
  - EC622 Urban Economics
  - EC625 Urban Transport Systems
  - EC624 Systems Planning
  - EC625 Environmental Engineering
  - EC626 Urban Design
  - EC627 Urban Sociology
  - EC628 Urban energy Systems

Master of Engineering
Graduates who have completed a Bachelor degree at a sufficiently meritorious standard may undertake work for the VIC degree of Master of Engineering within the civil engineering department at Swinburne.

Two types of higher degree programs are available. The alternatives are:

1. a program which requires the presentation of a major thesis based on original research, carried out under supervision at Swinburne by a candidate enrolled as a student of the college.

2. a program which requires the presentation of a major thesis based on original research, investigation, or developmental work carried out in an approved industrial, commercial, governmental or research organisation under the complete or partial supervision of the Civil Engineering Department of Swinburne.

The VIC specify that the duration of a higher degree course shall not be less than two years after the completion of a bachelor degree.
Engineering is the application of human endeavour to the development and progressive advancement of society. It draws on a variety of the earth's natural resources, and employs them using scientific theory, skill and judgement for the betterment of mankind, both physically and socially.

Electrical engineering is one of the more recent branches of engineering, and is very much based on the sciences of physics and mathematics. It is the branch of engineering concerned with any form of plant, system or device operated by electrical or electronic means, and is so wide a field that it includes a variety of specialities. These fall into three broad areas, namely electrical power, electronics and communications and control engineering. However, these areas are by no means rigid, and each area overlaps into the others by varying amounts.

The department offers courses leading to professional qualifications in electrical and electronic engineering. In addition, continuing education courses for professional engineers are provided from time to time in selected subjects.

Modern laboratory facilities are available for undergraduate teaching, staff research and consulting. Separate laboratories are devoted to electric circuits, electrical machines, electronics, advanced electronics, communications, control systems and 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 mentor scheme is operated by the department to facilitate contact between staff and students and to provide guidance to individual students. All students in electrical engineering have access to a particular member of staff with whom they may discuss any matter related to their course.

The department undertakes applied research and consulting for the Swinburne Applied Research and Development Division. Staff members are available for consultation individually or as members of a team on group projects.

Enquiries should be directed to the head of the department or to the college's industrial liaison officer.

Courses offered

The electrical engineering department offers the following courses:

- Degree of Bachelor of Engineering (Electrical)
- Diploma of Engineering (Electrical)
- Diploma of Engineering (Electronic)
- Degree of Master of Engineering

Employment opportunities

Graduates and diplomates are qualified for appointment to professional engineering positions in Commonwealth and State Government departments and instrumentalities and in private industry.

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, communications systems, automatic control systems, electronic equipment, analogue and digital computer development and applications, and medical electronics.

Both diplomas give full exemption from the entrance examination of the Institution of Engineers, Australia and the Institution of Radio and Electronic engineers. The degree course has provisional recognition, pending full recognition.

Degree of Bachelor of Engineering (Electrical)

Content

The degree course is a general electrical engineering course, with substantially equal content of electrical power and machines, electronics and communications, and control engineering. Specialisation only occurs in the last semester of the course, when students may select any three electives from five specialist areas available.

The first two years of the degree course are common with those of the two diploma courses, but later years are completely separate. Entry into the degree course will be at the beginning of the third year, and selection of students for either the diploma or degree course streams will be made at the end of the second year.

Conversion

Previous diplomates of acceptable standard, with the approval of the head of department, may be permitted to undertake a prescribed program of subjects to enable them to complete the degree course by three years of part-time study, or its equivalent.

Certain subjects of the third and fourth years of the degree course may be available as evening classes in 1977 if there is sufficient demand.
Structure of degree course

The degree course in electrical engineering is structured on a cooperative basis, and consists of seven academic semesters in the college and two semesters in industry. The total length of the course is four and one half years.

The two industrial training periods, of twenty four weeks each, occur during the third and fourth years of the course, and are arranged by the college to enable students to gain a breadth of experience and maturity of outlook unobtainable in a classroom. During the first industrial training period, students receive a salary of approximately two-thirds that of a diplomate engineer, and during the second period, a salary of approximately two-thirds that of a graduate engineer.

In 1977, the course structure will be as follows:

First year
Semester 1
ED159 Engineering Drawing 60
EE101 Engineering Profession 15
EE121 Electrical Engineering 60
EM113 Applied Mechanics 45
GS195 General Studies 30
SM105 Mathematics 60
MT124 Engineering Materials 45
SP103 Physics 60

Semester 2
ED160 Engineering Drawing 45
EE102 Workshop Practice 45
EE122 Electrical Engineering 60
EM124 Thermodynamics 60
GS196 General Studies 30
SM106 Mathematics 60
MT125 Engineering Materials 45
SP104 Physics 45

Semester 1
EE212 Electrical Engineering
Circuit Theory (45)
Measurements (15)
Energy Conversion (30)
EM224 Electronic Devices 60
EE252 Electrical Engineering Design 45
EM213 Applied Mechanics 75
GS295 General Studies 30
SM203 Mathematics 60
SK227 Computer Programming 15

Semester 2
EE213 Electrical Engineering
Circuit Theory (30)
Measurements (15)
Energy Conversion (45)
EE225 Electronic Circuits 60
EE242 Communication Principles 60
EE253 Electrical Engineering Design 60
GS296 General Studies 30
SM206 Mathematics 60
SM204 Mathematics 15

Third year
Semester 1
EE301 Industrial Experience
EP326 Engineering Administration

Semester 2
BS396 Accounting 30
EE364 Electric Power 75
EE366 Electronics 90
EE368 Linear Control Systems 60
EE381 Environmental Engineering 15
SM317 Engineering Mathematics 60
SP303 Engineering Physics 30

Fourth year
Semester 1
EE453 Electrical Design 45
EE463 Circuits and Fields 30
EE464 Power Systems & Machines 75
EE466 Electronics & Communications 90
EE468 Linear Control Systems 60
SM418 Engineering Mathematics 30
SP404 Engineering Physics 30

Semester 2
EE401 Industrial Experience
EE454 Electrical Design

Fifth year
Semester 1
BS597 Commercial Law 30
EE553 Electrical Design & Project 45
SM571 Operations Research 60

plus three from:
EE564 Power Systems 75
EE565 Electrical Machines 75
EE566 Electronics 75
EE567 Communications 75
EE568 Control Systems 75

Diploma of Engineering (Electrical)

Diploma of Engineering (Electronic)

The two diploma courses require three years of full-time study, following the completion of the Higher School Certificate or its equivalent.

Both courses may also be taken in part-time stages by attending evening and day-release classes.

The two diplomas share common first and second years, and it is only in the third year that the courses separate into the specialist areas of electrical power or electronic engineering.

Structure of diploma courses

First year
Semester 1
As for degree course
Semester 2
As for degree course
Second year
Semester 1
As for degree course
Semester 2
As for degree course

Diploma of Engineering (Electrical)

Third year

<table>
<thead>
<tr>
<th>Semester 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE314</td>
</tr>
<tr>
<td>EE332</td>
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<tr>
<td>EE334</td>
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<tr>
<td>EE353</td>
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<td>EP322</td>
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<td>plus one elective from:</td>
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<tr>
<td>SM303</td>
</tr>
<tr>
<td>EE316</td>
</tr>
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<td>EE319</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE315</td>
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<tr>
<td>EE333</td>
</tr>
<tr>
<td>EE335</td>
</tr>
<tr>
<td>EE354</td>
</tr>
<tr>
<td>plus one elective from:</td>
</tr>
<tr>
<td>SM303</td>
</tr>
<tr>
<td>EE317</td>
</tr>
<tr>
<td>EE320</td>
</tr>
</tbody>
</table>

Diploma of Engineering (Electronic)

Third year

<table>
<thead>
<tr>
<th>Semester 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE342</td>
</tr>
<tr>
<td>EE324</td>
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<tr>
<td>EE332</td>
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<tr>
<td>EE355</td>
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<tr>
<td>EP322</td>
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<tr>
<td>plus one elective from:</td>
</tr>
<tr>
<td>SM303</td>
</tr>
<tr>
<td>EE316</td>
</tr>
<tr>
<td>EE319</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE343</td>
</tr>
<tr>
<td>EE325</td>
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<tr>
<td>EE333</td>
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<td>EE356</td>
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<td>plus one elective from:</td>
</tr>
<tr>
<td>SM303</td>
</tr>
<tr>
<td>EE317</td>
</tr>
<tr>
<td>EE320</td>
</tr>
</tbody>
</table>

Degree of Master of Engineering

Graduates who have obtained a Bachelor's degree following study at Swinburne or another establishment, and who showed a high standard of academic achievement in that course, may be admitted to undertake work in the department of electrical engineering for the degree of Master of Engineering, awarded by the Victoria Institute of Colleges.

The higher degree programs currently available require the presentation of a major thesis based on original research, carried out either within this department, or externally, providing that adequate facilities and supervision can be arranged. External work can include investigatory or developmental work carried out in an approved industrial, governmental or research organisation.

The duration of the Master of Engineering course shall be not less than two years after the completion of the Bachelor's degree.

The college is planning for the introduction of a Master's degree by both research and course work in the future.

Enquiries regarding both types of Masters' degree programs should be addressed to the Head of the Department of Electrical Engineering.
Department of Engineering Drawing

General details
This department is responsible for the teaching of engineering at the drawing office level. A specific course of study has been developed for each branch of engineering.

The aim is to train students to proceed with their work in a manner similar to a practising engineer and to attempt to prepare them for their association with engineering drawings after graduation. This could occur in many different fields, such as in design, production, construction, maintenance, sales or in a supervisory way.

Modern drawing office facilities are available for use, thus ensuring maximum efficiency.

Department of Materials Technology

General details
Materials technology is concerned with the properties and processing of materials. All engineering students at Swinburne take Engineering Materials in the early years of their course. Civil, mechanical and production engineering students also take specialised areas in later stages of their courses. The department provides a stream in the final two semesters of the production engineering degree course specialising in materials technology.

Subjects offered

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT124</td>
<td>Engineering Materials (electrical)</td>
</tr>
<tr>
<td>MT128</td>
<td>Engineering Materials (production)</td>
</tr>
<tr>
<td>MT131</td>
<td>Engineering Materials (mechanical)</td>
</tr>
<tr>
<td>MT221</td>
<td>Materials Science and Corrosion Unit 1 (chemical)</td>
</tr>
<tr>
<td>MT222</td>
<td>Engineering Materials (mechanical)</td>
</tr>
<tr>
<td>MT223</td>
<td>Engineering Materials (production)</td>
</tr>
<tr>
<td>MT221/232</td>
<td>Engineering Materials (civil)</td>
</tr>
<tr>
<td>MT325</td>
<td>Welding Technology (civil)</td>
</tr>
<tr>
<td>MT415</td>
<td>Materials Technology (production)</td>
</tr>
<tr>
<td>MT515</td>
<td>Materials Technology (production)</td>
</tr>
</tbody>
</table>

Department of Mechanical Engineering

Mechanical engineering may be defined as a profession in which a knowledge of mathematical and natural sciences gained by study, experience and practice is applied, with judgement and regard for the conservation of natural order, to develop ways to utilise, for the benefit of mankind, the material and energy resources available.

Excellent career opportunities exist in mechanical engineering for women as for men. Overseas there are many women mechanical engineers. In Australia there are still relatively few but they are very successful.

Courses offered

<table>
<thead>
<tr>
<th>Course</th>
<th>Full-time, part-time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Engineering (Mechanical)</td>
<td>Full-time, part-time</td>
</tr>
<tr>
<td>Diploma of Engineering (Mechanical)</td>
<td>Full-time, part-time</td>
</tr>
<tr>
<td>Master of Engineering</td>
<td>Full-time, part-time</td>
</tr>
<tr>
<td>Graduate Diploma in Air-conditioning</td>
<td>Part-time</td>
</tr>
<tr>
<td>Post Diploma Studies - Creative Engineering</td>
<td>Part-time</td>
</tr>
<tr>
<td>Post Diploma Studies - Human Engineering</td>
<td>Part-time</td>
</tr>
</tbody>
</table>

Courses are arranged to allow flexibility so that any student can 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 work for the degree of Bachelor of Engineering requires four years of full-time study after meeting entrance requirements; the first two years are common with the diploma course. Those who have reached diploma standard and are now engaged in industry may proceed by part-time day release and evening work to the degree of Bachelor of Engineering.

The diploma of engineering requires three years full-time study after meeting entrance requirements. The first two years of full-time study are common with the degree course. Part-time studies for the diploma usually require attendance at evening and day-release classes, to complete the subjects listed under full-time studies of their part-time equivalents.

Engineering graduates who wish to proceed to a higher degree of the Victoria Institute of Colleges are invited to discuss their research interests with members of the mechanical engineering department staff. In the first instance enquiries should be addressed to the Head of Mechanical Engineering.

A student may work for the degree of Master of Engineering either full-time or part-time and may, subject to approval select a research project which is relevant to an employer's activities.
The course for the graduate diploma in air-conditioning is available to those who already have qualifications in engineering or applied science, and who wish to follow advanced studies in applying thermodynamics and controls theory to the design of air-conditioning equipment. The course requires evening attendance over two or three years depending on individual requirements.

Advanced studies in creative engineering and human engineering are available on a part-time basis for persons already qualified in engineering or applied science. The courses cover aspects of creative problem solving, brainstorming techniques, and human factors engineering.

**Entrance requirements**

Admission to diploma/degree courses in mechanical engineering to obtain an academic qualification or to study single subjects is open to any person who by previous experience and educational attainment can show ability to meet the demanding standards of academic work and to benefit therefrom.

A person who wishes to gain admission to the first year full-time studies in mechanical engineering, common to diploma and degree, must have reached a standard of secondary education equivalent to that of the Higher School Certificate. Normally this requirement may be met in one of the following ways. –

(i) by completing HSC studies in the recommended subjects, pure and applied mathematics, chemistry and physics,

(ii) by completing the Preliminary Year studies at the Swinburne Technical College, or an equivalent sixth form year at another technical college or institute,

(iii) by satisfactory performance at an entrance examination held by the faculty of engineering,

(iv) by demonstrating ability and a particular aptitude for engineering studies whilst undertaking technical courses at the Swinburne Technical College,

(v) by qualifying as a mature student whose progress in the academic subjects constituting HSC standard was interrupted at an earlier stage for a valid reason.

Persons who by virtue of industrial experience or studies in another educational institute or a combination of these has reached a standard higher than the normal entry level for first year studies may be admitted to a course at an appropriate advanced stage.

Admission to (candidature for) the degree in mechanical engineering is open to the following: –

(a) students who have completed the first and second years of full-time study for an engineering diploma may apply to proceed for the degree over a further two years of combined full-time study and approved industrial experience,

(b) persons being engaged in industry who hold an engineering diploma or are granted diploma status may apply to proceed for the degree either by full-time study over a period of fifty weeks or by part-time study,

(c) persons who have partly completed a course for a degree in engineering or applied science at another college or university and whose studies were discontinued by some exigency, such as change of domicile, may apply to proceed to the degree but must complete at least the equivalent of the full-time final year of studies in the mechanical engineering department.

**Course details**

The diploma and degree courses provide a thorough education in the application of engineering science principles and combine with this a broad span of studies important to a professional engineer such as economics, psychology, human engineering, administration, and communication techniques. 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 strong emphasis on the teaching approach as distinct from the lecture method; self-paced learning techniques and video-tape readers currently in use serve the needs of students who prefer to learn in an individual way, whilst the mentor scheme which operates in the mechanical engineering department provides each student with a ready source of advice on any aspect of course or career.

Assessment is continuous throughout the courses by assignments, projects, laboratory work and tests. There are no annual or semester examinations in mechanical engineering subjects.
To qualify for the degree each student must complete twenty weeks of approved industrial experience supervised by college and industry engineers, and arranged usually between October and December in the third and fourth years of study. The experience gained is of considerable value in providing opportunities to learn from practising engineers and in helping to consolidate the more formal theoretical work undertaken in college. For making this possible the mechanical engineering department gratefully acknowledge the assistance of engineers in many companies and government departments.

Bachelor of Engineering (Mechanical)

Full-time studies

First year

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>hours</th>
<th>semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM105</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>EM107</td>
<td>30</td>
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</tr>
<tr>
<td>EM119</td>
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<td>EM133</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>GS195</td>
<td>30</td>
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</tr>
<tr>
<td>SM105</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>SP103</td>
<td>60</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>hours</th>
<th>semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM106</td>
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<tr>
<td>EM108</td>
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</tr>
<tr>
<td>EM120</td>
<td>97</td>
<td></td>
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<tr>
<td>EM134</td>
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<td></td>
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<tr>
<td>GS196</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>SM106</td>
<td>60</td>
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</tr>
<tr>
<td>SP104</td>
<td>45</td>
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</tr>
<tr>
<td></td>
<td>397</td>
<td></td>
</tr>
</tbody>
</table>

Students also undertake special work amounting to fifteen hours of engineering drawing during the final weeks of each semester.

Second year

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>hours</th>
<th>semester</th>
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<tbody>
<tr>
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<td>75</td>
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</tr>
<tr>
<td>EM214</td>
<td>90</td>
<td></td>
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<tr>
<td>EM223</td>
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<td>EM261</td>
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</tr>
<tr>
<td>SM205</td>
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</tr>
<tr>
<td>SM204</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>SK227</td>
<td></td>
<td>390</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>hours</th>
<th>semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM203</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>EM215</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>EM224</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>EM262</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>SM206</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>SK227</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

On completion of second year studies, some students continue with a further year for the diploma, and others proceed to a further two years of studies for the degree.

Third year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM405</td>
<td>Engineering Physical Science</td>
<td>40</td>
</tr>
<tr>
<td>EM406</td>
<td>Industrial Technology</td>
<td>97</td>
</tr>
<tr>
<td>EM407</td>
<td>Industrial Experience</td>
<td>60</td>
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</table>

Fourth year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM405</td>
<td>Engineering Physical Science</td>
<td>40</td>
</tr>
<tr>
<td>EM406</td>
<td>Industrial Technology</td>
<td>97</td>
</tr>
<tr>
<td>EM407</td>
<td>Industrial Experience</td>
<td>60</td>
</tr>
</tbody>
</table>

The 3rd and 4th years of the degree course each comprise thirty weeks of formal studies in the college and at least ten weeks working in industry in engineering activities guided by industry-based engineers and members of the department staff.

Diploma of Engineering (Mechanical)

Full-time studies

First year As for degree

Second year As for degree
Third year
Semester 1
EM302 Industrial Technology 135
EM315 Mechanics and Materials 105
EM323 Energy Systems 90
EM362 Human Studies 60
Semester 2
EM303 Industrial Technology 135
EM316 Mechanics and Materials 105
EM324 Energy Systems 90
EM363 Human Studies 60

Master of Engineering
Engineering graduates who wish to proceed to a higher degree of the Victoria Institute of Colleges are invited to discuss their research interests with members of mechanical engineering department staff. In the first instance, enquiries should be addressed to the head of the mechanical engineering department.

Research projects are available in any of the recognised areas of mechanical engineering with emphasis in general, on projects biased towards industrial applications. Some emphasis occurs at present in human engineering and thermodynamics, while projects in educational technology are at an early stage.

Students may work for the degree of Master of Engineering either full-time or part-time.

Part-time studies

Bachelor of Engineering (Mechanical)
Under present arrangements, diploma holders who have industrial experience can complete the degree course by part-time studies in approximately ninety weeks of course work spread over approximately two years. A typical arrangement of studies requires attendance for two evenings and one half-day over the two-year period.

In cases where a student has made some progress towards an engineering qualification special arrangements may be made to facilitate completion of the course work for the BEng(Mech) degree.

Diploma of Engineering (Mechanical)
Those already engaged in industry who meet the entrance requirements for diploma courses may proceed on a subject basis for the mechanical engineering diploma by part-time studies. Normally these courses require day-release from work, and evening attendance.

Graduate Diploma in Air-conditioning
This part-time course is designed for those who have a qualification such as a diploma or degree in engineering or applied science, and who wish to take advanced studies based on applied thermodynamics and controls theory. The course consists of six subjects which are usually taken by evening attendance. The program can vary, but a typical arrangement is as follows:

First stage
EM441 Air-conditioning 90
EM443 Refrigeration 90

Second stage
EM442 Air-conditioning 90
EM444 Refrigeration 90

Third stage
EM421 Process heating 60
EM451 Project work 120

Creative engineering and human engineering
These part-time subjects are designed for those who have a qualification such as a diploma or degree in engineering or applied science and who wish to take advanced studies in aspects of creative problem solving, and brainstorming techniques, or in human factors. These are relatively new and important areas in engineering.

Diploma subject equivalents
The following list is intended to assist students in planning possible transfers between full-time and part-time studies.
An example to show how to read this list is, 'The full-time subjects EM105 and EM106 are together equivalent to the group of part-time subjects EM102, ED161, ED162'.

<table>
<thead>
<tr>
<th>BEng(Mech)</th>
<th>Part-time hours/semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM105, EM106</td>
<td>35, 35</td>
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<tr>
<td>EM107, EM108</td>
<td>30, 30</td>
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<tr>
<td>EM119</td>
<td>60</td>
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<tr>
<td>EM120</td>
<td>60</td>
</tr>
<tr>
<td>EM133, EM134</td>
<td>37, 37</td>
</tr>
<tr>
<td>GS195, GS196</td>
<td>30, 30</td>
</tr>
</tbody>
</table>
Department of Production Engineering

Courses offered

Bachelor of Engineering (Production)
Diploma of Engineering (Production)
Graduate Diploma in Industrial Management

General details

The undergraduate programs leading to the award of a diploma or a bachelor's degree are cooperative educational programs designed to prepare the student for a professional career in the field of manufacturing, with particular emphasis on the engineering industry. However, because of the general applicability of the principles taught, production engineers are also employed in a number of other industries.

The cooperative education program enables a student to receive some industrial experience during his course, under the supervision of college staff. This complements the student's academic training and provides him with experience of the industrial environment in which he will work. The diploma student receives twelve months' industrial experience and the degree student receives eighteen months.

Production engineers are associated with activities such as factory management, operation planning, tool design, production planning and control, work study, product design and quality control.

Developments in Australian industry, particularly the increasing trend towards automation and the use of computers in the control of production machinery and production systems, indicates that for many years the demand for production engineers will outweigh the number available.

The department also offers the graduate diploma course in industrial management of approximately three years' duration part-time. This course is designed to provide basic management training for engineers and technologists who have completed their professional course. They will have had some industrial experience and found that management training is necessary for the successful pursuit of their careers.

Graduate students may also undertake programs leading to the degree of Master of Engineering.

Bachelor of Engineering (Production)

The usual entry requirement is the satisfactory completion of the Higher School Certificate, preferably in Physics, Chemistry and Mathematics, or the preliminary year offered by this college. Special provision is made for mature-age entry. The course
is a cooperative education program of four and a half years' duration and is designed to provide integrated academic and industrial training. The first four semesters of the course are common to the first four semesters of the diploma course.

A preliminary selection of degree students will be made at this stage and students unlikely to proceed with the degree course will be placed in group B. The final selection of degree students will take place at the end of sixth semester. Students not selected for the degree course will proceed with the diploma course. The degree course is recognised by the Institution of Engineers, Australia and the Institution of Production Engineers.

**Diploma of Engineering (Production)**

The diploma course is a cooperative program of three and a half years' duration. The entry requirements are the same as for the degree course; this course is recognised by the Institution of Engineers, Australia.

Students who elect to continue with the diploma course beyond the point at which students are selected for the degree course may, if their performance is satisfactory, proceed with the degree course after they have completed the diploma course.

The courses of study for the diploma and degree for those students entering first year after 1976 are set out in the following tables. Students who commenced the course at an earlier date should consult the head of department for details of modifications.

**Bachelor of Engineering (Production)**

Students wishing to undertake part-time study must consult the head of the department.

First year

<table>
<thead>
<tr>
<th>Semester 1 (15 weeks)</th>
<th>hours</th>
<th>semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED163 Engineering Drawing</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>EE116 Electrical Engineering</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>EM116 Applied Mechanics</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>EM191 Workshop Practice</td>
<td>45</td>
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<tr>
<td>GS195 General Studies</td>
<td>30</td>
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<tr>
<td>SM105 Mathematics</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>MT128 Engineering Materials</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>SP103 Physics</td>
<td>60</td>
<td>390</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2 (15 weeks)</th>
<th>hours</th>
<th>semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED164 Engineering Drawing</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>EE117 Electrical Engineering</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>EM117 Applied Mechanics</td>
<td>45</td>
<td></td>
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<tr>
<td>EM126 Thermodynamics</td>
<td>45</td>
<td></td>
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<tr>
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<td>SM106 Mathematics</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>MT129 Engineering Materials</td>
<td>45</td>
<td></td>
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<tr>
<td>SP104 Physics</td>
<td>45</td>
<td>390</td>
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</tbody>
</table>

Second year

<table>
<thead>
<tr>
<th>Semester 3</th>
<th>hours</th>
<th>semester</th>
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</thead>
<tbody>
<tr>
<td>EP205 Work Experience</td>
<td>18</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 4 (18 weeks)</th>
<th>hours</th>
<th>semester</th>
</tr>
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<tbody>
<tr>
<td>SK227 Computer Programming</td>
<td>18</td>
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<tr>
<td>EM121 Applied Mechanics</td>
<td>90</td>
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<tr>
<td>EP211 Production Technology</td>
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<tr>
<td>EP201 Engineering Practices</td>
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<tr>
<td>GS293 General Studies</td>
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<tr>
<td>SM209 Mathematics</td>
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<tr>
<td>MT123 Engineering Materials</td>
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</table>

Third year

<table>
<thead>
<tr>
<th>Semester 5</th>
<th>hours</th>
<th>semester</th>
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<tbody>
<tr>
<td>Group A</td>
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<tr>
<td>EP305 Work Experience</td>
<td>117</td>
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<table>
<thead>
<tr>
<th>Semester 6 (18 weeks)</th>
<th>hours</th>
<th>semester</th>
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<tbody>
<tr>
<td>EE323 Electronics</td>
<td>117</td>
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<tr>
<td>EM312/4 Applied Mechanics</td>
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<tr>
<td>EP356 Design for Manufacture</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>EP351 Production Technology</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>EP321 Engineering Administration</td>
<td>54</td>
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<tr>
<td>SM305 Mathematics</td>
<td>54</td>
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<tr>
<td></td>
<td>450</td>
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</table>

| Group B   |       |         |
| Semester 5 (18 weeks) |       |         |
| EE323 Electronics |       |         |
| EM312/4 Applied Mechanics |       |         |
| EP356 Design for Manufacture |       |         |
| EP351 Production Technology |       |         |
| EP321 Engineering Administration |       |         |
| SM305 Mathematics |       |         |
|                       | 450  |         |

| Semester 6 |       |         |
| EP305 Work Experience |       |         |

Fourth year

<table>
<thead>
<tr>
<th>Semester 7 (18 weeks)</th>
<th>hours</th>
<th>semester</th>
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<tr>
<td>Production technology stream</td>
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<tr>
<td>SK427 Computer Applications</td>
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<tr>
<td>GS493 General Studies</td>
<td>45</td>
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<tr>
<td>EP325 Industrial Management</td>
<td>54</td>
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<tr>
<td>EP335 Industrial Engineering</td>
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<td></td>
</tr>
<tr>
<td>EP355 Design for Manufacture</td>
<td>90</td>
<td></td>
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<tr>
<td>SM402 Mathematical Methods</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>EP414 Systems Engineering</td>
<td>54</td>
<td></td>
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<tr>
<td>EP415 Production Technology</td>
<td>63</td>
<td></td>
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<tr>
<td></td>
<td>450</td>
<td></td>
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</tbody>
</table>

| Materials technology stream |       |         |
| SK427 Computer Applications | 45   |         |
| GS493 General Studies | 45   |         |
| EP325 Industrial Management | 54   |         |
| EP335 Industrial Engineering | 54   |         |
| EP355 Design for Manufacture | 90   |         |
| SM402 Mathematical Methods | 45   |         |
| MT141 Materials Technology | 117  |         |
|                       | 450  |         |
Diploma of Engineering (Production). Part-time course

The diploma course may be completed by part-time study. The academic requirements of the course are similar to those for the cooperative program. Students will be expected to complete the course by stages. Students undertaking the part-time course should consult the head of department before applying for enrolment or re-enrolment in the course.

Graduate Diploma in Industrial Management. Part-time course

Entrance to this evening course is limited strictly to those who have already completed a recognised course of scientific training, such as a degree or diploma. This course is intended to meet the needs of people who wish to equip themselves for managerial responsibility in industry. Throughout the course, the greatest possible use will be made of the scientific and mathematical knowledge acquired by the students in their original courses.

The course 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.

Closing date for applications is 31 January 1977.

Preliminary reading

Adcock, C.J., Fundamentals of Psychology. Pelican
Sternik & George, Psychology for Everyman. Pelican
Moore, Basic Operations Research. Pitman
Moroney, Facts from Figures. Pelican
Battersby, Mathematics in Management. Pelican
Dale & Michelson, Modern Management Methods. Pelican
Sawer, G., The Australian and the Law. Pelican

Introductory subject (2 Hours x 30 Weeks)

EP422 Engineering administration – evolution and nature. (Exemptions in this subject will be granted to students who have already passed an equivalent subject or whose previous training and industrial background make the subject unnecessary.)
## Faculty of Engineering

### Compulsory subjects

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject details</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP421</td>
<td>Applied Statistics and Operations Research 2 hours x 30 weeks</td>
</tr>
<tr>
<td>EP423</td>
<td>Financial Aspects of Industrial Management 2 hours x 30 weeks</td>
</tr>
<tr>
<td>EP424</td>
<td>Human Relations in Industry 2 hours x 30 weeks</td>
</tr>
<tr>
<td>EP426</td>
<td>Management Practice 3 hours x 30 weeks</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>Code</th>
<th>Subject details</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP425</td>
<td>Legal Aspects of Industrial Management 2 hours x 30 weeks</td>
</tr>
<tr>
<td>EP431</td>
<td>Production Management 2 hours x 30 weeks</td>
</tr>
<tr>
<td>EP432</td>
<td>Work Study 2 hours x 30 weeks</td>
</tr>
<tr>
<td>SK527</td>
<td>Computing Techniques 2 hours x 30 weeks</td>
</tr>
<tr>
<td>EP435</td>
<td>Physical Distribution Management 2 hours x 30 weeks</td>
</tr>
<tr>
<td>EP436</td>
<td>Environment Studies 2 hours x 30 weeks</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.

### Subject details

Subject codes in this section are listed in alphabetic order.

#### Code

<table>
<thead>
<tr>
<th>Code</th>
<th>Faculty of Business</th>
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</thead>
<tbody>
<tr>
<td>BS</td>
<td>Department of Chemical Engineering</td>
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<tr>
<td>EA</td>
<td>Department of Civil Engineering</td>
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<tr>
<td>ED</td>
<td>Department of Engineering Drawing</td>
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<tr>
<td>EE</td>
<td>Department of Electrical Engineering</td>
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<tr>
<td>EM</td>
<td>Department of Mechanical Engineering</td>
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<tr>
<td>EP</td>
<td>Department of Production Engineering</td>
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<tr>
<td>GS</td>
<td>Department of Liberal Studies</td>
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<tr>
<td>MT</td>
<td>Department of Materials Technology</td>
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<tr>
<td>GC</td>
<td>Department of Chemistry</td>
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<tr>
<td>KS</td>
<td>Department of Computer Studies</td>
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<tr>
<td>SM</td>
<td>Department of Mathematics</td>
</tr>
<tr>
<td>SP</td>
<td>Department of Physics</td>
</tr>
</tbody>
</table>

(*subjects with these codes are taught by departments in faculties other than engineering)

#### BS396  Accounting

Two hours per week for one semester

A third year subject in the degree course in electrical engineering. The aim of this subject is to develop and integrate concepts and principles of accounting where they assist management decision-making and policy formation within the firm. Topics will include: accounting and communication, financial reports, assessment of business performance, budgeting, cost control, and taxation implications.

References

Students will not be required to purchase a text but will be referred to extensive reading guides throughout the length of the course.

#### BS597  Commercial Law

Two hours per week for one semester

A final year subject in the degree course in electrical engineering. This subject is aimed at providing students of engineering with an understanding of the law relevant to the professional engineer. Topics covered include an overview of the legal system and its operation, contract, tort, patents, trademarks and designs, agency, sale of goods, apprenticeship contracts, workers’ compensation and commercial arbitration.

References


Schmitthoff, C.M. and Saree, D., *Charlesworth’s Mercantile Law*. Stevens

Baalman, *Outline of Law in Australia*. Law Book Co. Limited
EA118 Thermodynamics and Mechanics

Part 1 – Fuel and combustion
Four hours of lectures, tutorials and laboratory work per week for second semester only.
Assessment by one three-hour examination.

Fuel sources, exploration and refining methods, stoichiometric analysis, thermochemical analysis, combustion processes, force, temperature, moment, stresses for dissociation, physical properties of fuels, standard testing procedures, gas and oil burners, coal burners, internal combustion engines characterisation methods based on boiling point; the Watson factor charts, social implications of fuel usage, alternatives to fossil fuels in foreseeable future, elements of power source pollution control. Laboratory experiments, equipment and procedure comply with IP, BS, and ASTM standards for most experiments.

Each student is also assigned a course project on an intellectually stimulating question pertaining to fuel production or utilisation on a specific application.

Recommended reading

Textbook

Part II - Applied Mechanics
Four hours per week for second semester only.

Equilibrium of forces in a plane, forces in frames, stress and strain, properties of materials, bending moment, shear force, axial force, torsional moment, stresses in beams, short columns, thin and thick walled pressure vessels, introduction to reinforced concrete.

Recommended reading

EA201 Chemical Engineering I

Introduction to Chemical Engineering
Ninety hours of lectures and tutorials for two semesters. Plant visits are interwoven with class material if industrial arrangements allow it in a given year.
Prerequisites: EA118 Thermodynamics and Mechanics or equivalent first tertiary course on classical thermodynamics and classical mechanics.
SM105/106 Mathematics or equivalent course in calculus up to partial differential equations.
Assessment by three hour examination at the end of each semester.


Recommended reading
Russell, T.W.F. and Denn, M.M. Introduction to Chemical Engineering Analysis. N.Y., Wiley, 1972

Textbook

EA202 Chemical Engineering Thermodynamics and Kinetics

Ninety hours of lectures, tutorials and laboratory work for two semesters. Pre-requisites, as for EA201.
Assessment by three hour examination at the end of each semester.

First law of thermodynamics, ideal gas law, equations of state, principle of corresponding states, compressibility, fugacity, enthalpy deviation and entropy deviation charts, physical equilibrium: bubble point and dew point relations, colligative properties, single component properties and phase diagrams, refrigeration, engines, thermodynamic process analysis, activity, activity coefficients, thermodynamic consistency tests and integrated forms of the Gibbs-Duhem equation, computer procedures to Gibbs-Duhem equation treatment of experimental data. Chemical reaction equilibria, concentration, temperature and pressure dependence of the rate of reaction, experimental methods of determination of reaction rate constants, batch, plug flow and backmix reactor analysis, reactor networks, non-ideal flow in reactors, fluid-particle reactions, fluid-fluid reactions, asymptotic solutions, adsorption and catalysis. Laboratory experiments cover representative examples in both thermodynamics and reactor design areas.

Recommended reading

Textbooks

EA203 Chemical Engineering

First semester combined course, comprises the first semester contents of EA201 and EA202.
EA204 Chemical Engineering
Second semester combined course, comprises the second semester contents of EA201 and EA202.

EA211 Chemical Engineering 1B
For details refer EA212/213

EA212/213 Transport Processes
3 hours per week, which includes 1 hour per week of problem-solving throughout the course, and 1 hour per week of practical work in the laboratory. A second year subject dealing in depth with momentum and heat transfer, and the elements of boundary layer theory. Fans, pumps, valves, pipes and heat exchangers are discussed. By consideration of the analogies between heat and momentum transfer, mass transfer is introduced prior to the students undertaking EA312/3/4.

Recommended reading

EA222 Materials Science and Corrosion
Corrosion thermodynamics including the application of potential-pH diagrams. Materials applications in chemical engineering plant and production.

EA311 Chemical Engineering 2A
Particle dynamics; motion of particles in fluids: filtration; fluidisation; flotation; pneumatic and hydraulic conveying; crushing; grinding; screening; mixing; electrostatic separation; gas and hydraulic cyclones.

Recommended reading
Molyneux, F. Laboratory Exercises in Chemical Engineering. Lond., Leonard Hill, 1967

EA312 Chemical Engineering 2B
Theory of diffusion; Fick’s diffusion equation; diffusion coefficient; gas/solid/liquid interphase diffusion. Film and overall coefficients; gas absorption – packed towers, HTU and NTU; wetted wall and disc columns; flooding and tower diameter; penetration theory; absorption with chemical reaction; humidification and water cooling; cooling towers; drying; liquid-liquid extraction; solid-liquid extraction; crystallisation.

Recommended reading
Molyneux, F. Laboratory Exercises in Chemical Engineering. Lond., Leonard Hill, 1967
Norman, W. S. Absorption, Distillation, and Cooling Towers. Lond., Longmans, 1961

EA313/314 Chemical Engineering 2C
Separation processes: countercurrent, counter current and cascade distillation; McCabe-Thiele. Lewis Sorel. Ponchon-Savart methods, batch and continuous operation; two component and multi-component distillation, solvent extraction; absorption, ion exchange and absorption. Duhring & Cox charts; boiling point elevation; boiling heat transfer; Coulson & McNaught correlation for tubular evaporators; evaporation single and multieffect; thermal and mechanical recompression; economics.

Recommended reading
Molyneux, F. Laboratory Exercises in Chemical Engineering. Lond., Leonard Hill, 1967

EA319/320 Chemical Engineering
For details refer EA311-EA312. EA313/EA314.

EA332/333 Instrumentation and Control Engineering
Three hours per week, which includes one hour per week of problem solving throughout the course, and one hour per week of practical work in the laboratory. Assessment by examination.

A final year subject concerned with the measurement and control of process variables such as temperature, pressure etc. Computer control, and techniques for prediction of system stability are considered.

Recommended reading
Eckman, D. P. Industrial Instrumentation. N.Y. Wiley, 1950
Textbook

EA352 Project Thesis and Technical Report Writing
This involves the development and study of a research topic. The student is expected to make a significant contribution to the continuing project. To enable this to be dealt with, training in given in the efficient use of library facilities for the investigation of technical topics. Included in this is a detailed study of the techniques of report writing including the search for and collation of information, its organisation and presentation in oral and written form.

Students are expected to contribute to the construction and modification of their experimental equipment and to aid in this a condensed course of glassworking and workshop practices is conducted in the early part of the year.

EA353/354 Process Plant Design and Economic Evaluation
Principle components of chemical plant: development of a chemical project; selection and evaluation of process and equipment; plant costing. Flow diagrams: furnace and reactor design. Computer aided design of major plant items. Analysis of the complete plant and process.
Recommended reading
Textbook

EA411 Non-Newtonian Heat and Mass Momentum Transfer
Three hours-per week including practical work
Assessment by examination

A graduate diploma subject which is intended to give students a thorough grounding in the engineering design aspects of the flow of non-Newtonian fluids.

A review of Newtonian fluid flow, heat transfer and mixing (up to and including solutions to relevant equations of motion) precedes the work on Non-Newtonian flow, viscometry, heat transfer and mixing. The final aspect of the subject is the application of this work to some practical situations such as heat sterilisation.

Recommended reading
Interscience, 1963

EA491 Biochemical Engineering
Requirements for growth in biological material: variations in micro-organisms; fermentation pathways. Enzyme reaction kinetics and absolute reaction rate theory; continuous fermentation, aeration and agitation. Mass transfer theories. Bubble and mechanical aeration; scale up; operation and control. Biological waste treatment – BOD, COD. Mathematical modelling for the design of activated sludge plants, trickling filters and sludge digesters

Recommended reading

EC212/213 Structures

Reinforced concrete – elastic and ultimate strength theory for rectangular beams, one-way slabs, tee beams, columns and footings.


Structural design – basic studies: initial surveys, considerations affecting a design, construction techniques, and protection of structures. Loadings and design methods: types and nature of loads. Application of fundamental theory and standard codes to design. Design studies: design of steel structures, design of timber structures, design of simple reinforced concrete elements. Practical design: a number of detailed investigations of structural elements in steel, timber and concrete, accompanied by drawings.

References
Standards Association of Australia
AS 1250: S.A.A. Steel Structures Code (Metric Units)
AS 1480: S.A.A. Concrete Structures Code (Metric Units)
AS 1170: S.A.A. Loading Code. Pt. 1 Dead and Live Loads (Metric Units)

EC101 Engineering Profession
History of engineering technology. The role of the engineer in society and industry. Engineering societies and education of professionals. Professional ethics. The effects of man on his environment.

EC102 Workshop Practice
A series of short practical sessions in the following trades: Welding, Carpentry, Machine Shop and Plumbing.

EC113/114 Applied Mechanics

References
EC123/124 Geology

References
- Shepherd, P. A. *Surveying Problems and Solutions*. Lond., Arnold 1968

EC244/245 Surveying
Principles and types of surveys. Error classification and sources. Chaining equipment, procedures and reductions. Compass surveys. Levelling: construction, use and adjustment of all level types, booking, reduction of levels, contour properties and use of computer plans. Plotting procedures and plan layout. Theodolites: construction, use and adjustments of theodolites; traversing, angle reading and setting out of works. Circular curves, setting out, using deflection angles and tangent offsets. Computations: computation techniques and table use related to traverse reductions, missing parts determination, subdivision of land, road intersections and areas of various figures. Practical work: exercises related to all aspects of the theory consisting of the three hours per week for 2 semesters.

References
- Shepherd, P. A. *Surveying Problems and Solutions*. Lond., Arnold 1968

EC314/315 Structural Mechanics

References

EC316 Structural Mechanics

References

EC332/333 Hydraulics
EC335  Hydraulics
Hydrology: measurement and analysis of precipitation, stream gauging, components of streamflow, analysis of flood hydrographs, infiltration, storm rainfall analysis, determination of flood discharge using a variety of methods (e.g., rational formula, empirical methods, unit hydrograph, etc).
Hydraulic Engineering: pipe systems and networks, open channel hydraulics, surface profiles, irrigation, water supply, dams and reservoirs, hydraulic machinery, drainage and sewerage, water hammer.

References:
Elements of Hydrology, S.C.O.T., Press
Various S.C.O.T. printed notes
Linsley and Franzini, Water Resources Engineering.

EC347  Surveying

References

EC348/349  Surveying

References

EC352/353  Design Theory

References
Bresler, B. et al. Design of Steel Structures. 2nd edn., N.Y., Wiley, 1965
Warner, Rangan and Hall. Reinforced Concrete. Pitman, Sydney, 1976

EC354/355  Civil Engineering Design
Understanding and applying the principles of engineering design to general design tasks, producing and communicating a plan and/or a sequence of operations so that the project may be carried out; Awareness of legal, financial and ethical aspects of civil engineering design.
Solution of design exercises in various situations using different media. At least one exercise should involve costing and a feasibility analysis.

References
As for EC314/5 Structural Mechanics and EC352/3 Design Theory.

EC356/357  Structures
Understanding and applying the more advanced principles of analysis and design to structures.
Structural Mechanics: energy methods; moment distribution; plastic analysis; matrix analysis; elastic instability. Design Theory: reinforced concrete (limit state theory), prestressed concrete (ultimate strength); structural steel (rigid frames, connections); design applications.

References
As for EC314/315 Structural Mechanics and EC352/3 Design Theory.

EC362  Highway and Traffic Engineering

References

EC363  Town Planning and Environmental Engineering
Environmental engineering — outline of factors influencing environment; pollution and effects, water pollution, treatment and analysis, disposal of waste materials.
Faculty of Engineering

EC372/373 Civil Engineering

Hydraulics
A selection of topics from the following: Open channel hydraulics; non-uniform flow, surface profiles, Streamflow routing: through storages, natural channels, Muskingum’s equation, graphical method, urban flood retarding basin design. Reservoir yield analysis techniques. Underground water supplies: aquifers, ground water hydraulics for steady flow, safe yield, artificial recharge, salt water intrusion.


Surveying
Theory, design and layout of transition and vertical curves. Introduction to photogrammetry and photo-interpretation. Route location surveys.

Geology
Geology of engineering sites. Subsurface exploration. Coastal engineering, with emphasis on case studies.

References
Road Research Laboratory, Great Britain. Bituminous Materials in Road Construction. Lond., HMSO, 1962

EC382/383 Soil Mechanics


References

EC392/393 Professional Practices

Engineering administration: organisation and management, organisational structure, behaviour in organisations, supervisory behaviour. Contracts and specifications: the involvement of the civil and structural engineer in the construction field from tender stage through to the formal completion of a project. Introduction to construction techniques: bridge construction, modern methods of erection of steel and concrete buildings, tunnelling, dams. Engineering reports.

EC411 Structural Mechanics


EC420/421 Urban Systems 1

Seminars 1 & 2 (3 hours/week)
Planning history; planning law; basic planning theory; neighbourhood planning; systems planning; planning data collection; regional planning. Remote sensing.

References

EC422 Urban Economics

Macroeconomics and microeconomics; supply and demand theory; urban location and urban growth theory.

Cost-benefit analysis applied to urban problems; transport economics and environmental economics.

Fiscal problems of urban government and urban renewal.

References

EC423 Urban Sociology

Three hours per week for one semester
This seminar course involves some introduction to sociological concepts, particularly theory of social stratification. Emphasis is placed on the relationships between social structure and some aspects of inequality in Australian cities. There will also be some discussion of the relevance of social science to some areas of public policy eg. poverty, housing, transport.

EC431 Hydraulics and Public Health Engineering

Hydraulics – advanced hydrology: flood routing, evapotranspiration and runoff, ground water hydraulics. Advanced hydraulics: urban water supply, pipe systems and pumps, water hammer, open channel flow, sediment transportation, ocean engineering.

References
To be given in lectures

EC441 Town Planning

References

EC442 Geology

References
Blyth, F.G.H. and deFreitas, M.H. A Geology For Engineers 6th edn, Edward Arnold, 1974

EC451 Concrete Design and Construction
Reinforced and prestressed concrete materials, mix design, general design criteria including function and flexibility requirement of structures, loading, fire rating, spans precast, prestressed, in situ. Basic concepts, design for working strength, ultimate strength for reinforced concrete and prestressed concrete and limit states. Construction details and practical work.

EC452 Design Projects
This subject is intended for students undertaking the full graduate-diploma course, and includes suitable projects based on contents of structures, hydraulics, municipal surveying and highways courses.

EC453 Design of Steel Structures

EC461 Municipal and Highway Engineering

An important aim of the course is to prepare students for the Municipal Engineer’s Examinations for the State of Victoria (held in August of each year).

EC476 Civil Engineering
A selection of topics from EC316 and EC477 chosen to supplement work already covered in the diploma course. Candidates will take some of the papers set on EC316 and EC477.

References
As for EC316 and EC477

EC477 Civil Engineering

References
Lin, T.Y. Design of Prestressed Concrete Structures. 2nd edn, N.Y., Wiley, 1963


References

References

Bresler, B. et al. Design of Steel Structures. 2nd edn, N.Y. Wiley, 1968
Tall, L. ed. Structural Steel Design. N.Y., Ronald Press, 1964


Standards Association of Australia
AS1250: Rules for the Use of Steel in Structures (Metric Units) (known as the SAA Steel Structures Code-Metric). 1972
AS1481: Rules for the Use of Prestressed Concrete in Buildings (Metric Units) (known as the SAA Prestressed Concrete Code — Metric). 1974

Various standards.

Structural Mechanics — space statics. Deformations of statically determinate structures: graphical methods, virtual work and strain energy methods (axial forces, bending, shear and torsion), load and no load deflections of trusses, beams, frames. Statically indeterminate structures approximate analysis, elastic analysis (force and displacement methods including moment distribution), structural deformations, model analysis, influence lines, secondary stresses. Plastic analysis: fundamental concepts, collapse requirements, application to structures. Practical work and assignments.

References

EC481 Soil Mechanics
Design of foundations: shallow and deep. Earth pressure problems: braced excavations, tieback walls and soil anchors. Introduction to soil vibrational theory. Soil investigations: sampling, in situ testing, introduction to rock mechanics. Selected topics in soil engineering. Laboratory work and tutorials.

References

EC491 Powers and Duties of Local Government Engineers


Section B — Contracts, conduct of an engineering office, conduct of construction and maintenance works. Engineering economics and management.

References
To be given by the lecturer.

EC505 Public Speaking
Two hours per week for one semester
Assessment is continuous

Communications — information systems, data banks, retrieval systems, literature searching by computer, communication between data banks, technical report writing and oral presentation of reports.

EC508 Art Appreciation
Aesthetics: lectures in art appreciation, graphic techniques and aesthetics, visits to suitable exhibitions, painting and drawing classes.

EC515/516 Structural Mechanics

EC520/521 Urban Systems 2
Government, planning and the law; statutory planning; planning appeals procedure. Systems planning: plan formulation and plan evaluation; urban gaming simulation; systems planning exercises.

References
Victoria. Laws, Statutes, Urban Renewal Act, 1970
Victoria. Planning Appeals Decision, 1971

EC522 Environmental Systems Management
Two hours per week for one semester
Ecology: management of ecological systems: environmental impact statement; conservation planning; solid waste management and recycling; water supply and waste disposal; public health engineering.

References
Masters, G. M. Introduction to Environmental Science and Technology. N.Y., Wiley, 1974

EC523 Urban Transport
Two hours per week for one semester
Transport and land-use planning; new transport systems; traffic engineering and management, freeways, parking studies.
EC566 Town Planning
Planning practice: purpose of planning, design of surveys, transportation-planning, industrial and neighbourhood planning, regional planning, history of planning. Planning law. Practical work and assignments.

EC567/568 Highway Engineering
Traffic engineering: traffic management, traffic studies, analysis of data, gap and delay theory, absorption of vehicles, car-following and queueing theory. Highway engineering - horizontal and vertical alignment, pavement design, highway engineering materials.

EC571/572 Engineering Practices
Engineering administration - the firm: structure and behaviour; engineering contracts; contract documents; project control and planning.

EC581/582 Geomechanics
Design of foundations: shallow and deep. Earth pressure problems, braced excavations, tie-back walls and soil anchors.

References
Shapiro, E. Macroeconomic Analysis. 2nd edn, N.Y., Harcourt, Brace & World, 1970
Geddes, S. Engineering for Building and Civil Engineering Works, 5th edn, Lond., Newnes-Butterworths, 1971

EC524/525 Civil Engineering Systems
Systems engineering: the use of marginal analysis in traffic management and water supply engineering; simulation; modelling of water quality and ecological stability in streams and estuaries; urban development models and interactive land-use and transport system analysis; optimum design of structural elements.

References

EC355/556 Design Projects
Choice of systems: investigation of civil engineering problems. Reports to give outline solutions, including choice of structural types, layouts, materials and methods of construction. Detailed designs: design projects - fields of civil and structural engineering. Answers in the form of reports, design computations, drawings and models.

References
As specified for other subjects.

EC357 Public Health Engineering

References
Others to be given in lectures.

EC358 Student Investigations
Statistics: revision, sampling and design of experiments. Instrumentation: general coverage of types and some demonstrations of these. Investigations research projects on assigned problems under staff supervision.

References
EC591/592  Engineering Economics
Microeconomics: of markets — production and cost functions; marginal analysis; welfare economics — social and private opportunity costs. Cost-benefit analysis: the rate of interest; discounted cash flow method; present worth. Costs: Case studies; water resources systems; the economics of transportation systems; urban renewal and urban plant investment decisions; econometric modelling of water quality.

References
James, J. D. and Lee, R. R. Economics of Water Resources Planning, N.Y., McGraw-Hill, 1971

EC620/621  Urban Systems 3
Lectures, tutorials and seminars will be held on advanced topics related to the multi-disciplinary projects to be carried out during the year. A range of final year projects leading to the submission of a final thesis or dissertation will be offered from the areas of urban transport, the urban environment, urban design, urban economics and urban sociology. The projects will be designed to enhance the welfare of the local community.

EC622/628  Electives in Urban Systems
Three hours per week each semester
Depending on students’ preference, two electives from the following list of subjects will be chosen. Students will spend 50% of the allocated time on projects and the other 50% will be in attending lectures by specialists in various fields.

EC623 Urban Economics
EC622 Urban Transport Systems
EC624 Systems Planning
EC625 Environmental Engineering
EC626 Urban Design
EC627 Urban Sociology
EC628 Urban Energy Systems

Syllabus details will be presented in the first lecture.

References
To be given by lecturer.

ED157/158  Engineering Drawing
Four hours per week
Assessment is continuous
A first year subject in degree and diploma courses in civil engineering. Students gain a thorough grounding in the fundamentals of engineering drawing particularly as applied to civil engineering. Examples for drawing assignments are selected from the broad field of this branch of engineering. These include: steel construction – welded and bolted, concrete – reinforced and prestressed, surveying, municipal engineering, earthworks, road construction, drainage. The practical aspects are emphasised throughout. Students are encouraged to observe and study in detail any civil engineering work being carried out.

References
A list of references, standards and texts, together with printed notes is provided by lecturers.

ED159/160  Engineering Drawing
Four hours per week in first semester
Three hours per week in second semester
Assessment is continuous
A first year subject in degree and diploma courses in electrical engineering. The course is designed to provide a sound knowledge of the principles of engineering drawing particularly as applied to electrical and electronic engineering. Introduction includes a study of basic mechanical elements and the application of these elements to electrical and electronic equipment. Students are introduced to design by following the basic logical steps in designing devices, electrical circuits, and pieces of apparatus to fulfill specified functions, allowing the widest possible scope for individual, creative effort. Students are prepared more especially for later course-work in electrical or electronic design, thereby enabling them to design and draw machines or devices which are mechanically as well as electrically practicable.

References
A list of references, standards and texts, together with printed notes is provided by lecturers.

ED161/162  Engineering Drawing
See notes for EM105/106.

ED163/164  Engineering Drawing
Four hours per week in first semester
Three hours per week in second semester
Assessment is continuous
A first year subject in degree and diploma courses in production engineering. Students gain a thorough grounding in the fundamentals of engineering drawing. Examples for drawing assignments are selected from the general area in which production engineers work. These include jigs, fixtures, tools and machine tool components and mechanisms. Students are introduced to design by changing existing designs and designing simple devices to perform specified functions. Particular emphasis is given to form design and material selection for high production manufacture.

References
A list of references, standards and texts, together with printed notes is provided by lecturers.
ED2521253 Chemical Engineering Design

Two hours per week.

Assessment is by projects and examination.

A second year subject in the diploma of chemical engineering course. Students are introduced to the design and specifications of a wide variety of chemical plant and equipment. The mechanical design of such items as pressure vessels, heat exchangers and pipework. Design of foundations for chemical plant and machinery, self-supporting towers and other items. General treatment of reinforced concrete and steel construction. The drawings required for such projects.

References
A list of references, standards and texts, together with printed notes is provided by lecturers.

EE101 Engineering Profession

History of engineering technology. Place of engineer in society and industry. Engineering societies and education.

EE102 Workshop Practice

A course for electrical engineering students to provide knowledge of common workshop techniques such as electric wiring methods and safety regulations, fitting and machining operations, classification and use of machine tools, welding practices.

EE111 Electrical Engineering


References
Smith, R.J. Circuits, Devices and Systems. 3rd edn, N.Y., Wiley, 1976

EE116 Electrical Engineering

This subject is for first year production engineering students. Linear and non-linear devices in electric circuits. Ohm's and Kirchhoff's laws. Capacitance and RC circuits. AC circuit properties using vectors and j operator, single-phase and three-phase circuits. DC machines, energy sources, electrical measurements.

References
Smith, R.J. Circuits, Devices and Systems. 3rd edn, N.Y., Wiley, 1976

EE117 Electrical Engineering

This subject is for first year production engineering students. AC machines and circuits, transformers, rectification and filtering. Power distribution systems, installation, circuit protection, measurements.

References
Smith, R.J. Circuits, Devices and Systems. 3rd edn, N.Y., Wiley, 1976

EE121 Electrical Engineering


EE122 Electrical Engineering


References
Williams, G. An Introduction to electric circuit theory. Longmans, 1973
Smith, R.J. Circuits, Devices and Systems. 3rd edn, N.Y., Wiley, 1976

EE123 Electrical Plant

This subject is for first year civil engineering students. Energy conversion, electric power supply systems, power generation and distribution transformers, sub-stations, distribution switchboards. Simple electric circuits, AC and DC. Electrical machines: generators and motors, starting methods, speed control, characteristics and applications.
EE212 Electrical Engineering


Electrical measurements — Wattmeters, barometers, energy meters; measurement of three-phase power and reactive power; power loss in instruments, accuracy calibration. Cathode ray oscilloscope: cathode, ray tube, screen characteristics, block diagram layout of CRO, further measurement applications.

Energy conversion — Single phase transformers: consideration of ratio-changer concept and coupled-circuit concept; ideal and practical transformers, determination of transformer parameters, performance calculations for both power and audio frequency applications, equivalent circuits.

EE213 Electrical Engineering

Electric circuit theory — Non-sinusoidal wave forms: Fourier series, harmonic analysis, response of linear circuits, effective values, power, power factor, causes of wave form distortion, measurement errors. Transient and steady state response: application of Laplace transforms to complete response for steps, sinusoidal, ramp and pulse function, introduction to s-plane methods, poles and zeros; time response, rise time and fall time; network theorems.

Measurements — Rectifier and thermo-electric instruments. Power factor meters, phase meters, AC bridges, balance equations, methods of detection. Vacuum tube voltmeters; input impedance and frequency range, basic circuit measurement of non-sinusoidal voltages. Instrument transformers.

Energy conversion — Basic electromechanical energy conversion principles; torque and energy conversion, fundamentals of DC, synchronous and induction machines and their controls. Machine principles; windings and magnetic circuit arrangements, production of flux and of EMF, armature windings. EMF’s for various types of commutator and non-commutator machines. Effects of armature load current; armature reaction, terminal voltage, developed torque. Parallel operation; principles of load sharing: DC machines in parallel, single-phase transformers in parallel. Rating, losses and efficiency for various types of machines.

References
Skilling, H. Electric Networks. N.Y., Wiley, 1974

EE221 Electronics

Major topics are analysis of signals, instrumentation, transducers, electronic devices, amplifiers, and digital electronics. The emphasis is on application of electronic techniques to industrial and mechanical problems.

References
Smith, R.J. Circuits, Devices and Systems. 2nd edn, N.Y., Wiley, 1971

EE224 Electronic Devices


References
Smith, R.J. Electronics-Circuits and Devices. 3rd edn, N.Y., Wiley, 1976

EE225 Electronic Circuits

Rectifiers and filters: half wave, full wave rectifiers, filter circuits, wave-forms, ripple factor. Small signal amplifiers; amplifier circuits, analysis biasing, frequency response, transient response, multistage amplifiers, feedback. Switching and relay circuits; principles of contactor operation, thyristor triggering circuits, photoelectric devices in switching circuits.

References

EE242 Communication Principles

Introduction to concepts of electronic communication; amplitude modulation — generation and reception; angle modulation — frequency and phase modulation, FM stereo; telegraphy and multiplexing; sampling and pulse modulation; introduction to information theory; noise and its effects on communication links.

Preliminary reading

References
Bettis, J.A. Signal Processing, Modulation and Noise. Lond., EUP, 1970
Connor, P.R. Modulation. Lond., Arnold, 1973
Connor, P.R. Noise. Lond., Arnold, 1973
EE252  Electrical Engineering Design
Design philosophy; design as a choice between a number of possible solutions to a problem; basic ideas and criteria for optimisation; human factors in design. Thermal behaviour of electrical equipment. Properties of insulating, conductor, resistance and magnetic materials; magnetic wires. Design of DC voltage and current coils; magnetic circuits and DC electromagnet design.

EE253  Electrical Engineering Design

EE314  Electrical Engineering

EE315  Electrical Engineering

References

EE316/317  Power Systems Elective
Specialist topics in electric power systems engineering, including transmission line construction, insulation and operation, surge propagation, insulation co-ordination, control of voltage, load and reactive power flow. HVDC transmission, system economics. Switchgear and protection.

References
Cotton, H. and Barber, H. The transmission and distribution of electrical energy. 3rd edn, Lond, English U.P. 1970
Weedy, B.M. Electric power systems. 2nd edn, London, Willey, 1972

EE319/320  Signal Processing Elective
Specialist topics in communications engineering, in the area of signal analysis using Fourier transforms and integrals, network synthesis, information theory and coding, digital electronics, antennas and propagation, acoustics engineering.

EE323  Electronics
Analysis of signals, signal processing networks, diodes, rectifiers, power supplies, basic amplifiers, frequency response, transistors, transistor biasing, transistor amplifier using hybrid-II equivalent, SCR, FET, UJT, PUT, LDR, photocells, characteristics and applications. Measurement and recording, modulation, operational amplifiers, characteristics and performance and use in computation, block approach to amplifiers and feedback. Digital electronics, oscillators, multivibrators, control systems, transducers.

References

EE324  Electronics
Devices; small signal amplifiers; large signal amplifiers, feedback amplifiers; sinusoidal oscillators; operational amplifiers; DC regulators.

EE325  Electronics
Discrete component switching circuits; multivibrators, shapers, combinatorial and sequential logic circuits, integrated circuit logic, digital systems.

References
Malmstadt, H.V. and Enke, C.G. Digital Electronics for Scientists. N.Y., Benjamin, 1969

EE332  Control Systems
Open-loop and closed-loop feedback systems; Laplace transform techniques; s-plane; transfer functions; block diagrams; signal flow graphs; system stability; performance criteria; servo-mechanisms; analogue simulation and computation; introduction to state variable methods.

EE333  Control Systems
Root locus technique; use of spirale; linear control system analysis and design using Bode plots; root locus diagrams; Nichols' charts, and Nyquist plots. Introduction to nonlinear system analysis and design; describing function technique; phase plane technique; introduction to Liapunov's second method.

References
EE334 Electronics
Semi-conductor devices, BJT, JFET, MOSFET. Small and large signal amplifiers; negative and positive feedback amplifiers, operational amplifiers.

EE335 Electronics
Pulse and digital circuits; microcircuits: LSI, digital systems; digital instrumentation. DC regulators, controlled switching.

References
Malmstadt, H.V. and Enke, C.G. Digital Electronics for Scientists, N.Y., and Stephenson, I.M. 1969

EE342 Communications
One and two port networks, ladder and lattice sections. Analysis and design of constant-k, modified, Butterworth and Tchebychev filters. Operational amplifier active filters. Laboratory experiments and project.

References

EE343 Communications
Primary, secondary and transmission parameters of H.F. lines. Smith chart. Passive and active microwave components. Introduction to antennas and propagation.

References

EE353 Electrical Engineering Design
Philosophy of design, computer-aided design, switching logic, design of logic and switching control circuits. Partial discharges. Design of power transformers and inductors. Introduction to lighting installation design. Literature searching, presentation of reports in oral and written form, business correspondence. Design projects and investigations.

References
Alston, I.L. ed. High voltage technology. O.U.P. 1968

Faculty of Engineering

EE354 Electrical Engineering Design
Design optimisation. Electromagnetic forces on conductors, design of heavy current conductors. Economics and mechanical design of transmission lines, design of electromagnets. Introduction to the design of rotating electrical machines. Industrial power distribution and motor control, fuse protection. Specifications, tenders and contracts. Design project and investigations. Presentation of seminar and thesis on individual project work.

References
Clayton, A.E. and Hancock, N.N. The performance and design of direct current machines. 3rd edn, London, Pitman, 1969

EE355 Electronic Engineering Design

References

EE356 Electronic Engineering Design

References

EE364 Electric Power
Introduction to power systems.
EE366  Electronics

References

EE368  Linear Control Systems
Analogous systems. Translational, rotational, mechanical systems, hydraulic systems; electrical systems, solution of differential equations; block diagrams. Transfer functions, low and high gain analysis; steady state errors, open-loop and closed-loop feedback systems; steady state error, open-loop and closed loop feedback systems; servomechanisms, position servo, speed control systems; root locus techniques; concept of state and variable method; system stability; analogue computation with applications.

References

EE381  Environmental Engineering

EE453  Electrical Design

References

EE454  Electrical Design

Technical report writing: Presentation of technical reports. During the industrial experience semesters, students may attend group seminars, but will be provided with printed notes and other reference material to enable them to complete the subject externally, by assignments.

References
Grant, E.L. and Leavenworth, R.S. Statistical Quality Control. 4th edn., N.Y., McGraw-Hill, 1972
Selected Australian, British, DEF, (Aust.) and MIL Standards 288

EE463  Circuits and Fields

References

EE464  Power Systems and Machines


References

EE466  Electronics and Communications
References

EE468 Linear Control Systems
Linear system analysis using s-plane theory and frequency response methods. Nyquist diagrams, Nichol's charts, classical and state variable techniques for compensation of single input linear systems, design principles with applications to stabilisation-type servo, speed control and position servo, introductory Ljapunov methods control criteria and formulation, controllability and observability, digital stimulation.

References

EE553 Electrical Design and Project

References

EE564 Power Systems

References

EE565 Electrical Machines

References

EE566 Electronics

References
Korn, G.A. Minicomputers for Engineers and Scientists. N.Y., McGraw-Hill, 1973

EE567 Communications

References
Kraus, J.D. Antennas. Tokyo, McGraw-Hill, 1969

EE568 Control Systems
Non-linear systems. Analysis using phase-plane, isocline, describing function, dual in Hueb describing function. and Ljapunov techniques for continuous time system. Relay servo, servo with backlash, torque saturation, hysteresis. Introduction to stochastic and discrete data systems. Frequency response analysis simple servo; adaptive control; optimal control. Applications to process and computer control systems.
EM105/106 Industrial Technology
(These notes also apply to EM102, ED161, ED162)
Ninety hours per semester
Assessment is continuous
This subject introduces mechanical engineering degree-diploma students to a general background of information and familiarity with the practices and processes associated with engineering works.
Workshop practice
The syllabus includes instruction in machine shop practice, welding, flame cutting and plumbing.

References
Chapman, W.A.J. Workshop Technology — S.I. Units. 3 vols. 5th edn, Lond., Arnold, 1961-1972

Engineering drawing
Four hours per week plus fifteen hours special projects at the end of each semester
Students gain a thorough grounding in the fundamental principles of engineering drawing. Exercises typical of those found in mechanical engineering are used throughout. In this way the course provides a wide coverage of basic engineering knowledge. Projects are selected from a wide field which includes power transmission, steel fabrication, machines and mechanisms, hydraulics. Students are introduced to design by changing existing designs and designing simple devices and assemblies to perform specified functions, whilst permitting the widest possible scope for individual creative effort. The use of relevant standard specifications and standard components is encouraged. The practical aspects of all of the work is emphasised throughout.

Engineering responsibility and attention to detail is engineered through assignments of field sketching, followed by office drawing.

References
A list of references, standards and texts, together with printed notes is provided by lecturers.

This course is also available to part-time students as two units: EM102 Workshop Practice (thirty five hours/semester) ED161, ED162 Engineering Drawing (sixty hours for each of two semesters, or equivalent of two hours per week for two years)

EM107/108 Engineering Introduction
(These notes also apply to EM101, EM104)
This course is held in the first year of the mechanical engineering degreediploma studies and occupies thirty hours per semester.

References
Tou, J.T. Modern Control Theory. N.Y., McGraw-Hill, 1964

EM112 Applied Mechanics
This subject forms an introductory course to fluid mechanics for chemical engineering students. The course is usually held in the second semester of the first year of the course and amounts to sixty hours, including lectures, demonstrations, tutorials and practical work. Assessment is continuous throughout the course. The syllabus deals with fluid properties, statics, dynamics, measuring devices, dimensional analysis, boundary layers and closed conduit flow.

References
Barna, P.S. Fluid Mechanics for Engineers. 3rd edn, Syd., Butterworths, 1969

EM113 Applied Mechanics
The course is held in one semester of the first year, and amounts to forty five hours, including lectures, tutorials and practical work. Assessment is continuous throughout the course. This subject is for first year electrical engineering students. Forces in rigid bodies. Stress and strain. Thrust, shearing force, torsion, and bending moment diagrams, elastic moduli. Tension, compression, shear and bending loads in simple members. Beams and shafts.

Applications of dynamics in linear and angular systems. Work, power, energy and momentum.
References

EM114/115 Applied Mechanics
See notes for EM119/120.

EM116/117 Applied Mechanics
These two subjects given in successive semesters constitute an introductory course in statics, dynamics and strength of materials for production engineering students. Typically EM116 and EM117 are taken in respectively the first and second semesters of the first year. They each amount to forty-five hours, including lectures, tutorials and practical work. Assessment is continuous throughout the course. The syllabus deals with: external force systems, statics, internal forces, stress and strain, dynamics, performance of loaded members.

References

EM118 Thermodynamics and Mechanics
This course of one hundred and twenty hours lectures, tutorials and practical work, usually held in the first semester of second year studies for the diploma of chemical engineering, provides an introduction to thermodynamics and fluid mechanics. It is a combination of subjects EM112 and EM122. Assessment is continuous throughout the course. The syllabus deals with: Heat and work, the first and second laws of thermodynamics, working fluids, reversible processes and various heat engine cycles. Fluid properties, statics, dynamics, measuring devices, dimensional analysis, boundary layers and closed conduit flow.

References
Barlow, G.S. Fluid Mechanics for Engineers. 3rd edn., S.D., Butterworths, 1969

EM119/120 Mechanics and Materials
These subjects are given in successive semesters of the first year of degree-diploma full-time studies in mechanical engineering. Lectures, tutorials and experimental work occupies seven hours per semester, most of the assessment being on a continuous basis. Each subject combines studies in applied mechanics and engineering materials, generally as indicated in the following syllabus outline.

Applied Mechanics
External force systems, statics, internal forces, stress and strain; dynamics, performance of loaded members.

Engineering Materials
The solid state, phase relationships, equilibrium diagrams, deformation, fracture, strengthening mechanisms, effect of stress state on mechanical properties, materials processing, non-metallic materials, metallic materials, testing.

References

Faculty of Engineering
EM1331134 Energy Systems
(These notes also apply to EM125.)

Thermodynamics
This subject forms an introductory course in thermodynamics for full-time mechanical engineering degree/diploma students. The subject is usually taken in the first year of the course. It amounts to forty-five hours per semester, including lectures, demonstrations, tutorials and practical work. Assessment is continuous throughout the course.

The syllabus deals with: the working substance, factors of state and properties, P, V and T relations for the solid, liquid, and vapour phases. Perfect gases. Systems. The non-flow energy equation. Ideal and actual. Operation of thermal plant. Introduction to heat transfer, fuels and combustion. Stoichiometric mixtures and excess air. This course is available to part-time students as EM125 Thermodynamics (seventy-five hours for one semester).

References
Joel, R. Basic Engineering Thermodynamics in S.I. Units. 3rd edn. London, Longmans, 1971

EM2021203 Industrial Technology
(These notes also apply to EM201, EM251.)

This subject includes work in the areas of mechanical engineering design and engineering practices, and is normally taken in the second year of mechanical engineering degree/diploma studies for seventy-five hours per semester which includes lectures, tutorials, design projects and practical work. Assessment is continuous throughout the course.

Mechanical engineering design
This syllabus deals with: notch sensitivity, eccentrically loaded joints, preloaded bolted joints, shafts of non-circular cross section, shafts and keys, couplings, selection of straight spur and bevel gears, selection of plain journal, ball and roller bearings, shrink fits, screwed connections. Applications of these and other design principles to the achievement of functional designs.

References
Shigley, J.E. Mechanical Engineering Design. N.Y., McGraw-Hill, 1956
Siegel, M.J. et al. Mechanical Design of Machines. 4th edn, Scranton, Pa., International Textbook Co., 1965

Engineering practices
This is to give a general background of information and familiarity with the practices and processes associated with engineering works. The syllabus includes instruction in machine shop practice, welding and flame cutting, electric wiring, pipe fittings, patternmaking, surveying and instrumentation and control.

EM211 Applied Mechanics
See notes for EM214/215.

EM212 Applied Mechanics 2B
This subject is for production engineering students and usually follows subjects EM116 and EM117. The course is usually taken in the second semester of the second year and amounts to one hundred hours, including lectures, tutorials and practical work. Assessment is continuous throughout the course.

The syllabus continues with studies in statics, dynamics and strength of materials and then proceeds with selected topics in solid mechanics, fluid mechanics and machines.

References
Meriam, J.L. Dynamics. 2nd edn, N.Y., Wiley, 1971
EM213  Applied Mechanics
This subject is for electrical engineering students and usually follows subject EM113. The course is usually taken in the second year and amounts to sixty hours, including lectures and practical work. Assessment is continuous throughout the course. The syllabus continues with studies in statics, dynamics and strength of materials.

References

EM2141215 Mechanics and Materials
(These notes also apply to EM211, MT222).
This subject includes the two disciplines, mechanics and engineering materials. It is usually taken in the second year of mechanical engineering degree/diploma studies, and amounts to ninety hours per semester lectures, tutorials and practical work. Assessment is continuous throughout the course.

Mechanics
The syllabus consists of solid mechanics: slope and deflection of beams, combined action, combination of bending, torsion and direct loading; consideration of both stresses and strains, columns, stress concentration, dynamic stresses and failure theories. Fluid mechanics: perfect and real fluids, statics - plane submerged surfaces, kinematics - terminology, flow visualisation, basic equations - continuity, energy and momentum theory. Machines: combined linear and angular systems, impact, equivalent dynamic system for a rigid body, conservation of angular momentum, angular impulse, turning moment diagram, flywheels; machines power screws, clutches and brakes, belt drives, gear trains and cams.

References

Materials
The syllabus consists of ferrous metals, non-ferrous metals. Welding and joining. Composite materials. Light materials. Electrical materials. Magnetic materials. Corrosion. Material specifications. Friction, lubrication, bearing and friction materials. Introduction to fracture mechanics. This course is available to part-time students as two units: EM211 Applied Mechanics (ninety hours over two semesters); MT222 Engineering Materials (ninety hours over two semesters).

EM221 Thermodynamics
See Notes for EM223/224.

EM2231224 Energy Systems
(These notes also apply to EM221, EE111.)

EM221 Thermodynamics
This subject includes the disciplines of thermodynamics and electrical engineering. It is usually taken in the second year of mechanical engineering degree/diploma studies, and amounts to sixty hours per semester, including lectures, tutorials and practical work. Assessment is continuous throughout the course.

Thermodynamics

References
Joel, R., Basic Engineering Thermodynamics in S.I. Units, 3rd edn, Lond., Longmans, 1971
Hughes, E., Electrical Technology - S.I. Units, 4th edn, Lond., Longmans, 1972
Smith, R.J., Circuits, Devices and Systems, 2nd edn, N.Y., Wiley, 1971

Electrical engineering

DC machines, energy sources, electrical measurements. AC machines and circuits, transformers, rectification and filtering. Power distribution systems, installation, circuit protection, measurements.

This course is available to part-time students as two units: EM221 Thermodynamics (ninety hours over two semesters); EM111 Electrical Engineering (forty-five hours for one semester, sixty hours for second).

EM251 Mechanical Design
See notes for EM202/203.

EM261/262 Human Studies
This subject includes the disciplines of human engineering and arts. It is usually taken in the second year of mechanical engineering degree/diploma studies, and amounts to sixty hours per semester of lectures, tutorials and practical work.

Human engineering
This new discipline is concerned with human factors in engineering systems. The course provides an introductory study of the relevance of human characteristics, capabilities and limitations to engineering design.
References


Arts

The course offered is planned to provide students with a training in the processes of gathering material through research techniques appropriate to the social sciences. Students are encouraged to subject the attitudes, concepts and mores of their own society to constructive criticism, thereby helping them to make mature judgments. Where appropriate, students are encouraged to understand not only the structure of Australian society and its problems but also to appreciate the significance and relevance of traditional relationships with neighbouring and more distant societies. To encourage a broadening of interests, so that students are participants in a disciplinary study of general educational value. Every effort is made to stimulate the students in such a way that they might become better citizens in a society where technology is a major agent of change.

To introduce students to a body of knowledge which will lead them to a better understanding of the traditions from which our contemporary cultural, political, economic, and social practices are derived. Where possible, examination will be made of the characteristics of social systems, how they work, and the role of the individual in such systems.

Subject areas offered as social sciences


EM3021303 Industrial Technology

(These notes also apply to EM351. EM353. EM312.)

This subject is the final course covering mechanical design, projects and production technology for third year full-time mechanical engineering diploma students. It amounts to one hundred and thirty-five hours per semester.

Mechanical design


References

Shigley, J.E. Mechanical Engineering Design. N.Y., McGraw-Hill, 1956
Siegal, M.J. et al. Mechanical Design of Machines. 4th edn, Scranton, Pa., International Textbook Co., 1965

Final year projects

Each student generally undertakes a significant project involving the processes of creativity, design, investigation, production and performance evaluation. The course amounts to ninety hours in the formal sense. Assessment is continuous throughout the course and is based on progress of work undertaken and the methods employed to formulate solutions to the problems encountered.

References

Chapman, W.A.J. Workshop Technology – S.I. Units. 3 vols 5th edn, Lond., Arnold, 1972

Production technology

This course covers: basic metrology; basic measurement, principles of measurements, sources of error surface texture assessment and measuring machines.

Theory of metal cutting, chip formation, orthogonal and three-dimensional cutting, tool wear. Natural process tolerance and statistics. Introduction to manufacturing methods: gear production, automatic lathes, numerical control, transfer machines, more recent processes. Introduction to deformation theories. Students must attain a satisfactory standard in laboratory work before being allowed to sit for the final examination.

Protective clothing (boiler suit) and suitable footwear must be worn during practical sessions. Protective eyewear will be provided.

Assessment is by laboratory projects, assignments and a final three-hour written examination.

This course is available to part-time students as three units: EM351 Mechanical Design (one hundred and twenty hours over two semesters); EM353 Final Year Projects (ninety hours over two semesters); EM312 Production Technology (sixty hours over two semesters).

References

Thomas, G.G. Production Technology. Lond., OUP, 1970
Cook, N.H. Manufacturing Analyst. Reading, Addison-Wesley, 1966
EM311/313 Applied Mechanics
See EM315/316.

EM312 Applied Mechanics
This is the final subject in machines for mechanical engineering course diploma students and for production engineering diploma students. The course is taken in the first semester of the third year and amounts to eighty hours of lectures, tutorials and practical work. Assessment is continuous throughout the course.

The syllabus deals with: relative velocity and acceleration diagrams; epicyclic gear trains, gyroscopes, balancing; rotary and reciprocating balancing; direct and reverse cranks. Mechanical vibrations, whirling of shafts.

References
Morrison, J.L.M. and Crossland, B. An Introduction to the Mechanics of Machines - S.I. Units. 2nd edn, Lond., Longmans, 1971
Beman, T. The Theory of Machines. 3rd edn, Lond., Longmans, 1956

EM313 Applied Mechanics
This is the final subject in fluid mechanics for mechanical engineering sandwich course diploma students and production engineering sandwich course diploma students. The subject is normally taken in the third year of the course. It amounts to ninety hours per semester including lectures, demonstrations, tutorials and practical work.

The syllabus deals with: momentum of fluids; fixed and moving jets, general momentum theorem. Flow in closed conduits. Reynolds’ experiments, friction factor and other losses. Dimensional analysis and similarity, boundary layer theory. Compressible flow, Rotodynamic machinery, pumps, fans, turbines, fluid couplings and torque converters. Lubrication and bearings.

This course is available to part-time students as two units:
EM313 Applied Mechanics (sixty hours over two semesters); EM311 Applied Mechanics (sixty hours over two semesters).

References
Shapiro, A.H. Shape and Flow: The Fluid Dynamics of Drag. Lond., Heinemann, 1964

EM314 Applied Mechanics
This is the final subject in fluid mechanics for mechanical engineering sandwich course diploma students and production engineering sandwich course diploma students. The course is taken in first semester of the third year and amounts to eighty hours of lectures, tutorials and practical work. Assessment is continuous throughout the course.

The syllabus deals with: momentum of fluids; fixed and moving jets, general momentum theorem. Flow in closed conduits. Reynolds’ experiments, friction factor and other losses. Dimensional analysis and similarity, boundary layer theory. Compressible flow, Rotodynamic machinery, pumps, fans, turbines, fluid couplings and torque converters. Lubrication and bearings.

References
As for EM315/316

EM315/316 Mechanics and Materials
(These notes also apply to EM311, EM313.)
This is the final subject in applied mechanics, fluid mechanics and strength of materials for full-time mechanical engineering diploma students. It is held in the third year of the course and amounts to one hundred and five hours per semester of lectures, tutorials and practical work. Assessment is continuous throughout the course.

Applied mechanics
The syllabus deals with: relative velocity and acceleration diagrams; epicyclic gear trains; gyroscopes, balancing; rotary and reciprocating balancing; direct and reverse cranks. Mechanical vibrations, free, viscous damped and forced vibrations, whirling of shafts. Automatic control, governors gravity and spring types. Modes of control, system response.

References
Beman, T. The Theory of Machines. 3rd edn, Lond., Longmans, 1956

EM321 Thermodynamics
See note for EM323/324.

EM322 Process Heating
Sixty hours over two semesters. See EM421.

EM323/324 Energy Systems
(These notes also apply to EM321, EE221.)
This subject forms the final course in thermodynamics and electronics for full-time mechanical engineering diploma students. The subject is normally taken in the third year of the course. It amounts to ninety hours per semester including lectures, demonstrations, tutorials and practical work.

Thermodynamics
Pollution control. Assessment is continuous throughout the course.

This course is available to part-time students as two units:

**EM321 Thermodynamics** (one hundred and twenty hours over two semesters);

**EM221 Electronics** (sixty hours over two semesters).

This course is available to part-time students as two units:

**EM353 Final Year Projects**

As for EM302/303.

**References**


Electronics

Major topics are analysis of signals, instrumentation, transducers, electronic devices, amplifiers, modulation and principles of control. The emphasis is on application of electronics to industrial and mechanical problems.

**References**


**EM331 Systems and Control**

This subject is available as an elective for mechanical engineering diploma students. The course is taken in the third year of the course. It amounts to ninety hours, including lectures, tutorials, seminars and practical work. Assessment is continuous throughout the course.

The syllabus deals with the characteristics and behaviour of dynamic systems in terms of those of their elements. Modelling includes linear and non-linear, digital and analogue. Applications are made to the analysis and synthesis of systems involving automatic controls and servomechanisms.

**References**


**EM354 Mechanical Design**

This subject is for production engineering students. The course is held in the first semester of the third year and amounts to one hundred hours, including lectures, tutorials and projects. Assessment is continuous throughout the course instead of by the traditional single final examination. The syllabus deals with theories of static failure, stress concentration, fatigue, notch sensitivity, eccentrically loaded joints, preloaded bolted joints, shafts of non-circular cross section, shafts and keys, couplings, selection of straight spur and bevel gears, selection of plain journal, ball and roller bearings, shrink fits, screwed connections. Applications of these and other design principles to the achievement of functional designs.

**References**


**EM362/363 Human Studies**

This subject combines human engineering and ergonomics, covering administration for full-time mechanical engineering diploma students.

It amounts to sixty hours per semester, including lectures, demonstrations, tutorials, seminars and practical work.

Human engineering

This is a relatively new discipline concerned with human factors in engineering systems. Its philosophy is based on the principle that everything that is conceived, designed, produced and operated is for the use of man. Hence, it is necessary for us to understand human characteristics, capabilities and limitations and to be able to apply this understanding to man-machine systems with a view to achieving compatibility between all elements of the systems, including the people involved. The major sections of the syllabus are: human characteristics, capabilities and limitations in relation to engineering design. System investigations, reliability studies, critical factors. Training theories and methods, transfer of training, simulation. Decision theory, elective skills. Vigilance theory, monitoring. Environmental effects. Information theory. Job specification and analysis. Questionnaires and interviews. Assessment is continuous throughout the course.

**References**


Faculty of Engineering


Machines

A course of ninety hours extending over five decaweeks.

Principles of kinematics and kinetics including non-linear and multidimensional treatments. Applications to studies of machine elements and systems both by analysis and synthesis.

References


Mathematics

A course of ninety hours extending over five decaweeks.

Therories and techniques associated with functions of a complex variable, conformal transformations, functions of several real variables, transform calculus, vector algebra, matrix algebra, tensor analysis, statics and qualitative treatment of non-linear differential equations.

References

Spiegel, M. *Statistics (Schaum's Outline Series)*. N.Y., Schaum, 1961

Solid mechanics

A course of ninety hours extending over five decaweeks. Qualitative and quantitative studies of elastic and plastic properties and behaviour of materials. Plane and three-dimensional strain and stress analyses of various structures and loading systems. Applications to the selection and testing of a wide range of materials and the analysis and synthesis of elements and systems.

References


Systems and controls

A course of ninety hours extending over five decaweeks. Consideration of characteristics and behaviour of dynamic systems in terms of those of their elements. Linear and non-linear, digital and analogue modelling. Applications to analysis and synthesis of systems involving automatic controls and servo mechanisms.

References

Langill, A.W. *Automatic Control Systems Engineering*. 
EM441 Air-conditioning 1

This part-time subject is for the graduate/diploma in heating, ventilation, air-conditioning and refrigeration. The course amounts to ninety hours of lectures, tutorials, seminars, visits and practical work. Assessment is continuous throughout the course. The syllabus outline is as follows: psychometric properties of the air-water mixture. Psychometric chart and processes. Condition criteria. Heat transfer; summary of conduction, convection and radiation. Heat gain and loss from buildings; determination of system parameters. Methods of heating, cooling, humidifying and dehumidifying. Air cleaning. Ventilation and heating. Instrumentation and control of systems.

References
Great Britain, Ministry of Power Fuel Efficiency Committee. The Efficient Use of Steam. Lond., HMSO, 1947
Tables of Refrigerant Properties. Swinburne College Press

EM442 Air-conditioning 2

This part-time subject is for the graduate/diploma in heating, ventilation, air-conditioning and refrigeration. It follows on subject EM441. The course amounts to ninety hours of lectures, tutorials, seminars, visits and practical work. Assessment is continuous throughout the course. The syllabus outline is as follows: vibration and noise. Fluid flow, duct design, air distribution. Heat transfer; non-steady state and complex shapes. Systems; survey of general forms of air conditioning systems; selection of systems. Refrigeration applied to air conditioning. Applications - industrial, commercial. Planning and organisation.

References

EM443 Refrigeration 1

This part-time subject is for the graduate/diploma in heating, ventilation, air-conditioning and refrigeration. The course amounts to ninety hours of lectures, tutorials, seminars, visits and practical work. Assessment is continuous throughout the course. The syllabus is as follows: properties of refrigerants, analysis of vapour compression cycle and descriptive work on the principle components. Descriptive work on absorption and steam jet systems. Analysis of air cycles. Food preservation.
Refrigeration load computations.

References
Tables of Refrigerant Properties. Swinburne College Press
Stoecker, W.F., Refrigeration and Air Conditioning. Tokyo,
McGraw-Hill, 1971
Sparks, N.R. and D'Ilio, C.C., Mechanical Refrigeration.
2nd edn, N.Y., McGraw-Hill, 1959
Eastop, T.D. and Gasiorek, J.M. Air Conditioning through
Worked Examples. Lond., Longmans, 1968
Threlkel, J.L., Thermal Environmental Engineering.
American Society of Heating, Refrigerating and Air-
Conditioning Engineers (ASHRAE), Guide and Data
Book: Fundamentals and Equipment. 2 vols, N.Y., The
Society, 1972

EM444 Refrigeration 2
This part-time subject is for the graduate diploma in
heating, ventilation, air-conditioning and refrigeration. The course amounts to ninety hours including lectures, tutorials, seminars and practical work. Assessment is continuous throughout the course.
The syllabus is comprised of topics selected from complex vapour compression cycles, absorption system analysis, heat, mass, and momentum transfer, cryogenic systems, thermoelectric systems, evaporative condenser and cooling tower analysis, operation of vapour compression systems including detection of common faults.

References
Tables of Refrigerant Properties. Swinburne College Press
Stoecker, W.F., Refrigeration and Air Conditioning. Tokyo,
McGraw-Hill, 1971
Threlkel, J.L., Thermal Environmental Engineering.
Sparks, N.R. and D'Ilio, C.C., Mechanical Refrigeration.
2nd edn, N.Y., McGraw-Hill, 1959
Eastop, T.D. and Gasiorek, J.M. Air Conditioning through
Worked Examples. Lond., Longmans, 1968
American Society of Heating, Refrigerating and Air-
Conditioning Engineers (ASHRAE), Guide and Data Book: Fundamentals and Equipment. 2 vols, N.Y., The Society, 1972

EM451 Project Work
This part-time subject is for the graduate diploma in heating, ventilation, air-conditioning and refrigeration. The course amounts to one hundred and twenty hours of lectures, tutorials, project progress and seminars. Assessment is continuous throughout the course instead of by the traditional single-final examination. The syllabus is similar to that for subject EM351 but is reduced in breadth and depth of treatment.

References
Asimow, M., Introduction to Design. Englewood Cliffs,
Shigley, J.E., Mechanical Engineering Design. N.Y., McGraw-
Hill, 1956
Siegel, M.I., et al, Mechanical Design of Machines. 4th edn,
Scranton, Pa., international Textbook Co., 1965
Faires, V.M., Design of Machine Elements. 4th edn. N.Y.,
Macmillan, 1965
Woodson, T.T., Introduction to Engineering Design. N.Y.,
McGraw-Hill, 1966

EM461 Creative Engineering
This post diploma subject aims at developing the latent abilities of engineers in the solution of open-ended problems. The course amounts to ninety hours including lectures, seminars, discussions and group working. Assessment is continuous throughout the course.
The course is essentially an evaluative one, and leads the participants through the series of techniques and methods which have been developed to aid creative production of alternate solutions. The participants also examine needs analysis, problem analysis, and evaluation, as well as functional aesthetics. Students are encouraged to develop techniques which suit his or her own temperament and abilities. Brainstorming techniques form an important part of the course.

EM462 Human Engineering
This postdiploma subject may be undertaken by graduates from most courses. The course amounts to ninety hours, including lectures, demonstrations, tutorials, seminars and practical work. Assessment is continuous throughout the course. The syllabus topics are similar to those for subject EM362 but the theory is dealt with in a more rigorous manner and the seminar topics are closely allied to the industrial experience of the participants.

References
As per EM3621363 Human Engineering.

EM465 Engineering Art and Behavioural Science
This is an omnibus subject in the mechanical engineering degree course. It contains seven formal disciplines having significant areas based on the arts or the behavioural sciences. Assessment is continuous throughout the course.

Administration
A course of forty hours extending over the last three decaweeks. Studies in some of the economic, financial and organisational factors of administration with particular reference to the ways in which they affect engineers and others in industry and society. Applications particularly to practices in Australia and nearby countries.

References
Massie, J.L., Essentials of Management. 2nd edn, Englewood
Cliffs, N.J., Prentice-Hall, 1971
Turner, B.T., Management Training for Engineers. Lond.,
Drucker, P.F., The Practice of Management. 3rd impr.,
Lond., Pan Books, 1970
Paterson, T.T., Management — a Behavioral Approach. 2nd
dbn, Rockleigh, N.J., Allyn & Bacon, 1970

Fine arts
A course of twenty hours held in the fourth decaweek. This is a beginners’ course in sketching, painting or sculpture, in which the students are encouraged to find and develop their creative abilities.
History & philosophy of industry

This course of forty hours, seeks to encourage the student to be an ongoing self-teacher. To this end the content is selected freely from many sources with a strong psychological and self-development bias. Topics covered include technological and social change and individual adjustment to this change, divergent and convergent thinking, defence mechanisms and early-learning experience, conflict and anxiety, marriage, family and inter-personal relations with applications of the family paradigm to relations in industry. Historical and contemporary treatments of the development of industry, particularly as they affect Australia and neighbouring countries. Philosophical treatment by critical comparisons of various theories as they purport to model industrial practices. Possible extrapolations into the future.

The learning situation will include the use of audio/video and film. Students will be required to deliver a class paper as well as to participate actively in the seminar-type learning situation. Evidence of active reading in mutually agreed areas will be required.

References
Ehrlich, P. and Harriman, R.L. How to be a Survivor. Lond., Pan/Ballantine, 1971
Fuller, R.B. Utopia or Oblivion: the Prospects for Humanity. Lond., Allen Lane, 1970

Science, Conflict and Society — Readings from Scientific American. San Francisco, Freeman, 1969

Human engineering

A course of ninety hours extending over ten decaweeks. Considerations of the human factors in engineering systems. Studies of human characteristics, capabilities and limitations. Conceptual, designing, manufacturing and operational considerations applied to man-machine systems with a view to achieving compatibility between all elements of the system, including the people involved.

References
As per EM362/363.

Industrial economics

A course of forty hours extending over the first two decaweeks. Considerations of alternative ways of controlling economic variables to regulate levels of employment, production and income with particular reference to Australia and nearby countries. Economic aspects of the development and resolution of industrial disputes.

References

Production methods

A course of eighty hours operating in two groups of two decaweeks. Principles of material cutting and forming. Studies of manufacturing methods, machines and systems arising from these and other principles. Principles of measurement and studies of metrological instruments. Applications to selected examples of actual machines, instruments and systems.

References

Work Study

A course of forty hours extending over the first two decaweeks. Considerations of the principles of method study and work measurement. Applications to industrial situations both in the planning and the operational stages with particular reference to practices in Australia and nearby countries.

References

EP101 Engineering Profession

Thirty hours.

Assessment: progressive performance and a report at the end of the project.

Students are introduced to many aspects of their intended profession in order to help them gain a more accurate appraisal of the profession and their possible future role in society. Comprising lectures and visits, the subject is assessed by various assignments.

References
Cooper, R.M. Writing Technical Reports. Pelican, 1964

EP102 Workshop Practice

Forty-five hours.

Students are involved in projects which provide them with the opportunities to use the practices and processes associated with engineering. These include: design, drawing, calculations, manufacturing processes, quality control and testing. Protective clothing (boiler suit) and suitable footwear must be worn during practical sessions. Protective eyewear will be provided.

EP201 Engineering Practices

Fifty-four hours.

Assessment, continuous and a project report.

This is a project subject which is aimed at producing in the student an awareness and respect for the skills involved in the practice of engineering.
EP211 Production Technology
Ninety hours
Assessment: laboratory work assignments and tests (tests to be no more than 5% of total hours)

Basic metrology: basic measurement, principles of measurement, measuring instruments, sources of error, amplifying devices, surface texture assessment, accuracy of determination. Basic theory of metal cutting, chip formation, orthogonal and three-dimensional machining, factors affecting cutting. Machines and manufacturing processes, powder metallurgy. Introduction to plastic deformation.

References
Hume, K.J. Engineering Metrology. 3rd edn. (Metric), Lond., Macdonald, 1970

EP312 As for EM302/303. Production technology

EP315 Production Technology
Fifty-four hours
Assessment: Assignments and tests (tests not greater than 5% of total hours)


References
Johnson, W. and Mellor, P.B. Plasticity for Mechanical Engineers. Lond., Van Nostrand, 1963

EP321 Engineering Administration
Fifty hours
Assessment: satisfactory completion of class assignments and tests

Historical background to industrial management is followed by a brief treatment of the classical management theory. Organisation of enterprises is related to the factors affecting its operation. Financial aspects are introduced – funding, costing, etc. State and Federal legislation affecting industry – arbitration, compensation, labour and industry, etc. Basic psychology is supplemented with the fundamentals of personnel management – leadership, supervision, recruitment.

References
Bytt, W. and Masters, P.R. The Australian Manager. Melb., Sun Books, 1974

EP322 Engineering Administration
Thirty hours
Assessment: by tests and assignments

Brief outline of the development of modern management theory and practices; organisation of enterprises – their needs and their structures. Elements of human behaviour and the fundamentals of leadership and supervision. Financial aspects are introduced – funding, corporate liability, costing, etc. Contract law fundamentals.

References
Bytt, W.S. and Masters, P.R. The Australian Manager. Melb., Sun Books, 1974

EP325 Industrial Management
Fifty-four hours
Assessment: by test and class assignments

Managerial economics – financial management of assets; profit/volume relationships; product and investment appraisal: the Australian environment. Accounting – costing, budgeting; the balance sheet: the profit and loss account: analysis of performance. Philosophy and psychology in industry – environmental and hereditary influences; relationship to the personnel function with particular reference to Australia.

References
Savage, C.L. Introduction to Managerial Economics. Lond., Hutchinson, 1967
Mathews, R.L. The Accounting Framework. 3rd edn, Melb., Cheshire, 1971

EP326 Engineering Administration
Thirty hours
Assessment: test and assignments


During the industry training semesters, students may attend group seminars, but will be provided with printed notes and other reference material to enable them to complete the subject externally by assignments.

References
As for EP322.
EP331 Industrial Engineering
Sixty hours
Assessment: by test and class assignments
Work study: history and origins; applications and objectives of: human aspects; definitions and terminology. Work simplification: method study; techniques of recording; principles of motion economy; applications and objectives of co-ordination with work measurement. Work measurement: relationship with method study; techniques used to obtain standard and allowed times; work unit values; rating procedures; application of allowances. Application of work study to: planning; scheduling; loading, plant layout; materials handling, etc. Labour cost controls; incentive schemes; plant utilisation and efficiency; job evaluation.

References
Dales, H.E. Work Measurement. Lond., Pitman, 1972

EP332 Industrial Engineering
Sixty hours
Assessment: by test and class assignments
Production management as related to the manufacturing process: factors of; management techniques; methods of production; planning procedures; processes of control; design and control procedures; costing procedures; analysis and interpretation of procedures; machine selection and replacement procedures; discounted cash flow techniques. Modern trends; principles of automatic controls; effects of automation; computer control of production; introduction to operational research techniques as applied to production; network planning techniques.

References

EP335 Industrial Engineering
Fifty-four hours
Assessment: by test and class assignments
A study of the principles and techniques of methods study and work measurement, human engineering and value analysis. The course will consider classical work study techniques and their application in industrial situations generally and production management in particular. Allied topics such as incentives, job evaluation and labour costs control are incorporated. Theoretical lecture work will be complemented by selected films, discussion and suitable practical work.

References
British Standards Institution. BS3138: Glossary of Terms in Work Study.
Dales, H.E. Work Measurement. Lond., Pitman, 1972
Whatmore, D.A. Work Study and Related Management Services. 2nd (decimal currency) edn, Lond., Heinemann, 1970

EP334 Production Design
Sixty hours
Assessment: by tests and assignments
Production standards, costs consideration of tolerances; preferred sizes; standardised components; economics. Geometric tolerancing; length, position, form, roundness, tapers, profiles. Functionality: requirements, assemblies, datums, extremes, allowances for processing. Component design to suit manufacturing processes. Gauging and inspection techniques. Statistical tolerancing. Elementary jig and fixture design. Component distortions, basic design principles, basic design design.

References
British Standards Institution. BS4500: ISO Limits and Fits. 1969-1973
BS308: Engineering Drawing Practice. 1972
Standards Association of Australia. AS B195: Plain Limit Gauges. Limits and Tolerances. 1962
American Society of Tool and Manufacturing Engineers (ASTME). Tool Engineers Handbook. 2nd edn, N.Y., McGraw-Hill, 1959

EP335 Design for Manufacture
Ninety hours
Assessment: tests, assignments and projects

References
Thomas, L.F. The Control of Quality. Lond., Thames & Hudson, 1965
British Standards Institution BS4500: ISO Limits and Fits. 1969-73
BS308: Engineering Drawing Practice. 1972
Standards Association of Australia. AS B195: Plain Limit Gauges. Limits and Tolerances. 1962
American Society of Tool and Manufacturing Engineers (ASTME). Tool Engineers Handbook. 2nd edn, N.Y., McGraw-Hill, 1959

EP356 Design for Manufacture
117 hours
Assessment: tests, assignments and project

References
As for EM354 and EP354 plus
Grant, H. Jigs and Fixtures -- non standard clamping devices. N.Y., McGraw-Hill, 1973

EP411 Production Technology
One hundred and forty hours (including laboratories and project)
Assessment: assignments, tests and project

References
Details of references will be given by lecturers.

EP414 Systems Engineering
Fifty-four hours
Assessment: by tests and assignments
(a) Basic control theory: definition; classical and modern control theory, linear and non-linear systems, open-loop and closed-loop systems, lumped parameter systems, distributed parameter systems, stationary and stochastic systems, sampled-data systems, optimal systems. Analysis of linear systems using s-plane theory and frequency response methods: Root-locus, Nyquist diagrams and Bode plots.
(b) Applications: computer process control; modelling, system identification and optimisation.

Production control system: processing, operations planning, inventory planning and control, process scheduling, despatching and progress control.

References
Elmaghraby, S.E. The Design of Production Systems. N.Y., Reinhold, 1966

EP415 Production Technology
Sixty-three hours
Machine tools: modern capability, functional requirements, assessment of static and dynamic characteristics. Introduction to machine tool vibration. Deformation mechanics: further study of chip formation tool life and testing, machineability, economic factors, analytical models. In-depth study of mathematical models and slip line field to forming and cutting. Relationship to industrial processes.

References

EP421 Applied Statistics and Operational Research
Sixty hours
Assessment: by test and class assignments
Statistics: frequencies distribution; distribution of means, confidence levels and tests for significance; probability theory, quality control, Operational research; origins and history of general principles and techniques as applied to management; mathematical programming; linear programming; inventory control techniques; queuing theory; simulation; replacement theory, network analysis.

References
Hansen, B.L. Quality control theory and applications. Englewood Cliffs, Prentice-Hall, 1963

EP422 Engineering Administration

Sixty hours

Assessment: by tests and class assignments

Organisations and management: historical survey; types and purposes of organisations; roles of management. Organisation structures and relationships to planning; directing, communicating and controlling. Organisation structures: division of labour; job definitions; departmentalisation. Functions and relationships between departments. Functions in industry; financial forecasting; control of production; materials supply; personnel management; work study. Industrial legislation: historical survey. Federal and State legislation; workers compensation, wage systems.

References
Byrt, W.J. and Masters, P.R. The Australian Manager. Melb., Sun Books, 1974

EP423 Financial Aspects of Industrial Management

Sixty hours

Assessment: by examination and class assignments


References
Mathews, R.L. The Accounting Framework. 3rd edn, Melb., Cheshire, 1971

EP424 Human Relations in Industry

Sixty hours

Assessment: by examination and class assignments

General psychology and the individual, awareness and interpretation of the environment; motivation and behavioural patterns; morale; group leadership. Industrial relations machinery; trade unions; employees’ associations, conciliation and arbitration: collective bargaining. Job enrichment and participation.

References
Humble, J.W. Management by Objectives. Lond., Gower Foundn., 1972
Drucker, P.F. Management: Tasks, Responsibilities, Practices. Lond., Heinemann, 1974
Yull, B. Developing Managers in Organisations. Syd., Wesley, 1975

References
Fraser, J.M. Psychology: General Industrial, Social. 3rd edn, Lond., Pitman, 1971

EP425 Legal Aspects of Industrial Management

Sixty hours

Assessment: by a three-hour examination

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.

References
Sykes, E.J. The Employer, the Employee and the Law. 3rd edn, Syd., Law Book Co., 1973
Keating, D. Law and Practice of Building Contracts, including the Law Relating to Architects and Surveyors. 3rd edn, Lond., Sweet & Maxwell, 1969

EP426 Management Practice

Ninety hours

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

The subject 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, lecturettes, 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 placed on marketing and personnel aspects not covered in the course.

References
Faculty of Engineering

EP431 Production Management
Sixty hours
Assessment: by examination and class assignment

Aspects of production management as related to the manufacturing process. Production: factors of; management techniques; methods of production; processes of control; documentation and control procedures; costing procedures and analysis of; planning procedures; machine selection and replacement. Modern trends: principles of automatic controls; effects of automation; computer control of production; operational research techniques as applied to production. Group technology

References
Buffa, E.S. Modern Production Management. 4th edn, N.Y., Wiley, 1973

EP432 Work Study
Sixty hours
Assessment: by examination. Satisfactory completion of class assignments will be taken into account

History, principles and objectives of work study. Method study and work simplification — techniques and applications. Work measurement — techniques and applications. The course will include a brief appreciation of allied topics — plant layout, wage incentives, job evaluation, etc.

References
British Standards Institution. BS3138: Glossary of Terms in Work Study
Barnes, R.M. Motion and Time Study. 6th edn, N.Y., Wiley, 1968
Whitmore, D.A. Work Study and Related Management Services. 2nd (Decimal currency) edn, Lvd., Heinemann, 1970

EP433 Industrial Engineering
One hundred and twenty hours
Assessment: by test and class assignment

As for Industrial Engineering (EP331) and (EP332), Taken by students in the fourth year of the cooperative program for the diploma of production engineering.

References
Same as for EP331 and EP332

EP434 Management of Men
Sixty hours
Assessment: by test and class assignments

General psychology and the individual: awareness and interpretation of the environment; motivation and behaviour patterns. Industrial psychology; individual differences; selection of employees; training: physical conditions of work. Social psychology; psychology of groups; behaviour patterns; morale; group leadership. Industrial relations machinery; trade unions; employers' associations; conciliation and arbitration; collective bargaining. Job enrichment and participation.

References
Maier, N.R.F. Psychology in Industry. 3rd edn, Boston, Houghton Mifflin, and Harpan, 1965
Fraser, J.M. Psychology: General, Industrial, Social. 3rd edn, Lvd., Pitman, 1971

EP435 Physical Distribution Management
Sixty hours
Assessment: assignments, case studies and tests

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.

References
Sassams, J.E. Industrial Logistics. Lond., Gower Press, 1971
Attwood, P.R. Planning a Distribution System. Lond., Gower Press, 1971
Gilmour, P. ed. Physical Distribution Management in Australia. Melb., Cheshire, 1974

EP436 Environmental Studies
Sixty hours
Assessment: by project and examination

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 of Growth. . Lvd., Earth Island, 1972

EP451 Production Design
One hundred hours
Assessment: by assignments, tests and project work

References
Thomas, L.F. *The Control of Quality*. Lond., Thames & Hudson, 1965
British Standards Institution *BS4500: ISO Limits and Fits*, 1960-73
BS308: *Engineering Drawing Practice*. 1972
Standards Association of Australia. *Sampling Procedures and Tables for Inspection by Attributes*. 1972

**EP526**
Assessment: by tests and class assignments
Subject chosen by the student group from subjects offered by other departments, including art, business and arts.

**EP535** **Industrial Engineering**
Fifty-four hours
Assessment: by tests and assignments
A study of the principles and practices of the planning and control function in production organisations with particular emphasis on the use of quantitative and analytical procedures for the solution of problems. The range of problem areas will include plant location, plant and factory layout, transportation, maintenance, equipment replacement, economic batch sizes, network planning, resource allocation, stock control, line balancing and machine interference. Theoretical lecture work will be complemented by selected films, discussions and suitable practical work.

**References**

**EP555** **Design for Manufacture**
Ninety hours (includes a thirty six hour project in industry)
Assessment: tests, assignments and project
Automation in manufacture, theory and practice; linear, sequential, closed loop, open loop, electrical, mechanical, pneumatic, hydraulic systems. Industrial applications; new and modernised plant. Design of machine tools and presses, kinematics, motion analysis, dynamics. Design of elements; stiffness and rigidity, bearings and slides. Optimisation of parameters in design. Computer-aided design; use of computers in engineering analysis and design, simulations.

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EP556 Manufacturing Systems
One hundred and forty-four hours
Assessment: project report
Designed to give an interdisciplinary approach towards the application of relevant knowledge from the whole field of production engineering to the establishment of a manufacturing system. It is intended that students should prepare for this subject during their last period in industry. Wherever possible, students are expected to apply their knowledge to the study of a genuine industrial case. This work, which will be assessed, may also include an applicable experimental project.

GS195/6 General Studies
(Man and his environment)
Two hours per week for two semesters
Assessment is continuous
A first year subject for all engineering students. The course is an interdisciplinary study of the individual's development and role in an urban/industrial society. The student is also introduced to a comparative study of scientific method and the techniques and skills of the social sciences, as a means of broadening the capacity to handle social questions and social issues which impinge on the decisions of a trained technologist.

The program falls into two parts:
1 Man and his relationships
This part considers the institutions which have fashioned our society and the relation of the individual to political, economic and social institutions in the urban/industrial society.

The family, marriage and other matters of sexuality and the relationships of the two sexes is considered in the light of social norms and conditioning factors experienced, in varying degrees, by all members of our society.

2 The urban industrial society
On the basis of the study of the individual in the first semester, the second semester is concerned with the individual in an industrialised society. An analysis is made of the city in history and its relation to industrialisation, capitalism and the process of economic growth. World population growth and its impact on Australia and the influence of population growth and technological development is considered, along with immigration to Australia in the post 1939–45 era. A case study will also be made of the role of the labour movement in the industrial society.

The social implications of urban/industrial living is looked at in the recent social dysfunction study of metropolitan Melbourne by the MMBW.

Students are also given some insight into the psychological implications of urbanisation on individual life styles. Anxiety-producing situations are reviewed, and the student is shown how people often adapt to the environmental situation by aggression, or by withdrawal, or through drugs.

The program is concluded with a look at the major characteristics of the modern Australian society, and the way in which these characteristics affect the individual citizen.

GS293 General Studies
Three hours per week for eighteen weeks
Assessment is continuous

A second year subject for production engineering students. Contemporary society demands specialisation of employment in respect of the individual. The aim of this course is to introduce the student to the various concepts surrounding employment in a modern industrial society. As a result of this introduction the student will be aware of the necessity for an interdisciplinary approach to industrial affairs.

Areas to be covered in this course are:
(i) Industry – community relations
(ii) Specialisation of labour
(iii) Minority groups in industry – women, migrants, disabled
(iv) Behaviour of work groups – the Hawthorn experiments
(v) Industrial democracy – trade unions, employer groups, industrial conflict.

GS295/6 General Studies
Two hours per week for two semesters
Assessment is continuous
A second year subject for civil and electrical engineering students. Sometimes GS292 for certain students. A similar course is undertaken by mechanical engineering students (refer EM261/262).

Students may choose an elective from the following areas of study, subject to the availability of staff and suitable time-table arrangements.

1 Introduction to international relations
The aim of this course is to introduce students to the role of Australia in international politics; this will be done by the study of the theoretical aspects of foreign policy formation and conduct. Once this theoretical conceptual framework is established, the following areas will be studied (this will enable contemporary issues to be discussed).

(i) Australia’s relationship with the USA, USSR, Japan and China
(ii) Australia and South-East Asia
(iii) Australia and New Guinea
(iv) Australia and the South-West Pacific
(v) Australia and the Indian Ocean with emphasis on the Soviet naval presence and our relations with the Western littoral states of the Indian Ocean.

2 Industrial sociology
The course is designed to give students an understanding of the nature and processes operating within industry.

The first part of the course covers the rise, growth and development of industrial society. Topics covered include the relationships between industry and society, as well as the structure and functioning of work organisations.

The second section covers a smaller field, concentrating on relationships between employer/employee.

Topics covered include industrial conflict, structure of unions and employer organisations, nature of industrial relations and their mediation in Australia. Particular reference is paid to Australian labour relations readings.

Recommended reading
Miller, D. and Form, F. Industrial Sociology, Harper and Rowe, 1975

3 Politics of law and order

Faculty of Engineering
Law and order encompasses the main issues and problems to which politicians refer when campaigning on a law and order program; violent crime, police powers, demonstrations, drugs, pornography and punishment.

It is intended that within this course the student will study the function of police in a democratic system. Within the law and order debate, the police occupy a crucial position and as the law changes so do the methods of policing. An examination will be made of the relationships between politics, the law, the police and society.

1 Law and order

Law and order encompasses the main issues and problems to which politicians refer when campaigning on a law and order program; violent crime, police powers, demonstrations, drugs, pornography and punishment.

2 Study of the police

It is intended that within this course the student will study the function of police in a democratic system. Within the law and order debate, the police occupy a crucial position and as the law changes so do the methods of policing. An examination will be made of the relationships between politics, the law, the police and society.

3 Examinations

As community values change so then the law changes and as the law changes so do the methods of policing. An examination will be made of the relationships between politics, the law, the police and society.

4 Psychology

The course will deal with the following areas: learning, motivation, personality and the individual in society. Emphasis will be placed on the practical application of the psychological principles involved.

Recommended reading

Krech, D., Crutchfield, R.S. and Livson, N. Elements of Psychology. 3rd edn, N.Y., Alfred A. Knopf, 1974

5 Australian studies

In the 1960s Donald Horne saw Australia as the lucky country, the yottical events of November 1975 changed his view. Others have analysed Australia and Australians in a different way. The course is designed to review events in Australian history which have formed the basis of our culture and the forces which have contributed to what we might call the characteristics of Australia and Australians. In seeking an explanation of the structure of our society, students will be encouraged to analyse and perhaps better understand the political, economic and social development which have built the Australian society. Some time will also be devoted to Australia's overseas relations.

Recommended reading


6 Australia and developing countries

The 'developing societies', also known as 'emerging', 'underdeveloped' or 'backward' countries, or 'the third world', can be arbitrarily defined as those with an average annual per capita income of $200 or less, approximately ten times lower than that of Australia, Canada, Sweden or the United States.

They comprise some two-thirds of the human race, and are located in Africa, Asia and the Western Hemisphere south of the United States. Their growing dissatisfaction with their poverty and their relations with the industrially developed countries have been the source of both increasing domestic turmoil and international friction. One of the most critical problems facing the whole of humanity today is that of substantially alleviating, if not eliminating, the stresses which are currently threatening to reach explosive levels in many developing societies.

The origin, nature and 'cure' of underdevelopment is the general topic of this course. It will be conducted in seminar form and therefore will involve the active participation of students.

GS395 Report Writing

One hour per week for two semesters

Assessment is continuous

Outline of syllabus:

1 The use of the resources, facilities and services of a modern, technical library.

2 The compilation of topic bibliographies and the evaluation of information sources.

3 The collection, collation, organisation and representation of research information, and its interpretation in the light of the students' own findings and opinions.

4 The presentation of written and oral reports on technical topics, in accordance with the format, style and conventions required by the appropriate professional body.

5 The technical topic chosen will, in some cases, be an investigation carried out as part of the practical course for final year.

Recommended reading

Kreger, Effective Speaking, van Nostrand, 1970


Wld. Preparing Effective Reports. Odyssey, 1967

GS493 General Studies

Three hours per week for fifteen weeks

Assessment is continuous

A fourth year subject in the degree course in production engineering. The course seeks to encourage the student to be an ongoing self-learner. To this end the content is eclectic with a strong psychological and self-development bias. Topics covered will include technological and social change and individual adjustment to this change, divergent and convergent thinking, defence mechanisms and early-learning experience, conflict and anxiety, marriage, family and inter-personal relations with application of the family paradigm to relations in industry.

The learning situation will include the use of audio/video and film. Students will be required to deliver a class paper as well as to participate actively in the seminar-type learning situation. Evidence of active reading in mutually agreed areas will be required.

There is no prescribed preliminary reading.

MT124/125 Engineering Materials

Three hours per week for two semesters

The solid state, phase relationships, equilibrium diagrams, deformation, fracture, strengthening mechanisms, materials processing, applications of engineering materials, electrical materials, testing.

References


MT128/129 Engineering Materials

Three hours per week for two semesters

The solid state, phase relationships, equilibrium diagrams, deformation, fracture, strengthening mechanisms, materials processing, polymer reactions and compounding, polymers, ceramics, metals, testing.
References
See MT124/125

MT131/132 Engineering Materials
Three hours per week for two semesters
The solid state, phase relationships, equilibrium diagrams, deformation, fracture, strengthening mechanisms, materials processing, polymers, ceramics, metallic materials, testing.

References
See MT124/125

MT221 Materials Science and Corrosion
Three hours per week for one semester
Phase relationships and equilibrium diagrams, polymer structures, practical heat treatments, deformation and fracture, corrosion, joining processes, alloy and stainless steels, polymer compounding and fabrication.

References
See MT124/125

MT222 Engineering Materials – Part-time
Three hours per week for two semesters
Prerequisite, MT131/132 Engineering Materials
Ferrous metals, welding and joining, polymer compounding and fabrication, composite materials, light materials, electrical materials, magnetic materials, corrosion, lubrication, bearing and friction materials, fracture, materials specification.

MT223 Engineering Materials
Four hours per week for one semester
MT128/129 Engineering Materials
Ferrous metals, welding and joining, polymer compounding and fabrication, composite materials, light materials, electrical materials, magnetic materials, corrosion, materials specifications, friction, lubrication, bearing and friction materials, mechanical forming.

MT231/232 Engineering Materials – Part-time
Three hours per week for two semesters
The solid state, phase relationships and equilibrium diagrams, deformation and fracture, materials processing, polymeric materials, ceramic materials, concrete, corrosion, forming, welding and joining, metallic materials testing.

References
See MT124/125

MT325 Welding Technology
Two hours per week for one semester

MT415 Materials Technology
Plastics – Compounding and compounding techniques, vulcanisation, forming, extrusion, injection moulding, compression moulding, transfer moulding, blow moulding; rotational moulding, calendaring, coating techniques, sheet and vacuum forming, film manufacture, decoration.
Metals – Casting, hot working, cold working, heat treatment.

Ceramics – Casting, hot pressing, cold pressing, extrusion, calendering, equipment types, specialised techniques.

Faculty of Engineering

MT515 Materials Technology
Joining processes – plastics, ceramics, metals.
Fibre reinforcement – short fibres, long fibres, filament winding, woven mat products.
Expanded plastics.
Waste handling.
Materials specification for design. Composite and advanced ceramics.
Statistics and quality control.

SC125/126 Chemistry
Eight hours per week for two semesters
Four hours lectures, one hour tutorial, three hours practical
Assessment is based on two three-hour examinations, practical work and assignments
A first year subject in the diploma course in chemical engineering.

Physical chemistry
Descriptive approach to atomic structure, molecular structure and bonding with examples from organic and inorganic chemistry.

Gases – ideal and real.
Thermodynamics – first law and enthalpy, thermochemistry, reversible and irreversible processes, entropy, free energy as a criterion of equilibrium.
General discussion of chemical equilibria.
Electrochemistry – conductance, cell reactions, electrode potentials, Nernst equation, application of cells, electrolysis.
Kinetics – experimental rate laws and mechanisms.
Phase equilibria – one component systems.

Inorganic chemistry
Electronic configuration and the periodic table.
General trends in properties of the elements and their compounds. Survey of the chemistry of groups I to VII and the first transition series with emphasis on industrially important reactions. Complexes of metal ions, factors affecting stability and applications in analysis and extractions. Equilibria in aqueous solutions – acid-base and solubility product calculations, and the chemistry of the group separations.

Application of electrochemistry to analysis and metal extractions.

Organic chemistry
Introduction. IUPAC naming, structure, homologous series, isomerism.
Preparation, reactions and uses of the following classes of compounds: alkanes, alkenes, alkynes, benzene and aromatic hydrocarbons, alkyl, aryl halides, alcohols, phenols, carbonyl compounds, carboxylic acids and amines.
Introduction to polymers.

References
Barrow, G.M. Physical Chemistry. 2nd edn. N.Y., McGraw-Hill, 1966

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SC227/228 Chemistry
Eight hours per week for two semesters
Four lectures, four hours practical
A second year subject in the diploma course in chemical engineering in which specialised areas of physical, organic, and analytical chemistry are studied on the unified system, incorporating industrial applications wherever possible.
The practical course is designed to give students experience in a wide range of applications. Part-time students may have their practical course modified to suit their employment.
References
Refer lecturer in charge
SC327/328 Chemistry
Five hours per week for two semesters
Two hours lectures, one hour tutorial, two hours practical
Prerequisite, SC227/228 Chemistry
Assessment is by examination and classwork
A final year subject in the diploma course in chemical engineering. Aspects of chemistry studied include the investigation of the principles and feasibility of chemical reactions as proposed, or used, in chemical processes, and chemistry relevant to process control. Topics are, statistical mechanics, kinetics, surface and colloid chemistry, radio and radiation chemistry, spectroscopy and electrochemistry. Including a more advanced study of corrosion. Practical work is done in conjunction with the Chemical Engineering Department.
Recommended reading
Bochris and Drazic, Electrochemical science. Taylor and Francis
Laidler, Chemical kinetics. N.Y., McGraw-Hill
Rushbrook, Statistical mechanics. Oxford
Sangster and O'Donnell, Principles of radiation chemistry. Edward Arnold
SC571 Biology
Three hours per week for two semesters
A subject in the graduate diploma course in biochemical engineering in which the following areas are studied:
Cell biology; basic features of major plant and animal groups; genetics; evolution; ecology.
References
Refer lecturer in charge
SC572 Microbiology
Three hours per week for two semesters
Practical work for this subject must be taken by students taking the graduate diploma course in biochemical engineering. All students should have passed SC582 Engineering Biochemistry or be studying it concurrently
Assessment is made on the basis of a final examination
This subject is designed to provide basic instruction in the techniques and methods of microbiology. Areas covered include microscopy, sterilisation and antisepsics, microbial anatomy, physiology and growth, and systematics. Basic material is developed to illustrate the use of microorganisms in processes such as fermentation, food processing and analysis, antibiotic assays, cheese production and other selected aspects of microbiology relevant to Australian industry. Practical work is designed to show the essential features of each of the above areas. Emphasis is placed on developing the manipulative skills required to handle microbes and to maintain sterile conditions.
References
SC582 Engineering Biochemistry
Three hours per week for two semesters
Practical work associated with this subject is not taken by students taking the graduate diploma course in biochemical engineering. Assessment is based on semester examinations and assignments
A subject in the graduate diploma course in biochemical engineering in which the following areas are studied:
Bioenergetics; structure-function relationships of biological compounds; catabolic and enabolic pathways; integration of metabolism; enzyme kinetics; fermentation biochemistry; industrial enzymes; industrial genetics.
References
SC583 Physical Biochemistry
Two hours per week for two semesters
Prerequisite, SC582 Engineering Biochemistry
Assessment is made by final examination and assignments throughout the year
A subject in the graduate diploma course in biochemical engineering which is intended to give an understanding of the basic theory of several techniques and to apply these to biochemical problems. Topics covered include molecular weight determination, optical rotatory dispersion, X-ray crystallography, spectroscopy, isotopes and enzyme kinetics.
References
SK227 Computer Programming
One hour per week for one semester
Fifteen hours practical programming work Assessment is by assignment
A second year subject in the degree and diploma courses in engineering. It is an introductory course in computer programming designed to enable the student to appreciate
and write programs to solve simple problems in the various disciplines of engineering. The subject involves the use of either BASIC or FORTRAN IV as a programming language. Students will be expected to complete several programming assignments as an integral part of the course.

Textbooks

**SK327 Computer Programming**

One hour per week for one semester
Thirty hours practical programming work
Prerequisite, SK227 Computer Programming
Assessment is by tests and assignment

A subject in the third or fourth year of the civil engineering degree course which covers advanced aspects of the FORTRAN programming language including sub-programs, non-numeric applications and file handling on magnetic media. The course is strongly practical and work-oriented and students will be expected to devise suitable programming projects which are connected with their course of study.

Textbooks

**SK427 Computer Applications**

Three hours per week for one semester
Practical programming work
Prerequisite, SK227 Computer Programming
Assessment is by tests and assignment

A fourth year subject in the degree course in production engineering which consists of a selection from: algorithms and algorithmic processes, advanced FORTRAN programming; an introduction to COBOL programming, special purpose languages numerical control of machine tools, process control and simulation: the use of linear programming, PERT, Monte Carlo, dynamic programming and other techniques in the resolution of engineering design problems.

Textbooks
Suitable textbooks and general reading will be advised during the lectures

**SK527 Computing Techniques**

Three hours per week
Practical programming work
Assessment is by tests and assignment

An optional subject in the graduate diploma course in industrial management which consists of a selection from: algorithms and algorithmic processes, advanced FORTRAN programming; an introduction to COBOL programming, special purpose languages numerical control of machine tools, process control and simulation: the use of linear programming, PERT, Monte Carlo, dynamic programming and other techniques in the resolution of engineering design problems.

Textbooks
Suitable textbooks and general reading will be advised during the lectures

**SM105 Mathematics**

Four hours per week for one semester
Assessment is continuous

A first year subject in all engineering degree and diploma courses which is taken in the first semester.

The syllabus covers the calculus of functions of one real variable, partial differentiation, first and second order differential equations.

Textbook
Study notes are available

**SM106 Mathematics**

Four hours per week for one semester
Prerequisite, SM105 Mathematics
Assessment is continuous

A first year subject in all engineering degree and diploma courses which is taken in the second semester.

The syllabus covers partial differentiation with applications, linear algebra and statistics.

Study notes are available

**SM204 Mathematics**

Fifteen hours for one semester
Assessment is progressive and is based on a series of tests and assignments spaced throughout the semester

A second year subject in degree and diploma courses in engineering (except production engineering). This subject gives an introduction to numerical methods of solution of a variety of mathematical problems including iterative and relaxation methods of solution of simultaneous equations, synthetic polynomial division equations and Newton’s method of solving equations, inversion of matrices and solution of first order differential equations. Competence in the use of electronic calculators is necessary, including an appreciation of errors and error determinator. Some of the problems to be solved by use of the mini-computer.

References

**SM205 Mathematics**

Four hours per week
Prerequisites, SM105 and SM106 or equivalent
Assessment is continuous

A second year subject in degree and diploma courses in engineering (except production engineering). Topics will include: multiple integration, Fourier Series, partial differential equations, Laplace transforms, Beam theory.
SM206  Mathematics
Four hours per week
Prerequisites, SM105 and SM106 or equivalent
A second year subject in degree and diploma courses in engineering (except production engineering). Topics will include statistics, vector calculus, matrices, Boolean algebra.

SM209  Mathematics
Seventy-two hours for one semester.
Prerequisites, SM105/106 Mathematics
A second year subject in the degree and diploma courses in production engineering. Topics will include: multiple integration, gamma, beta and error functions, Fourier series and transforms, Laplace transforms, solution of partial differential equations by separation of variables, linear algebra, eigenvalue problems, classical optimisation problems and Kuhn-Tucker theory, the bivariate normal distribution and a review of formal logic.

Recommended reading
Kreyszig, E. Advanced Engineering Mathematics. 3rd edn, Wiley

Textbooks
Any of the first three under the above heading together with the fourth.

SM303  Mathematics
Two hours per week for two semesters
Prerequisites, SM205/206 Mathematics
A subject in the third or fourth year of the civil engineering degree course covering the following:
(a) operations research: queueing theory and its application to traffic flow and traffic control, linear programming, the simplex algorithm and transportation problems.
(b) numerical mathematics: numerical techniques for the solution of linear algebraic equations, initial and boundary value problems involving ordinary and partial differential equations.

References
Weinslock, A. Elements of Ordinary Differential Equations. Holt
Rabenstein, Introduction to Ordinary Differential Equations. Academic

SM313  Mathematics
Four hours per week for one semester
Prerequisites, SM201, SM202, SM204 or equivalent
Assessment by tests throughout the semester and/or a written examination

A subject in the third or fourth year of the civil engineering degree covering the following:

Preliminary reading
A list is available from the Department of Mathematics

References
Kreyszig, Advanced Engineering Mathematics. Wiley
Weinslock, Calculus of Variations. McGraw-Hill
Hilderbrand, Advanced Calculus for Applications. Prentice-Hall
Brand, Differential and Difference Equations. J. Wiley
Pennisi, Elements of Ordinary Differential Equations. Holt
Rabenstein, Introduction to Ordinary Differential Equations. Academic
SM317 Engineering Mathematics
Four hours per week for one semester
Prerequisites, SM205/206 Mathematics or equivalent
Assessment by examination at end of semester
A third year subject in the electrical engineering degree course consisting of a selection of topics from:

References

SM402 Mathematical Methods
Forty-five hours for one semester
Prerequisites, SM209 and SM305
Assessment is continuous and/or by examination
A fourth year subject in the degree course in production engineering. Topics will include selections from: linear programming, integer programming, quadratic programming, dynamic programming, calculus of variations and other optimisation techniques.

Recommended reading
Hillier and Lieberman, Introduction to Operations Research, Holden-Day

Textbook

SM418 Engineering Mathematics
Two hours per week for one semester
Prerequisite, SM317 Mathematics
Assessment by examination at end of semester
A fourth year subject in the electrical engineering degree course consisting of the following: functions of a complex variable, conformal mapping, application to potential problems, inversion of Laplace transforms. Linear algebra, stability, application to control theory.

References

SM515 Mathematics
Two hours per week for one semester
Prerequisites, SM313 and SM314
Assessment: students are required to perform prescribed tests involving reading and reporting in the area of the syllabus. Assessment is based on these reports. Students are expected to give a talk on one of the above areas
An elective subject in the fifth year of the civil engineering degree course.
Classical optimisation techniques, linear and non-linear programming and calculus of variations. The syllabus is flexible to the extent that other topics may be covered (e.g. network theory) according to student requirements.

Preliminary reading
Duckworth, Operations Research. C.U.P.
Moore, Basic Operational Research. Pitman
Singh, Great Ideas of Operations Research. Dover

References
Gee and Thomas, Mathematical Methods in Operations Research. Macmillan
Spivey and Thrall, Linear Optimization. Holt, Rinehart
Craggs, Calculus of Variations. G. Allen and Unwin

SM516 Mathematics
Two hours per week for one semester
Prerequisites, SM313 and SM314
Assessment: students will be required to submit worked problems and engage in group discussion throughout the semester
An elective subject in the fifth year of the civil engineering degree course.
The main theme of the course is the application of the methods of classical applied mathematics to some specific area of engineering, for example, fluid mechanics and/or elasticity. The mathematical techniques which are applied include advanced vector analysis, potential theory, complex variable theory, and partial differential equation theory.

Preliminary reading

References
Mare, Continuum Mechanics. Schaum, McGraw-Hill
Rutherford, Fluid Dynamics. Oliver and Boyd
Sokolnikoff, Mathematical Theory of Elastcity, McGraw-Hill
Little, Elasticity. Prentice-Hall
Volterra and Gaines, Advanced Strength of Materials. Prentice-Hall
Washizu, Variational Methods in Elasticity and Plasticity. Pergamon

SM571 Mathematics
Four hours per week for one semester
Prerequisites, SM317 and SM418
Assessment is continuous and/or by examination
A fifth year subject in the degree course in electrical engineering. Topics will include selections from: revision and extension of probability theory and statistics, methodology of operations research. problem definition model building and evaluation, linear programming, network
analysis, dynamic programming, queueing theory, inventory theory, Markov chains, simulation, case studies, problem-solving in engineering.

**Recommended reading**


**Textbook**


**SP103/104 Physics**

**SP103** 60 hours for one semester
- 48 lectures – 6 practical sessions
  - Assessment by examination of theory and continuous assessment of practical work

**SP104** 45 hours for one semester
- 33 lectures – 6 practical sessions
  - Assessment by examination of theory and continuous assessment of practical work

A first year subject in degree and diploma courses in engineering (except chemical engineering). The subject consists of two units, **SP103** and **SP104**, each of one semester duration. The units must be taken in separate semesters.


**References**


**SP303 Engineering Physics**

30 hours for one semester
- Assessment is by examination and assignment


There is no prescribed text

**SP404 Engineering Physics**

30 hours for one semester
- Assessment is by examination and assignment

Swinburne Technical College
— Technical and further education
Swinburne Technical College

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Michele Scott-Watson, DipArt
Richard Synott, STB
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Introduction

Swinburne Technical College offers a variety of vocational courses. Some of this training may be concurrent with an apprenticeship.

Certificate of Technology and Technician courses have been established in a number of areas and their scope is being extended. In most cases, tradesmen may enter these courses provided educational requirements are satisfied. Entry may be from form five and six levels, but mature-age entry is always considered.

Preliminary Year (Tertiary Orientation) and Certificate of Business Studies courses may also be taken on a full-time or part-time basis.

An entrant to a trade should seriously consider commencing a technician course in conjunction with apprenticeship training, as the completion of a technician course provides increasing possibilities for advancement.

Special short courses can also be arranged at the request of industry and community groups.

Application procedure

Entrance requirements

Apprenticeship courses

To be eligible to enter an apprenticeship in any of the trades for which a course is offered at Swinburne, a candidate should be at least 15 years old and have completed form three in a technical school with passes in the appropriate subjects, have passed a course equivalent to form three at a technical school, or have been accepted by the Industrial Training Commission as being educated to a standard sufficient to enable procedure with the subjects comprising the first year of the relevant course.

To enable candidates who have left school before reaching the standard of education required to commence an apprenticeship, some eastern suburbs regional colleges and schools provide a qualifying course. This course entails instruction in mathematics, drawing, science and English.

Having selected a trade, a candidate should:

1 Apply to the Industrial Training Commission, 200 Little Collins Street, Melbourne, 3000, for a certificate of qualification to enter into an apprenticeship.
2 Obtain work with an appropriate employer.
3 Serve a probationary period at the trade, then sign an indenture of apprenticeship.
After entering into the indenture the Industrial Training Commission will advise the apprentice and the college of the course of study to be undertaken.

Technician courses
The usual academic requirements for entry to a technician course are passes at form four level in
English
Mathematics
Science
Applications for entry to a technician course should be made directly to the head of the department which offers the particular course.

Certificate of Technology Courses
The usual academic requirements for entry to a Certificate of Technology course are passes in technical Leaving English, general mathematics (technician), technical science 'A', technical drawing 'A' and an approved course in workshop practice. Metallurgy IT is also a prerequisite for entry into the Certificate of Technology (Mechanical).

Application for entry to a Certificate of Technology course should be made directly to the head of the department which offers the particular course.

Preliminary Year (Tertiary Orientation)
Students wishing to enter the applied science and engineering stream should have passed an applied science course at fifth form level. For entry to other streams, students should have satisfactorily completed their fifth form studies.

Students from Knox Region Technical Schools should apply through their respective schools. Application forms will be available from the Principal of each school in November 1976. The college cannot guarantee places for Knox Region Technical School students whose applications are received after 8 December 1976.

All other applicants should obtain forms from the college. The closing date is 2 February 1977 although applications received prior to 8 December 1976 will be given preference.

Enrolment 1977
All students will be required to pay a Student Union and Sports Association fee at the time of enrolment. Enrolment is not completed until the fee is paid.

Students whose fees are to be paid by an employer or who are under the NEAT scheme etc. must bring written authority at time of enrolment.

Fees
To the date of going to print with this handbook Union and Sports Association fees have not been determined. The fees for 1976 were:

<table>
<thead>
<tr>
<th>Type</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>$35.00</td>
</tr>
<tr>
<td>Part-time</td>
<td>11.50</td>
</tr>
<tr>
<td>Full-time (one semester)</td>
<td>16.00</td>
</tr>
<tr>
<td>Preliminary Year – full-time</td>
<td>35.00</td>
</tr>
<tr>
<td>– part-time</td>
<td>16.00</td>
</tr>
</tbody>
</table>

Amendment to enrolment details
If any of the subjects, after the initial enrolment, have been dropped, or any new subjects added, the student must complete a change of enrolment form which is available from the student's department, and lodge it at the Student Records office (66 Park Street) within 7 days.

Students wishing to record some other enrolment change, e.g. address, employer, should consult the Student Records office. Students who at any time believe that college records may not show their current address should notify the Student Records office (66 Park Street).

Students who fail to notify the student records office of withdrawal of a subject or cancellation of enrolment:

(a) by the end of term 1 for subjects with a mid-year final examination, and
(b) by the end of term 2 for subjects with an end of year final examination,
will have the result 'withdrawal prior to completion of subject' recorded for the subjects affected.

Exemptions
Students seeking exemptions from subjects should complete an application for exemption form obtainable at Student Records or from the division controlling the subject. It is the student's responsibility to obtain such approval to ensure that the completed form is returned to Student Records only. Students will receive written confirmation of approved exemptions.

Semester examinations 1977
Examination time-tables
Approximately half-way through each semester, a provisional examination time-table will be posted on the notice board in the quadrangle. Students should note their examination times and immediately report any clashes to the examination officer. The final time-table, without room allocations, will be posted.
approximately one month later. Room allocations will be posted at least one week before classes end.

It is the responsibility of students to ascertain dates and times of examinations. No information will be given by telephone.

Conduct of examinations
1. Unless otherwise stated on the time-tables, morning examinations will commence at 8.50 am and afternoon examinations will commence at 1.20 pm.
2. Students must take their identity cards into the examination room.
3. Students are required to provide their own slide rules and drawing instruments.
4. Students will not be permitted to enter the room after half an hour has elapsed from the commencement of examination, and will not be permitted to leave until half an hour after commencement of examination.
5. Four-figure mathematical tables and other information will be supplied where necessary.

Absence from examinations
Students who are absent from an examination due to illness or other reason and who wish to apply for a special examination must apply through the Student Records office. Such an application must be accompanied by evidence (e.g. medical certificate) that there was a genuine inability to attend the examination. The application must be lodged at the Student Records office (66 Park Street) within 48 hours of the examination.

Students who are absent from an examination through misreading the time-table are not automatically entitled to a special examination. Students in this position should contact the head of their awarding department.

Publication of results
Final results for Swinburne Technical College students will be displayed on the notice board in the Ethel Swinburne Hall approximately two weeks after the particular examination has been held. To ascertain from Student Records if the results of a particular subject have been released, subject codes must be quoted. Examination results will not be given over the telephone. Education Department results may be obtained by telephoning 651 6136 (Examinations Branch).

The following marking scheme will be used by the Technical College

- Credit 75 – 100% C
- Pass 50 – 74% P
- Supplementary (where applicable) 35 – 49% S
- Fail 0 – 49% N
- Not completed (apprentices) (Modules in progress) NC A
- Withdrawn W

Report on results
Applications for a report on results can be lodged with the cashier at the Student Records office (66 Park Street).

Reports are available in two categories:
(a) a statement showing marks for each question or part of a question – fee $1.00.
(b) a detailed report by the examiner – fee $10.00.

Application for either category of report must be made within 30 days of the publication of the examination result in the subject.

Education Department examinations
A re-mark of an external paper may be obtained on the payment of a fee of $7.00. Application should be made and the fee paid to: The Chief Secretary, Education Department, Treasury Place, Melbourne 3000 (Examinations Branch). Student name, identity number and subject details must be quoted.

Awards

Students anticipating completion of course at the end of 1977
Students who anticipate completion of the academic work for their courses at the end of 1977 and wish for a consolidated statement of results – indicating subjects passed and those still required to complete their course, are advised to apply now.

This statement, in conjunction with the computer-printed certificate of official results, should be sufficient for employers etc. to confirm that the course is complete or otherwise.

Students nearing completion of their course
Students nearing completion of their course may obtain a statement indicating those subjects passed and those subjects still required to complete their courses.

Any student who has been involved in a change of syllabus (e.g. from the 1960 syllabus to the 1965 revised syllabus, or to the 1972 syllabus etc.) and who has not previously obtained a statement,
would be wise to do so before commencing the final semester.

Conferring of certificates
Students eligible to receive certificates are required to make application on the form prescribed, available from the Student Records office (66 Park Street). Applications close on 31 October each year and for applicants who anticipate completing the academic work in the following December exams, the conferring ceremony will be held the following year.

Students should note that a period of four years' industrial experience is required to qualify for the award of all engineering certificates.

If industrial experience has not been completed at the time of lodging the application for the award, students should attach a note explaining when they expect to complete it.

Conveyance allowance
Full-time students under 21 years of age, whose place of residence is situated outside a radius of three miles from the college, may make application for a conveyance allowance provided there is no other technical college nearer their home than Swinburne which provides a course of study comparable with that required by the student. Distances are calculated on a radial basis on a map supplied by the Education Department, a copy of which can be viewed at the general office of the college.

Students not attending the college nearest to their residence may receive an allowance if:

(a) they applied for and were refused admittance to the college or colleges nearer to their homes, and they can produce documentary evidence to this effect;

(b) they can maintain that it is cheaper and easier to travel to Swinburne.

Students who think they may be eligible for a conveyance allowance should inquire at the college general office before 1 March 1977. All application forms must be returned to the general office before 31 March 1977.

Fare concessions
Applicants should take advantage of concessions in fares since full-time students travelling by rail or tram will be paid only the cost of special concession tickets. Wherever practicable, students must avail themselves of rail transport.

Students travelling by more than one means of conveyance (rail and bus, tram and bus, etc.) may receive an allowance only for that transport involving the greater fare unless the distance travelled by each form of transport is at least three miles.

Except in special cases approved by the Minister of Education, a conveyance allowance in excess of $200 per annum will not be paid on behalf of any student. Eligible students who use as their means of transport bicycles, private motor cars, motor cycles, etc. are entitled to allowances at the rate of $20 per annum.
Courses offered

Building Division

Building Construction Department

Carpentry and Joinery

Technician
Building Foreman
Building Inspector
Clerk of Works

Certificate of Technology
Building Surveyors
Building Estimating
Building Supervision
Design Drafting (structural & survey)
Special courses:
Scaffolding Construction
Scaffolding Inspection
Crane Drivers, Dogmen, and Crane Chasers

Plumbing and Gasfitting Department

Plumbing & Gasfitting (sanitary & general)
Plumbing & Gasfitting (heating & ventilating)

Technician
Heating, Ventilating, Air-conditioning & Refrigeration
Gasfitting
Plant Services Drafting
Sanitary
Balancing and Adjusting Air-conditioning

Business Studies Department

Certificates
Accounting
Data Processing
Office (Administration)
Personnel
Private Secretarial
Production
Sales
Supply
Work Study

Engineering Division

Electrical Mechanics Department

Electrical Mechanics

Technician
Electronics
Electrical Drafting
Electrical Power
Motor Control

Certificate of Technology
Electrical
Electronics
Electrical Design Drafting

Industrial Electronics Certificate
Electrical Contracting & Estimating

Machines and Materials Department

Fitting and Machining

Technician
Mechanical (Air-conditioning & Refrigeration)
Mechanical (Fluid)
Mechanical (Thermal)
Mechanical (Drafting)
Production (Jig & Tool)
Production (Heat Treatment)
Production (Engineering Inspection)
Production (Method Study)

Certificate of Technology
Mechanical
Production (Work Study)

Higher Technician
Production (Quality Control)
Production (Jig & Tool) Design

Post-trade
Toolmaking
Welding

General Studies Division

Certificate of Technology
Applied Science (Laboratory Technician)

Preliminary Year
Science
Engineering
Business
Arts
General

Bridging Courses
Short-term bridging courses for tertiary and technician courses are also available.
Building Construction Department

Apprenticeship – Carpenter and Joinery

The building construction department is responsible for the carpentry and joinery course, which is an apprenticeship course of three years' duration designed to meet the requirements prescribed in the Apprenticeship (Carpentry and Joinery trades) regulations of the Industrial Training Commission.

Technician Certificate Courses

The building technician certificate is accepted as evidence of carpentry and joinery qualifications. Apprentices may take a technician course concurrently with normal apprenticeship training, but attendance at evening classes is necessary.

The following courses are available:

- 81112E Building Foreman
- 81113E Building Inspectors
- 81111E Clerk of Works

The Building Inspectors' Certificate course meets the requirements of the Municipal Building Surveyors' Board (Building Inspectors) Regulations 1966, issued under authority of the Local Government Act 1958 Victoria. The Clerk of Works Technician Certificate course meets the requirements of the Clerk of Works Institute of Australia.

Certificate of Technology Courses

To train, for a variety of special areas of responsibility in the building industry, immediate support personnel to management and the professions.

The following courses are available:

- 81113B Building Surveyor
- 81134B Estimating
- 81135B Supervisor
- 81150G Structural Design Drafting
- 81151G Survey Drafting

The building surveyor’s course meets the requirements of the Municipal Building Surveyors' Board (Building Surveyors) Regulations 1966, issued under authority of the Local Government Act 1958, Victoria.

Design Drafting

Two streams are offered: structural and survey. A student must be employed on drafting work appropriate to the stream taken.

Special Courses

Scaffolding subjects are conducted which meet the requirements of the scaffolding regulations.

Craned drivers, dogmen and crane chasers course:
This course meets the requirements of the Department of Labour and Industry regulations.

Enquiries: Mr. A.L. Patience 819 8500

Building Division

81101D Apprenticeship, Carpenter and Joinery

Eight hours per week for three years to complete a minimum total of twenty-four modules.

Satisfactory completion of form 3 in a technical school or an equivalent course, in the minimum standard, with passes in specified subjects. Apprentices are required to attend classes for one day each week for three years. Optional evening classes are held for second and third year students.

- TB051 Mod. 1 Simple base structures, basic tool skills
- TB052 Mod. 2 Simple wall framing
- TB053 Mod. 3 Simple timber roofing – skillion and gable
- TB054 Mod. 4 Simple doors – ledged and braced – flywire
- TB055 Mod. 5 Simple windows – casement frame and sash
- TB056 Mod. 6 Timber fencing and gates
- TB057 Mod. 7 Timber villa construction – sub floor structure to include set out of wall plates
- TB058 Mod. 8 Timber villa construction – all framing
- TB059 Mod. 9 Timber villa construction – ceiling and gable roof framing
- TB060 Mod. 10 Timber villa construction – simple Hip Roofing
- TB061 Mod. 11 Door and door frames (domestic)
- TB062 Mod. 12 Window joinery – double hung sash with patented balances rectangular louvre
- TB063 Mod. 13 Window joinery – double hung sashes in box frame
- TB064 Mod. 14 Simple stairs – timber and concrete saw sharpening
- TB065 Mod. 15 Brick veneer construction and hand
- TB066 Mod. 16 Hip and valley roofing

- TB071 Mod.A51/B51 Concrete formwork
- TB072 Mod.A52 Hip & valley roofing 1 (equal pitch)
- TB073 Mod.A53/B53 Internal fixing
- TB074 Mod.A56/B56/C56 Stair Building 1
- TB075 Mod.A57 Hip & valley roofing 2 (unequal pitch)
- TB076 Mod.A58 Shoring, centres and levelling
- TB077 Mod.B52 Formwork for concrete & systems
- TB078 Mod.B55 Industrial roofing, trusses and ceilings
- TB079 Mod.B57 Site Works, setting out & levelling
- TB080 Mod.B58 Large centres, shoring & trenches
- TB081 Mod.C52/D52 Joinery 1 (doors, windows & louvres)
- TB082 Mod.C53/D53 Joinery 2 curved work
- TB083 Mod.C55 Stair building 2
- TB084 Mod.C58 Stair building 3

81110E Building Technician Certificate Courses

(1971 Syllabus)

The minimum academic qualifications for the course are successful completion at form four level in the following subjects: English, Mathematics, Science, or approved equivalent qualifications provided that any person who is otherwise eligible may be admitted to a course if considered by the head of department to be sufficiently mature and experienced to undertake the course successfully.

Apprentices may enter the course concurrently with apprenticeship provided they have the minimum academic qualifications.

It is necessary for entrants to the course to be serving, or have served, an apprenticeship (with proficiency) in one of the following approved building trades.
Carpentry and Joinery
Carpentry
Joinery
Plumbing and Gasfitting
Plumbing
Gasfitting
or
have at least ten years’ experience, approved by the head of the department.

81110E Building Technician Certificate Course
(Revised syllabus) 1971
This course applies to completing students only and is not available to new students.

Course

<table>
<thead>
<tr>
<th>Stage</th>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TB124 Applied Geometry</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TB125 Building Mathematics 1</td>
<td>2</td>
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<tr>
<td></td>
<td>TH145 English (building)</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>TB218 Building Mathematics 2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TB220 Building Science (T) A &amp; B</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TB216 Building Construction 1A</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TB217 Building Construction 1B</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>TB222 Building Mathematics (T) 1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TB220 Building Science 1A &amp; 1B</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TB417 Building Surveying (T) theory &amp; maths</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>TB420 Building Foremanship</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>TB216 Building Construction 1A</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TB217 Building Construction 1B</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TB322 Building Construction 2A</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TB323 Building Construction 2B</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TB219 Technical Reports (building)</td>
<td>2</td>
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<tr>
<td></td>
<td>TB417 Building Surveying (T) theory &amp; maths</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>TB412 Building Construction 3A</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TB413 Building Construction 3B</td>
<td>2</td>
</tr>
</tbody>
</table>

81111E Technician Certificate – Clerk of Works

Entrance standard:
Satisfactory completion of a form five level course including passes in English, Mathematics, Science and preferably Technical Drawing.

Certificate of Technology
Entrance standard:
Satisfactory completion of a form five level course including passes in English, Mathematics, Science and preferably Technical Drawing.

Courses will be job-oriented, and programs may be designed to meet the needs, interests and abilities of the students. Courses will consist of core units, together with electives selected to meet needs for specialist training or the job situation in which the student is employed.
### 81120G Building Higher Technician course (part-time)

This course applies to completing students only and is not available to new students.

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Course detail</th>
<th>Hours week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM120</td>
<td>Advanced Building Graphics (half-year)</td>
<td>2</td>
</tr>
<tr>
<td>TB216</td>
<td>Building Construction 1A</td>
<td>2</td>
</tr>
<tr>
<td>TB217</td>
<td>Building Construction 1B</td>
<td>2</td>
</tr>
<tr>
<td>TB334</td>
<td>Social Science (half-year)</td>
<td>3</td>
</tr>
<tr>
<td>TB370</td>
<td>Mathematics 1H</td>
<td>2</td>
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<table>
<thead>
<tr>
<th>Stage 2</th>
<th>Course detail</th>
<th>Hours week</th>
</tr>
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<tbody>
<tr>
<td>TB322</td>
<td>Building Construction 2A</td>
<td>2</td>
</tr>
<tr>
<td>TB323</td>
<td>Building Construction 2B</td>
<td>2</td>
</tr>
<tr>
<td>TB414</td>
<td>Building Services</td>
<td>2</td>
</tr>
<tr>
<td>TM220</td>
<td>Mathematics 2H</td>
<td>2</td>
</tr>
<tr>
<td>TB242</td>
<td>Basic Quantities and Estimating (half-year)</td>
<td>2</td>
</tr>
<tr>
<td>TB343</td>
<td>Industrial Relations (half-year)</td>
<td>2</td>
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<table>
<thead>
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<th>Stage 3</th>
<th>Course detail</th>
<th>Hours week</th>
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<tr>
<td>TB365</td>
<td>Building Science H (A &amp; B)</td>
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<tr>
<td>TB412</td>
<td>Building Construction 3A</td>
<td>2</td>
</tr>
<tr>
<td>TB413</td>
<td>Building Construction 3B</td>
<td>2</td>
</tr>
<tr>
<td>TB366</td>
<td>Practical Structures</td>
<td>2</td>
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<table>
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<tr>
<th>Stage 4</th>
<th>Course detail</th>
<th>Hours week</th>
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<tr>
<td>TB160</td>
<td>Site Organisation and Administration</td>
<td>2</td>
</tr>
<tr>
<td>TB294</td>
<td>Evolution of Building</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 5</th>
<th>Course detail</th>
<th>Hours week</th>
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</thead>
<tbody>
<tr>
<td>TH115</td>
<td>Communication</td>
<td>2</td>
</tr>
<tr>
<td>TH115</td>
<td>Electives (two)</td>
<td>4</td>
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<table>
<thead>
<tr>
<th>Stage 6</th>
<th>Course detail</th>
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<tbody>
<tr>
<td>TH364</td>
<td>Electives (four)</td>
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</table>

### 81133B Certificate of Technology -- Building Surveyor

(Syllabus 1976)

<table>
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<tr>
<th>Course detail</th>
<th>Hours week</th>
</tr>
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<tbody>
<tr>
<td>TB216</td>
<td>Building Construction 1A</td>
</tr>
<tr>
<td>TB217</td>
<td>Building Construction 1B</td>
</tr>
<tr>
<td>TB322</td>
<td>Building Construction 2A</td>
</tr>
<tr>
<td>TB323</td>
<td>Building Construction 2B</td>
</tr>
<tr>
<td>TB412</td>
<td>Building Construction 3A</td>
</tr>
<tr>
<td>TB413</td>
<td>Building Construction 3B</td>
</tr>
<tr>
<td>TH115</td>
<td>Communication &amp; Report Writing</td>
</tr>
<tr>
<td>TB426</td>
<td>Building Administration &amp; Supervision</td>
</tr>
<tr>
<td>TB601</td>
<td>Professional Practice of a Building Surveyor</td>
</tr>
<tr>
<td>TB436</td>
<td>Practical Inspection (building)</td>
</tr>
<tr>
<td>TB425</td>
<td>Applied Mechanics 1</td>
</tr>
<tr>
<td>TB437</td>
<td>Statutory Control of Building</td>
</tr>
<tr>
<td>TB504</td>
<td>Applied Geomechanics</td>
</tr>
<tr>
<td>TB427</td>
<td>Building Construction 2C</td>
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<tr>
<td>TB428</td>
<td>Building Construction 3C (Theory of Structures)</td>
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<tr>
<td>TB220</td>
<td>Building Science 1A &amp; 1B</td>
</tr>
<tr>
<td>TS215</td>
<td>Behavioural Studies 1A</td>
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<tr>
<td>TS216</td>
<td>Behavioural Studies 1B</td>
</tr>
<tr>
<td>TB470</td>
<td>Introduction to Building Law 1A &amp; 1B</td>
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<tr>
<td>TB435</td>
<td>Scaffolding Inspection A</td>
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<tr>
<td>TB439</td>
<td>Scaffolding Inspection B</td>
</tr>
<tr>
<td>TB480</td>
<td>Elements of Town Planning</td>
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### 81134B Certificate of Technology -- Building Estimating

<table>
<thead>
<tr>
<th>Course detail</th>
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</thead>
<tbody>
<tr>
<td>TB216</td>
<td>Building Construction 1A</td>
</tr>
<tr>
<td>TB217</td>
<td>Building Construction 1B</td>
</tr>
<tr>
<td>TB322</td>
<td>Building Construction 2A</td>
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<tr>
<td>TB323</td>
<td>Building Construction 2B</td>
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<td>Building Construction 3A</td>
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<tr>
<td>TB413</td>
<td>Building Construction 3B</td>
</tr>
<tr>
<td>TB241</td>
<td>Services in Buildings</td>
</tr>
<tr>
<td>TB160</td>
<td>Site Organisation &amp; Administration</td>
</tr>
<tr>
<td>TB502</td>
<td>Quantity Surveying I</td>
</tr>
<tr>
<td>TB242</td>
<td>Basic Quantities &amp; Estimating (1 semester)</td>
</tr>
<tr>
<td>TB280</td>
<td>Specifications 1A &amp; 1B</td>
</tr>
<tr>
<td>TB120</td>
<td>Advanced Building Graphics</td>
</tr>
<tr>
<td>TB220</td>
<td>Building Science 1A &amp; 1B</td>
</tr>
<tr>
<td>TB320</td>
<td>Building Science 2A &amp; 2B</td>
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<tr>
<td>TM120</td>
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<tr>
<td>TM220</td>
<td>Mathematics 2H</td>
</tr>
<tr>
<td>TH115</td>
<td>Communication &amp; Report Writing</td>
</tr>
<tr>
<td>TH115</td>
<td>Practical Structures &amp; Practical</td>
</tr>
<tr>
<td>TB362</td>
<td>Estimating &amp; Costing</td>
</tr>
<tr>
<td>TB552</td>
<td>Quantity Surveying 2</td>
</tr>
<tr>
<td>TB110</td>
<td>Contracts &amp; Building Law</td>
</tr>
<tr>
<td>TB452</td>
<td>Industrial Relations 1A &amp; 1B</td>
</tr>
</tbody>
</table>
Completion of the course requires a total of 30 units consisting of 28 core units and 2 elective units. Students must have passes at form five level in English and certain practical classes.

Core units
- TB216 Building Construction 1A
- TB217 Building Construction 1B
- TB322 Building Construction 2A
- TB323 Building Construction 2B
- TB412 Building Construction 3A
- TB413 Building Construction 3B
- TB241 Services in Building
- TB366 Practical Structures & Practical Workshop
- TB160 Site Organisation & Administration
- TB242 Basic Quantities & Estimating (one semester)
- TB280 Specifications 1A & 1B
- TB120 Advanced Building Graphics
- TB220 Building Science 1A & 1B
- TB320 Building Science 2A & 2B
- TM120 Mathematics 1H
- TM220 Mathematics 2H
- TB115 Communication & Report Writing
- TS215 Behavioural Studies 1A
- TS216 Behavioural Studies 1B
- TB452 Industrial Relations 1A & 1B
- TB501 Building Plant & Method
- TB110 Contracts & Building Law
- TB380 Specifications 2A & 2B

Electives: (4 units) as approved by the head of the department

Special Courses

Scaffolding Construction
Scaffolding construction is divided into the following classes.

Core units
- TB146 Mathematics 2V and 2W
- TM160 Physics 1A & 1B
- TH135 Communication 1A & 1B
- TB344 Computer Studies 1A
- TB394 Acts and Regulations 1A & 1B
- TB388 Reprographics 1A & 1B
- TB132 Cartography and Survey Drafting 1A & 1B
- TB233 Survey Drafting 2A & 2B
- TB333 Survey Drafting 3A & 3B
- TB250 Surveying 1A & 1B
- TB253 Surveying 1AC & 1BC
- TB332 Cartography 2A & 2B
- TB334 Photogrammetry 1A & 1B
- TB216 Building Construction 1A
- TB217 Building Construction 1B
- TB322 Building Construction 2A
- TB323 Building Construction 2B
- TB412 Building Construction 3A
- TB413 Building Construction 3B
- TB241 Services in Building
- TB366 Practical Structures & Practical Workshop
- TB160 Site Organisation & Administration
- TB242 Basic Quantities & Estimating (one semester)
- TB280 Specifications 1A & 1B
- TB120 Advanced Building Graphics
- TB220 Building Science 1A & 1B
- TB320 Building Science 2A & 2B
- TM120 Mathematics 1H
- TM220 Mathematics 2H
- TB115 Communication & Report Writing
- TS215 Behavioural Studies 1A
- TS216 Behavioural Studies 1B
- TB452 Industrial Relations 1A & 1B
- TB501 Building Plant & Method
- TB110 Contracts & Building Law
- TB380 Specifications 2A & 2B

Electives: (4 units)
- TB390 Town Planning 1A & 1B
- TB345 Computer Studies 1B
- TB395 Physical Geography 1A & 1B
- TB445 Geology 1A & 1B
- TB444 Civil Engineering 1A & 1B
- TB393 Photogrammetry 2A & 2B
- TB332 Cartography 1A & 1B
- TB350 Surveying 2AT & 2AF
- TB353 Surveying 2BT and 2BF

81151G Certificate of Technology – Survey Drafting

Entrance standard:
Students must have passes at form five level in English, Technician Mathematics, Technician Science A, Technical Drawing, Workshop Practice, or approved equivalents.

Completion of the course requires a total of 29 units consisting of 25 core units and 4 elective units.

Core subjects
- TB146 Mathematics 2V and 2W
- TM160 Physics 1A & 1B
- TH135 Communication 1A & 1B
- TB344 Computer Studies 1A
- TB394 Acts and Regulations 1A & 1B
- TB388 Reprographics 1A & 1B
- TB132 Cartography and Survey Drafting 1A & 1B
- TB233 Survey Drafting 2A & 2B
- TB333 Survey Drafting 3A & 3B
- TB250 Surveying 1A & 1B
- TB253 Surveying 1AC & 1BC
- TB332 Cartography 2A & 2B
- TB334 Photogrammetry 1A & 1B
- TB216 Building Construction 1A
- TB217 Building Construction 1B
- TB322 Building Construction 2A
- TB323 Building Construction 2B
- TB412 Building Construction 3A
- TB413 Building Construction 3B
- TB241 Services in Building
- TB366 Practical Structures & Practical Workshop
- TB160 Site Organisation & Administration
- TB242 Basic Quantities & Estimating (one semester)
- TB280 Specifications 1A & 1B
- TB120 Advanced Building Graphics
- TB220 Building Science 1A & 1B
- TB320 Building Science 2A & 2B
- TM120 Mathematics 1H
- TM220 Mathematics 2H
- TB115 Communication & Report Writing
- TS215 Behavioural Studies 1A
- TS216 Behavioural Studies 1B
- TB452 Industrial Relations 1A & 1B
- TB501 Building Plant & Method
- TB110 Contracts & Building Law
- TB380 Specifications 2A & 2B

Electives: (4 units)
- TB390 Town Planning 1A & 1B
- TB345 Computer Studies 1B
- TB395 Physical Geography 1A & 1B
- TB445 Geology 1A & 1B
- TB444 Civil Engineering 1A & 1B
- TB393 Photogrammetry 2A & 2B
- TB332 Cartography 1A & 1B
- TB350 Surveying 2AT & 2AF
- TB353 Surveying 2BT and 2BF

The course is of half-year duration based on two hours per week. Students who are enrolled are eligible to apply for a learner's permit from the Department of Labour and Industry which will allow a person to work in industry as a learner. In addition to passing this course, certain practical tests must be undertaken before a certificate of competency will be issued.
Apprenticeship
A part-time day modular apprenticeship course of three years' duration, designed to comply with the requirements of both the Education Department and the Industrial Training Commission of Victoria. The module training program introduced in 1971 is designed to provide flexibility of progression by each student. The minimum requirements are set out below.

Technician
The usual duration of the technician course is four years. With the exception of a two-hour class in the second year, the third year.

Apprentices who are taking a technician course concurrently with their daytime training and tradesmen undertaking the course as post-apprentice training will be required to attend evening classes. These are usually confined to two evenings per week.

Plant services drafting
The usual duration of this course is three years. This course is designed to train personnel in the preparation of detailed working drawings of heating, ventilation, air-conditioning and refrigerating systems and the essential services for private, commercial and industrial projects.

Enquiries
Mr R.T. Lyons, 819 8518.

Apprenticeship, Plumbing and Gasfitting

Entrance standard:
Satisfactory completion of Form 3 in a secondary technical school, or an equivalent course, with passes in English, Mathematics, Science and Drawing.

81201D Plumbing and Gasfitting – Sanitary and General

81202D Plumbing and Gasfitting – Heating and Ventilating

Course detail
Sanitary & general & heating & ventilating Module

<table>
<thead>
<tr>
<th>Module</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP001</td>
<td>1</td>
<td>Drawing</td>
</tr>
<tr>
<td>TP003</td>
<td>3</td>
<td>Sanit. plumb. drainage &amp; cut</td>
</tr>
<tr>
<td>TP004</td>
<td>4</td>
<td>Roof plumbing &amp; solders</td>
</tr>
<tr>
<td>TP005</td>
<td>5</td>
<td>Water supply &amp; gasfitting</td>
</tr>
<tr>
<td>TP006</td>
<td>6</td>
<td>Sheet lead &amp; sheetmetal</td>
</tr>
<tr>
<td>TP007</td>
<td>7</td>
<td>Roof plumbing</td>
</tr>
<tr>
<td>TP008</td>
<td>8</td>
<td>Copper tube &amp; mild steel</td>
</tr>
<tr>
<td>TP009</td>
<td>9</td>
<td>Drawing &amp; building cost</td>
</tr>
<tr>
<td>TP010</td>
<td>10</td>
<td>Roof plumbing</td>
</tr>
<tr>
<td>TP011</td>
<td>11</td>
<td>Sheetmetal</td>
</tr>
<tr>
<td>TP012</td>
<td>12</td>
<td>Roof plumbing</td>
</tr>
<tr>
<td>TP013</td>
<td>13</td>
<td>Gasfitting &amp; heaters</td>
</tr>
<tr>
<td>TP014</td>
<td>14</td>
<td>Welding &amp; cutting</td>
</tr>
<tr>
<td>TP015</td>
<td>15</td>
<td>Mild steel sections</td>
</tr>
</tbody>
</table>

Sanitary & general Module

<table>
<thead>
<tr>
<th>Module</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP016</td>
<td>A51</td>
<td>Sanitary plumbing</td>
</tr>
<tr>
<td>TP017</td>
<td>A52</td>
<td>Drainage</td>
</tr>
<tr>
<td>TP018</td>
<td>A53</td>
<td>Water supply</td>
</tr>
<tr>
<td>TP019</td>
<td>A54</td>
<td>Sheet lead</td>
</tr>
<tr>
<td>TP020</td>
<td>A55</td>
<td>Copper tube &amp; plastics</td>
</tr>
<tr>
<td>TP021</td>
<td>A56</td>
<td>Sanitary plumbing</td>
</tr>
<tr>
<td>TP022</td>
<td>A57</td>
<td>Drainage</td>
</tr>
<tr>
<td>TP023</td>
<td>A58</td>
<td>Water supply</td>
</tr>
<tr>
<td>TP024</td>
<td>A59</td>
<td>Gasfitting</td>
</tr>
<tr>
<td>TP025</td>
<td>A60</td>
<td>Welding &amp; cutting</td>
</tr>
<tr>
<td>TP026</td>
<td>A61</td>
<td>Sheet lead &amp; plastics</td>
</tr>
<tr>
<td>TP027</td>
<td>A62</td>
<td>Mild steel sections</td>
</tr>
<tr>
<td>TP028</td>
<td>A63</td>
<td>Copper tube &amp; special materials</td>
</tr>
</tbody>
</table>

Hours per week:
Modules 1 – 12, 12 hours per week. This is achieved by attendance of 8 hours one week and 16 hours the following week.
Modules 13 – 20, 8 hours per week. Modules 21 – 28, 8 hours per week.

Advanced study subjects of the modular course
Students wishing to undertake advanced study subjects may enquire and arrange by application to the head of department.

1968 syllabus
Subjects of this four year course may be available on application to the head of department.

81210E Technician – Heating, Ventilating, Air-conditioning and Refrigeration

Entrance standard:
Students commencing the course will be required to have completed or be enrolled in a suitable trade apprenticeship course.
Candidates should have passes in English, Mathematics and Science at form four level, or approved equivalent.

Course detail

<table>
<thead>
<tr>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td></td>
</tr>
<tr>
<td>TH140</td>
<td>English 1T</td>
</tr>
<tr>
<td>TM130</td>
<td>Mathematics 1T</td>
</tr>
<tr>
<td>TM170</td>
<td>Science 1T</td>
</tr>
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</table>

Trade subjects completed or modules 1 – 15.
2nd year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH1240</td>
<td>English 2T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TM230</td>
<td>Mathematics 2T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TM270</td>
<td>Science 2T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP213</td>
<td>Building Science 2TP</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trade subjects completed or modules 16 – 28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3rd year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP349</td>
<td>Refrigeration 1T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP348</td>
<td>Air-conditioning 1T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP358</td>
<td>Reticulated Systems 1T</td>
<td>2</td>
<td></td>
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</table>

4th year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP448</td>
<td>Air-conditioning 2T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP458</td>
<td>approved electives</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP449</td>
<td>Refrigeration 2T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP453</td>
<td>Mechanical Service Drafting</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**Technician Gasfitting**

Entrance standard:
Registration or likelihood of registration by the Plumbers and Gasfitters' Registration Board, is the prerequisite for admission to the Gasfitting course.

Proof of actual registration must be provided before a certificate may be awarded. Candidates should have passes in English, Mathematics and Science at form 4 level, or approved equivalent.

<table>
<thead>
<tr>
<th>Course detail</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>TH140</td>
<td>English 1T</td>
</tr>
<tr>
<td>TM130</td>
<td>Mathematics 1T</td>
<td>2</td>
</tr>
<tr>
<td>TM170</td>
<td>Science 1T</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Trade subjects completed or modules 1 – 15</td>
<td></td>
</tr>
</tbody>
</table>

2nd year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH240</td>
<td>English 2T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TM230</td>
<td>Mathematics 2T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TM270</td>
<td>Science 2T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP237</td>
<td>Process Heating</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TP238</td>
<td>Fluid Mechanics</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trade subjects completed or modules 16 – 28</td>
<td></td>
<td></td>
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</tbody>
</table>

3rd year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP358</td>
<td>Reticulated Systems 1T</td>
<td>2</td>
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</tr>
<tr>
<td>TP335</td>
<td>Gas Technology 1T (Fundamentals of Gas Technology A and B)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP336</td>
<td>Industrial Electronics 1A</td>
<td>2</td>
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</table>

4th year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Week</th>
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</thead>
<tbody>
<tr>
<td>TP436</td>
<td>Industrial Electronics 1B</td>
<td>2</td>
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<tr>
<td>TP434</td>
<td>Gas Technology 2T A (gas control techniques A and B)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP435</td>
<td>Gas Technology 2T B (gas control techniques 2A and 2B)</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**8121E Technician – Plumbing (sanitary)**

Entrance standard:
Registration by the Plumbers and Gasfitters' Registration Board is the usual prerequisite for admission to the course.

Students undertaking the relevant apprenticeship course will be eligible to enter the course.

Students may be permitted to enter the course if, in the opinion of the principal of the college:

(a) the applicant would be able to complete the course successfully and
(b) the applicant is engaged in employment related to the aims of the course.

A technician certificate, Plumbing (sanitary) will be issued to a candidate who has satisfactorily completed the course, and has also completed the appropriate industrial experience.

<table>
<thead>
<tr>
<th>Course detail</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>TH140</td>
<td>English 1T</td>
</tr>
<tr>
<td>TM130</td>
<td>Mathematics 1T</td>
<td>2</td>
</tr>
<tr>
<td>TM170</td>
<td>Science 1T</td>
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2nd year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH240</td>
<td>English 2T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TM230</td>
<td>Mathematics 2T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TM270</td>
<td>Science 2T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP230</td>
<td>Plant &amp; Equipment (plumbing) 1T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP241</td>
<td>Plumbing Foremanship</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP418</td>
<td>Drainage Design</td>
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3rd year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP316</td>
<td>Quantity Surveying (H) (plumbing)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP310</td>
<td>Contracts &amp; Building Law (plumbing)</td>
<td>1</td>
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</tr>
<tr>
<td>TP320</td>
<td>Basic Measuring and Levelling</td>
<td>1</td>
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4th year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Week</th>
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<tbody>
<tr>
<td>TP340</td>
<td>Pipe Line Design A</td>
<td>2</td>
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<tr>
<td>TP341</td>
<td>Pipe Line Design B</td>
<td>1</td>
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<tr>
<td>TP420</td>
<td>Plant &amp; Equipment (plumbing) 1T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP421</td>
<td>Plumbing Foremanship</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP418</td>
<td>Drainage Design</td>
<td>1</td>
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</table>

**8121E Technician – Plant Services Detail Drafting**

Entrance standard:

<table>
<thead>
<tr>
<th>Course detail</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>TP181</td>
<td>Pipe and Duct Fitting 1T</td>
</tr>
<tr>
<td>TP180</td>
<td>Plant Services Drafting 1T</td>
<td>3</td>
</tr>
</tbody>
</table>

Students who have succeeded in the course will then be considered to have completed the necessary entrance requirements and may be entitled to some subject exemptions.

<table>
<thead>
<tr>
<th>Course detail</th>
<th>Hours</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>TP181</td>
<td>Pipe and Duct Fitting 2T</td>
</tr>
<tr>
<td>TP280</td>
<td>Plant Services Drafting 2T</td>
<td>4</td>
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<tr>
<td>TP282</td>
<td>Plant Equipment 1T</td>
<td>1½</td>
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<tr>
<td>2nd year</td>
<td>TP380</td>
<td>Plant Services Drafting 3T</td>
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<tr>
<td>TP382</td>
<td>Plant Equipment 2T</td>
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</tr>
<tr>
<td>Approved elective</td>
<td>1½</td>
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</tr>
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</table>
Business Studies Department

This department offers certificates in business studies in the following specialised areas:

- Accounting
- Data Processing
- Office (Administration)
- Personnel
- Private Secretarial
- Production
- Sales
- Supply
- Work Study

Students may complete the Accounting Certificate and Private Secretarial Certificate on a full-time day basis over 2 years.

Students pursuing other certificate courses may attend for one full year in common subjects followed by 2 years part-time evening studies in specialised subjects.

All of the above courses are also offered on a part-time evening basis involving 4–5 years' study.

In addition to the above areas of study, a wide range of specialisation can be developed through attendance, for a few subjects, at other technical colleges. Any students interested in other specialist areas should also enquire for advice regarding a plan of study.

Career potential

The general aim of the course is to provide a variety of sub-professional courses which are designed to suit the needs of potential section or department supervisors, senior clerical staff, industrial supervisors, sales supervisors, accounting staff and other supporting staff with specialist areas of responsibility.

Higher qualifications

These courses are recognised for the purpose of admission to membership of a number of professional institutes.

Entrance requirements

The usual entrance requirement is Leaving standard of education, but mature-age students may be granted admission to the course without this.

Further information

Additional details about these certificate courses are available from:

Mr. Brian MacDonald,
Head of the Business Studies Departments
Telephone: 819 8114 or 819 8538

Swinburne Technical College
Certificate of Business Studies courses

<table>
<thead>
<tr>
<th>Middle Level Econ. A &amp; B</th>
<th>Data Processing</th>
<th>Accounting</th>
<th>Office</th>
<th>Personnel</th>
<th>Production</th>
<th>Sales</th>
<th>Supply</th>
<th>Work Study</th>
</tr>
</thead>
</table>

KEY: C = Compulsory, A = Alternative choices

Notes:
1. A minimum of 10 subjects from each list is required to gain a certificate.
2. The certificate issued will list the subjects the student has passed.
3. Accounting needs two accounting subjects marked ‘A’ at least.
4. Office should include either Accounting 1A & 1B or Data Processing 1 or both.
5. Where alternative subjects are considered, only sufficient of these are required to make the total of 10 subjects to obtain the certificate.

* A private secretarial stream will also be operating. This is a two year full-time course aimed at preparing students for office work specialising in stenography. The better students may obtain lower level private secretarial positions.
# Business studies courses offered

Courses should comprise selected subjects from the lists following:

## 82330G Accounting
(For Institute of Affiliate Accountants membership)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TH 126 Middle level English 1A</td>
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<tr>
<td></td>
<td>TH 127 Middle level English 1B</td>
</tr>
<tr>
<td></td>
<td>TM 110 Business Maths 1A</td>
</tr>
<tr>
<td></td>
<td>TM 111 Business Maths 1B</td>
</tr>
<tr>
<td></td>
<td>TS 101 Accounting 1A (basic bookkeeping)</td>
</tr>
<tr>
<td></td>
<td>TS 102 Accounting 1B (financial control)</td>
</tr>
<tr>
<td></td>
<td>TS 103 Accounting 1C (physical control)</td>
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<tr>
<td></td>
<td>TS 120 Data Processing 1</td>
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Stage 2

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>TS 215 Behavioural Studies 1A</td>
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<tr>
<td>TS 216 Behavioural Studies 1B</td>
</tr>
<tr>
<td>TS 238 Introduction to Economics 1A</td>
</tr>
<tr>
<td>TS 239 Introduction to Economics 1B</td>
</tr>
<tr>
<td>TS 243 Introduction to Law 1A</td>
</tr>
<tr>
<td>TS 244 Introduction to Law 1B</td>
</tr>
<tr>
<td>TS 245 Accounting 2A (mult. own.)</td>
</tr>
<tr>
<td>TS 246 Accounting 2B (fin. eval. &amp; plan.)</td>
</tr>
<tr>
<td>TS 247 Accounting 2C (costing elements)</td>
</tr>
<tr>
<td>TS 248 Accounting 2D (costing systems)</td>
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<tr>
<td>TS 249 Accounting 2E (intern. cont.)</td>
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<tr>
<td>TS 250 Accounting 2F (auditing)</td>
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<tr>
<td>TS 251 Accounting 2G (budgeting)</td>
</tr>
<tr>
<td>TS 252 Accounting 2H (taxation)</td>
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<tr>
<td>TS 253 Accounting 2I (taxation)</td>
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Note: Students doing this stream must take at least eight units of accounting.

## 82331G Data Processing

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<td></td>
<td>TS 102 Accounting 1B</td>
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Stage 2

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<td>TS 216 Behavioural Studies 1B</td>
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<td>TS 245 Principles of Organisation</td>
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<td>TS 220 Data Processing 2</td>
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<td>TS 221 Data Processing 3</td>
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<td>Electives</td>
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## 82338G Office (Administration)

The office stream of the certificate course in business studies is designed primarily as a four year part-time course although some of the subjects may be available at day classes.

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<tbody>
<tr>
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<tr>
<td>TS 215 Behavioural Studies 1A</td>
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<tr>
<td>TS 216 Behavioural Studies 1B</td>
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<tr>
<td>TS 243 Introduction to Law 1A</td>
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<tr>
<td>TS 244 Introduction to Law 1B</td>
</tr>
<tr>
<td>TS 245 Principles of Organisation (2 unit equivalent)</td>
</tr>
<tr>
<td>TS 120 Clerical Practice 1 (2 unit equivalent)</td>
</tr>
<tr>
<td>TS 248 Clerical Practice 2 (2 unit equivalent)</td>
</tr>
<tr>
<td>TS 301 Personnel 1A</td>
</tr>
<tr>
<td>TS 131 Personnel 1B</td>
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<tr>
<td>TS 150 Production Techniques 1A</td>
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<tr>
<td>TS 151 Production Techniques 1B</td>
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<tr>
<td>TS 120 Data Processing 1 (2 unit equivalent)</td>
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The following units are available to provide a choice for the four elective units:

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<tr>
<td>TM 111 Business Mathematics 1B</td>
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<td>TS 238 Introduction to Economics 1A</td>
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<tr>
<td>TS 239 Introduction to Economics 1B</td>
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<tr>
<td>TS 101 Accounting 1A</td>
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<td>TS 102 Accounting 1B</td>
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<tr>
<td>TS 160 Sales 1A</td>
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## 82332G Personnel
(For Institute of Personnel-management membership)

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<tr>
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<td>TM 110 Business Maths 1A</td>
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<td></td>
<td>TM 111 Business Maths 1B</td>
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<tr>
<td></td>
<td>TS 130 Personnel Techniques 1A</td>
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<td>TS 131 Personnel Techniques 1B</td>
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<tr>
<td></td>
<td>TS 150 Production Techniques 1A</td>
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<td>TS 151 Production Techniques 1B</td>
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<tr>
<td></td>
<td>TS 120 Data Processing 1</td>
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<tr>
<td></td>
<td>TS 101 Accounting 1A</td>
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Stage 2

<table>
<thead>
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<td>TS 243 Introduction to Law 1A</td>
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<td>TS 244 Introduction to Law 1B</td>
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<tr>
<td>TS 245 Principles of Organisation</td>
</tr>
<tr>
<td>TS 215 Behavioural Studies 1A</td>
</tr>
<tr>
<td>TS 216 Behavioural Studies 1B</td>
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<tr>
<td>TS 243 Personnel Techniques 2A</td>
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<td>TS 241 Personnel Techniques 2B</td>
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<td>TS 233 Personnel Techniques 2D</td>
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## 82337G Private Secretarial

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Stage 2

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<td>TS 290 Secretarial Projects A</td>
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<td>TS 280 Advanced Business Typewriting 2A</td>
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### Business Studies Department

#### 82334G  Production

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#### 82335G  Sales

(For Institute of Sales and Marketing  
- partial membership)

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#### 82336G  Supply

(For Institute of Purchasing and Supply  
- management membership)

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<th>科目</th>
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#### 82336G  Work Study

(For Institute of Industrial Engineering)

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</table>
Engineering Division

Electrical Mechanics Department

Electrical mechanics apprenticeship course

A part-time day apprenticeship course of three years' duration designed to meet the requirements of the Industrial Training Commission of Victoria, the State Electricity Commission of Victoria and the Education Department of Victoria.

Students may obtain exemptions from some modules, depending on the standard reached in forms four or five prior to apprenticeship.

Tests may be necessary to confirm exemptions on commencement of the course.

Minimum entry standards are laid down by the Industrial Training Commission of Victoria and are presently, form three with passes in relevant subjects or its equivalent.

The course provides the necessary training to prepare an apprentice to pass electrical trade theory and practice at a level approved by the State Electricity Commission of Victoria for issue of the relevant B' Grade or A' Grade licence.

Note: Only persons licensed by the State Electricity Commission of Victoria and the State Electricity Commission of Victoria for issue of the relevant 'B' Grade or 'A' Grade licence.

Electrical technician courses

The electrical technician courses provide valuable training in specialised fields for apprentices and tradesmen who wish to further their studies.

Apprentices who are taking a technician course concurrently with their trade training may be required to attend evening classes in addition to daytime trade training, unless exemptions are granted for relevant subjects at form five level.

Tradesmen who undertake a technician course will be required, as a general rule, to attend classes on two evenings per week unless exemptions are granted for relevant subjects at form five level. The duration of a technician course is three years.

Certificates of Technology

Electronics – this course is designed for personnel working in the field of telecommunications. Enquiries are invited for admission to the course.

Electrical and electrical design drafting – these courses provide adequate training for persons working as aids to professional engineers whose interests are in the field of electrical power and its distribution.

Certificate course

Industrial electronics – a certificate is issued to all students who successfully pass all subjects in the three years of the industrial electronics course. The industrial electronics course may be studied at technician level.

An electrical tradesman can qualify for an electrical technician certificate by completing the outstanding subjects as listed under the electrical trades technician courses.

Electrical contracting and estimating – this course covers estimating, costing, specifications, pricing and general procedures in domestic, commercial and industrial projects.

Supervision – all enquiries should be directed to the electrical and electronics department. The course is basically industrial supervision, but it is strongly related to the contracting industry. Many students take both electrical contracting and estimating and supervision as a unit.

Enquiries

Mr. J.D. Fraser, 819 8191.

83501D Apprenticeship: Electrical Mechanics

Entrance standards:

Satisfactory completion of form 3 in a technical school, or an equivalent course, with passes in relevant subjects.

<table>
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<th>Hours</th>
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</thead>
<tbody>
<tr>
<td><strong>1st year</strong></td>
<td></td>
</tr>
<tr>
<td>TE001 Module 1 Electrical Wiring</td>
<td></td>
</tr>
<tr>
<td>TE002 Module 2 Electrical Wiring</td>
<td></td>
</tr>
<tr>
<td>TE003 Module 3 Electrical Wiring</td>
<td></td>
</tr>
<tr>
<td>TE004 Module 4 Electrical Wiring</td>
<td></td>
</tr>
<tr>
<td>TE005 Module 5 Electrical Fitting</td>
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</tr>
<tr>
<td>TE006 Module 6 Electrical Fitting</td>
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<tr>
<td>TE007 Module 7 Trade Mathematics</td>
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</tr>
<tr>
<td>TE008 Module 8 Trade Drawing</td>
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<tr>
<td><strong>2nd year</strong></td>
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<tr>
<td>TE009 Module 9 Electrical Wiring</td>
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<tr>
<td>TE010 Module 10 Electrical Wiring</td>
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<tr>
<td>TE011 Module 11 Electrical Wiring</td>
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<tr>
<td>TE012 Module 12 Electrical Wiring</td>
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<tr>
<td>TE013 Module 13 Electrical Wiring</td>
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<tr>
<td>TE014 Module 14 Electrical Fitting</td>
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<tr>
<td>TE015 Module 15 Electrical Fitting</td>
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<tr>
<td>TE016 Module 16 Trade Drawing</td>
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<td><strong>3rd year</strong></td>
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<tr>
<td>TE017 Module C51 Electrical Wiring</td>
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<td>TE018 Module C52 Electrical Wiring</td>
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<td>TE019 Module C53 Electrical Wiring</td>
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<tr>
<td>TE020 Module C54 Electrical Wiring</td>
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<tr>
<td>TE021 Module C55 Electrical Wiring</td>
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<td>TE023 Module C57 Electrical Wiring</td>
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<tr>
<td>TE024 Module C58 Electrical Wiring</td>
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</table>

External examinations (Education Department)

Equivalent SEC

<table>
<thead>
<tr>
<th>Subject Examined</th>
<th>Required modules completed</th>
<th>SEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE301 Elec. Wiring Theory 3</td>
<td>to C54</td>
<td>B' Gr. Th.</td>
</tr>
<tr>
<td>TE302 Elec. Wiring Pract. 2 &amp; 3</td>
<td>to C54</td>
<td>B' Gr. Pr.</td>
</tr>
<tr>
<td>TE401 Elec. Wiring Theory 4</td>
<td>to C58</td>
<td>A' Gr. Th.</td>
</tr>
<tr>
<td>TE402 Elec. Wiring Pract. 4</td>
<td>to C58</td>
<td>A' Gr. Pr.</td>
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</table>
**Post-trade**

**83571E Contracting, Estimating and Supervision**

<table>
<thead>
<tr>
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<th>Hours</th>
<th>week</th>
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<tbody>
<tr>
<td>TE501</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>TE506</td>
<td></td>
<td>2</td>
</tr>
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</table>

**Electrical technician**

Entrance standard:
These courses are available to apprentices who are prepared to undertake more study than is provided in the normal trade course. Students are usually required to complete English, Mathematics, Science and Technical Drawing at Leaving technical level at an early stage of the course. Minimum entry is completion of relevant form four subjects.

**83510E Technician – Electronics**

<table>
<thead>
<tr>
<th>Course detail</th>
<th>Hours</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TM130</td>
<td>2</td>
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<tr>
<td>TM170</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>TH140</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2nd year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TE228</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TM230</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>TM270</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>TH240</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3rd and 4th year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TE326</td>
<td>2</td>
<td></td>
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<tr>
<td>TE412</td>
<td>4</td>
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<tr>
<td>TE413</td>
<td>2</td>
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<tr>
<td>TE415</td>
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**83512E Technician – Electrical Power**

<table>
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<th>Hours</th>
<th>week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
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<td></td>
</tr>
<tr>
<td>TM130</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>TM170</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TH140</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2nd year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TE227</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TM230</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>TM270</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>TH240</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3rd and 4th year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TM120</td>
<td></td>
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<tr>
<td>TM160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TE329</td>
<td></td>
<td></td>
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<tr>
<td>TE339</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TE362</td>
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<tr>
<td>TE363</td>
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<tr>
<td>TE220</td>
<td></td>
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</tr>
<tr>
<td>TE210</td>
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**83511E Technician – Electrical Drafting**

<table>
<thead>
<tr>
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<th>Hours</th>
<th>week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>TM130</td>
<td>2</td>
<td>2</td>
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<td>TM170</td>
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<td>TH140</td>
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<tr>
<td>2nd year</td>
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<tr>
<td>TE277</td>
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<td>TM230</td>
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<td>TM170</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TH240</td>
<td>2</td>
<td></td>
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</tbody>
</table>

**83513E Technician – Motor Control**

To commence in 1977

**83570E Industrial Electronics Certificate course**

Entrance standard:
Satisfactory completion of two years of an electrical technician course or four years of an electrical trade course or an acceptable standard in any other approved course of study.

<table>
<thead>
<tr>
<th>Course detail</th>
<th>Hours</th>
<th>week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TE116</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TE117</td>
<td></td>
<td></td>
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<tr>
<td>2nd year</td>
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<tr>
<td>TE216</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TE217</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd year (choice of A or C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TE313</td>
<td></td>
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</tr>
<tr>
<td>TE314</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TE317</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TE318</td>
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</tbody>
</table>

**Certificate of Technology**

The following courses offered by this department provide the necessary academic training for the positions of technical officer, engineering assistant or engineering technician within the public service and private industry.

The training given during the course enables the student to supply technical support to the professional engineer, either with or without direct supervision and be able to relate to the trades personnel in the practical areas.

The students could be involved in any of the following areas in their employment: design development, installation, commissioning, operations or maintenance of plant or equipment associated with the electrical/electronics industry.

The courses offered are:

- **83520G Certificate of Technology (Electrical)**
- **835306 Certificate of Technology (Electronic), full-time**
- **83531G Certificate of Technology (Electrical Design Drafting)**
- **835506 Certificate of Technology (Electrical Drafting)**

Each of the above courses are offered on either a full- or part-time basis.

To gain the certificate of technology qualification it is necessary for the student to complete all subjects of the course and to have a minimum of one year of approved full-time work experience.
Full-time study
These courses require two years full-time attendance over a period of three years.

Part-time study
The courses extend over a minimum of four years part-time day release or evening attendance.

Entrance requirements
Students must have completed fifth form standard in English, Mathematics A, Mathematics B, Physics. Technical Drawing (Graphics) for the Design Drafting course.

Exemptions
Should be referred to the head of the department with suitable written evidence to support the claim.

83520G Certificate of Technology (Electrical)
83550G Certificate of Technology (Electrical Design Drafting)
To complete the academic sections of the above it is necessary to undertake the basic subjects listed below and a minimum of six of the electives listed:

Basic subjects
- TM120 Mathematics 1H
- TM220 Mathematics 2H
- TM160 Physics 1H
- TE133 Electrical Drafting 1H
- TE110 Applied Electricity 1H
- TE210 Applied Electricity 2H
- TE310 Applied Electricity 3H
- TH115 Communication and Report Writing
- TE119 Electronics 1H
- TE223 Electronics 2H (power)

Elective subjects
- TE323 Electronics 3H
- TE410 Applied Electricity 4H
- TE121 Applied Mechanics 1A & 1B
- TG221 Applied Mechanics 2A & 2B
- TE333 Electrical Drafting 2H
- TE360 Electrical Design 1H
- TE460 Electrical Design 2H
- TE527 Applied Heat 1H
- TE334 Properties of Materials
- TM320 Mathematics 3H
- TE419 Electrical Measurements
- TS431 Supervision 1A & 1B
- TE340 Electronics 3H (power)
- TE423 Control System 1H (power)

83530G Certificate of Technology (electronics), full-time

<table>
<thead>
<tr>
<th>Stage 1 (Semester 1 of first year)</th>
<th>TE123 Electronics 1H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 2 (Semester 2 of first year)</td>
<td>TM120 Mathematics 1H</td>
</tr>
<tr>
<td>Stage 3 (Semester training in second year)</td>
<td>TM160 Physics 1H</td>
</tr>
<tr>
<td>Stage 4 (Semester training in third year)</td>
<td>TH180 Social Science 1H</td>
</tr>
</tbody>
</table>

Examinations
To complete the academic sections of the above it is necessary to undertake the basic subjects and a minimum of six of the electives listed.

The choice of electives must be carried out in consultation with the head of the department, taking into account requirements of present or future employment.

Course details
Example of a certificate of technology (electronics) telecommunications course on a full-time basis.
Certificate of Technology and Higher Technician courses Mechanical. Courses are based on a core of basic mechanical subjects and a wide range of elective subjects, which provide for the diverse needs of aides to professional mechanical engineers.

Production. Three streams are available in the field of production engineering. Jig and tool design, quality control and work study are areas covered in these streams.

Design Drafting
Production (jig and tool)

Students who are employed in drawing offices and possess the necessary qualifications may enter these courses. Three courses are available.

Post-apprentice subjects

- Turning, Fitting & Machining. This is an evening course in basic machine shop practice to provide engineering draftsmen and others working in allied trades an opportunity to study subjects parallel with those covered during apprenticeship.

- Toolmaking. Toolmaking is a post-apprenticeship (fitting and machining) course designed to provide advanced training for tradesmen. Classes are available during day and evening.

The course involves three years’ study and includes practical training in boring, tool and gauge manufacture and thread grinding.

Welding courses

The welding courses cover the syllabus prescribed by the Education Department of Victoria to give instructions in all branches of oxy-acetylene and electric arc welding.

An education department certificate is granted to students who pass the final examination in grade three with 50% in theory and practice. With a pass mark of 65% in both theory and practice, a certificate from the Department of Labour and Industry (Boiler Inspection Branch) for the welding of pressure vessels may be obtained by the applicant subject to satisfactory evidence of suitable industrial experience.

Courses incorporate: Welding of ferrous and non-ferrous metals, flame cutting and gouging, all-positional welding of plate pipe, rolled and hollow steel section, use of all types of electrodes, weld testing.

For arc welding, courses are available for instruction in pressure pipe and stainless steel pressure plate to D.L.I. standards. The welding section of this department is an approved school of instruction in welding of all phases for the purpose of the Boiler Code S.A.A. C.B.I. Part V.

Courses include: Oxy-acetylene cutting, welding of cast irons, all-positional welding, flame gouging - hand and machine, template work, marking and cutting of pipe and pipe templates, welding of non-ferrous metals, safety precautions, general information as required by a welder.

Day classes in welding are conducted as required for diploma students, technicians and second year metal fabrication apprentices.

Enquiries
Contact - Mr. J.R. Riley, 819 8433.

83601D Apprenticeship, Fitting and Machining

Entrance standard:
Satisfactory completion of form three in a technical school, or an equivalent course, with passes in specified subjects.

Eight hours each week for three years.

Course detail

| TF001 | Module 1 – Theory and Practice |
| TF002 | Module 2 – Related Studies |
| TF003 | Module 3 – Theory and Practice |
| TF004 | Module 4 – Related Studies |
| TF005 | Module 5 – Theory and Practice |
| TF006 | Module 6 – Related Studies |
| TF007 | Module 7 – Theory and Practice |
| TF008 | Module 8 – Related Studies |
| TF009 | Module 9 – Theory and Practice |
| TF010 | Module 10 – Related Studies |
| TF011 | Module 11 – Theory and Practice |
| TF012 | Module 12 – Related Studies |
| TF013 | Module 13 – Theory and Practice |
| TF014 | Module 14 – Related Studies |
| TF015 | Module 15 – Theory and Practice |
| TF016 | Module 16 – Related Studies |
| TF017 | Module 17 – Theory and Practice |
| TF018 | Module 18 – Theory and Practice |
| TF019 | Module 19 – Theory and Practice |
| TF020 | Module 20 – Heat Treatment |
| TF021 | Module A51 – General Fitting |
| TF022 | Module A52 – General Fitting |
| TF023 | Module A53 – General Fitting |
| TF024 | Module A54 – General Fitting |
| TF025 | Module B51 – Welding |
| TF026 | Module B52 – Welding |
| TF027 | Module B53 – Welding |
| TF028 | Module B54 – Welding |
| TF029 | Module F51 – Gear Cutting |
| TF030 | Module F52 – Gear Cutting |
| TF031 | Module F53 – Gear Cutting |
| TF032 | Module F54 – Gear Cutting |
| TF033 | Module H51 – Tool and Gauge Making |
| TF034 | Module H52 – Tool and Gauge Making |
| TF035 | Module H53 – Tool and Gauge Making |
| TF036 | Module H54 – Tool and Gauge Making |
| TF037 | Module C51 – Construction Equipment |
| TF038 | Module C52 – Construction Equipment |
| TF039 | Module C53 – Construction Equipment |
| TF040 | Module C54 – Construction Equipment |

83603D Boilermaking

| TF601 | Module 1 – Theory and Practice |
| TF602 | Module 2 – Theory and Practice |
| TF603 | Module 3 – Theory and Practice |
| TF604 | Module 4 – Theory and Practice |
| TF605 | Module 5 – Theory and Practice |
| TF606 | Module 6 – Theory and Practice |
| TF607 | Module 7 – Related Instruction |
| TF608 | Module 8 – Related Instruction |
| TF609 | Module 9 – Theory and Practice |
| TF610 | Module 10 – Theory and Practice |
| TF611 | Module 11 – Related Instruction |
| TF612 | Module 12 – Theory and Practice |
| TF613 | Module 13 Theory and Practice |
| TF614 | Module 14 – Theory and Practice |
| TF615 | Module 15 – Related Instruction |
| TF616 | Module 16 – Related Instruction |
**Technician courses**

**Entrance standard:**
These courses are available to apprentices who are prepared to undertake more study than is provided in the normal trade course. Students are usually required to complete English, Mathematics, Science and Technical Drawing at Leaving technical level at an early stage of the course. Minimum entry is satisfactory completion of a suitable fourth form course.

### Technician – Mechanical Fluid Power

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Notes</th>
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<tbody>
<tr>
<td><strong>1st year</strong></td>
<td></td>
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</tr>
<tr>
<td>TH140</td>
<td>English 1T</td>
<td>)</td>
</tr>
<tr>
<td>TF126</td>
<td>Leaving Technical Drawing A</td>
<td>)</td>
</tr>
<tr>
<td>TM130</td>
<td>Mathematics 1T</td>
<td>)</td>
</tr>
<tr>
<td>TM170</td>
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<tr>
<td><strong>2nd year</strong></td>
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<tr>
<td>TH240</td>
<td>English 2T</td>
<td>)</td>
</tr>
<tr>
<td>TM230</td>
<td>Mathematics 2T</td>
<td>)</td>
</tr>
<tr>
<td>TF227</td>
<td>Metallurgy 1T</td>
<td>)</td>
</tr>
<tr>
<td>TM270</td>
<td>Science 2T</td>
<td>)</td>
</tr>
<tr>
<td><strong>3rd year</strong></td>
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<td></td>
</tr>
<tr>
<td>TF319</td>
<td>Mechanics 1T</td>
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</tr>
<tr>
<td>TF379</td>
<td>Fluid Power 1T</td>
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<tr>
<td><strong>4th year</strong></td>
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<tr>
<td>TF477</td>
<td>Fluid Power 2T</td>
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<td>plus</td>
<td>1 approved elective</td>
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### Technician – Mechanical Thermal Plant

<table>
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<tr>
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<td><strong>1st year</strong></td>
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</tr>
<tr>
<td>TH140</td>
<td>English 1T</td>
<td>)</td>
</tr>
<tr>
<td>TF126</td>
<td>Leaving Technical Drawing A</td>
<td>)</td>
</tr>
<tr>
<td>TM130</td>
<td>Mathematics 1T</td>
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</tr>
<tr>
<td>TM170</td>
<td>Science 1T</td>
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<tr>
<td><strong>2nd year</strong></td>
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<td></td>
</tr>
<tr>
<td>TH240</td>
<td>English 2T</td>
<td>)</td>
</tr>
<tr>
<td>TM230</td>
<td>Mathematics 2T</td>
<td>)</td>
</tr>
<tr>
<td>TF227</td>
<td>Metallurgy 1T</td>
<td>)</td>
</tr>
<tr>
<td>TM270</td>
<td>Science 2T</td>
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<tr>
<td><strong>3rd year</strong></td>
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<tr>
<td>TF319</td>
<td>Mechanics 1T</td>
<td>)</td>
</tr>
<tr>
<td>TF329</td>
<td>Applied Heat 1T (approved elective)</td>
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</tr>
<tr>
<td><strong>4th year</strong></td>
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<td></td>
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<tr>
<td>TF419</td>
<td>Mechanics 2T</td>
<td>)</td>
</tr>
<tr>
<td>TF430</td>
<td>Applied Heat 2T</td>
<td>)</td>
</tr>
<tr>
<td>plus</td>
<td>1 approved elective</td>
<td>)</td>
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</tbody>
</table>

### Technician – Mechanical Refrigeration and Air-conditioning

**Note:** All apprentice technicians are to enter for theory-practice and related studies modules.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TH140</td>
<td>English 1T</td>
<td>)</td>
</tr>
<tr>
<td>TF126</td>
<td>Leaving Technical Drawing A</td>
<td>)</td>
</tr>
<tr>
<td>TM130</td>
<td>Mathematics 1T</td>
<td>)</td>
</tr>
<tr>
<td>TM170</td>
<td>Science 1T</td>
<td>)</td>
</tr>
<tr>
<td><strong>2nd year</strong></td>
<td></td>
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<tr>
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<td>English 2T</td>
<td>)</td>
</tr>
<tr>
<td>TM230</td>
<td>Mathematics 2T</td>
<td>)</td>
</tr>
<tr>
<td>TF227</td>
<td>Metallurgy 1T</td>
<td>)</td>
</tr>
<tr>
<td>TM270</td>
<td>Science 2T</td>
<td>)</td>
</tr>
<tr>
<td><strong>3rd year</strong></td>
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<td></td>
</tr>
<tr>
<td>TP349</td>
<td>Refrigeration 1T</td>
<td>)</td>
</tr>
<tr>
<td>TP348</td>
<td>Air-conditioning 1T</td>
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<tr>
<td>TP339</td>
<td>Instrumentation T</td>
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<tr>
<td><strong>4th year</strong></td>
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<tr>
<td>TP449</td>
<td>Refrigeration 2T</td>
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<td>TP448</td>
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<tr>
<td>TP429</td>
<td>Process Heating T</td>
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</tr>
</tbody>
</table>

### Technician – Mechanical Drafting

**Note:** All apprentice technicians are to enter for theory-practice and related studies modules.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<td><strong>1st year</strong></td>
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<tr>
<td>TH140</td>
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<tr>
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<tr>
<td>TM170</td>
<td>Science 1T</td>
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<td><strong>2nd year</strong></td>
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<tr>
<td>TH240</td>
<td>English 2T</td>
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<td>TM230</td>
<td>Mathematics 2T</td>
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<tr>
<td>TF227</td>
<td>Metallurgy 1T</td>
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<td>TM270</td>
<td>Science 2T</td>
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<td><strong>3rd year</strong></td>
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<tr>
<td>TF319</td>
<td>Mechanics 1T</td>
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</tr>
<tr>
<td>TF358</td>
<td>Drafting Practice 1T</td>
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<td>TF308</td>
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<td>TF456</td>
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<td>plus</td>
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### Technician – Mechanical Fluid Power

<table>
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<td>TM170</td>
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<td>TM230</td>
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<tr>
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<tr>
<td>TF319</td>
<td>Mechanics 1T</td>
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<td>TF379</td>
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<td>plus</td>
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### Engineering Division

**83614E Technician – Production Jig & Tool Drafting**

<table>
<thead>
<tr>
<th>Hours</th>
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<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
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<tbody>
<tr>
<td></td>
<td>TH140</td>
<td>TH240</td>
<td>TH318</td>
<td>TH410</td>
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<td>English I T</td>
<td>English 2T</td>
<td>Metrology IT</td>
<td>Toolmaking Theory 1</td>
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<tr>
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<td>TF051</td>
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<td></td>
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<td>Toolmaking Practice 1</td>
<td>Production Processes &amp; Development IT</td>
<td>Production Processes &amp; Development IT 1</td>
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<td>TF417</td>
<td>TF359</td>
<td>TF502</td>
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<td>Mathematics I T</td>
<td>Production Processes &amp; Development IT 1</td>
<td>Toolmaking Practice 1</td>
<td>Toolmaking Theory 1</td>
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<td>TM170</td>
<td>TF418</td>
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<tr>
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<td>Science I T</td>
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<td>Science 2T</td>
<td>Production Processes &amp; Development IT 1</td>
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**Note:** All apprentice technicians are to enter for theory-practice and related studies modules.

### 83615E Technician – Production Heat Treatment

<table>
<thead>
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<th>Hours</th>
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<tr>
<td></td>
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<tr>
<td></td>
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<td>English 2T</td>
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<td>Toolmaking Practice 1</td>
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<td>Engineering Inspection</td>
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<td>Production Processes &amp; Development IT 1</td>
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**Note:** All apprentice technicians are to enter for theory-practice and related studies modules.

### 83616E Technician – Production Engineering Inspection and Metrology

<table>
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<tr>
<th>Hours</th>
<th>1st year</th>
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<th>3rd year</th>
<th>4th year</th>
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<tbody>
<tr>
<td></td>
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<td>TH240</td>
<td>TH318</td>
<td>TH410</td>
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<td></td>
<td>English I T</td>
<td>English 2T</td>
<td>Metrology IT</td>
<td>Toolmaking Theory 1</td>
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<td>TF051</td>
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<td>TF417</td>
<td>TF359</td>
<td>TF502</td>
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<td></td>
<td>Mathematics I T</td>
<td>Production Processes &amp; Development IT 1</td>
<td>Toolmaking Practice 1</td>
<td>Toolmaking Theory 1</td>
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<tr>
<td></td>
<td>TM170</td>
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<td>TM270</td>
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<td>Science I T</td>
<td>Engineering Inspection</td>
<td>Science 2T</td>
<td>Production Processes &amp; Development IT 1</td>
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</tbody>
</table>

**Note:** All apprentice technicians are to enter for theory-practice and related studies modules.
**Certificate of Technology and Higher Technician Certificates**

Entrance standard:
Students doing these courses usually should be employed in the associated branch of industry. The courses generally extend over four years of part-time study; but many of the courses are also available on a block basis. Entry requirements are satisfactory completion of English, Mathematics, Science, and in some cases, Technical Drawing at the Leaving technical level.

Consideration will be given to matureage applicants without the above qualifications.

### 8362G Certificate of Technology -- Mechanical

The course consists of 30 units taken from the areas below. Each area specifies the number of units to be taken. Each unit consists of 2 to 3 hours per week of study for a semester (Three hours applies where practical work is involved):

<table>
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<tr>
<th>Basic units</th>
<th>Units</th>
<th>Advanced units</th>
<th>Units</th>
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<tr>
<td>(Minimum of 6 units including units of Communication &amp; Report Writing)</td>
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<tr>
<td>TH115 Communication &amp; Report Writing</td>
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<td>TM260 Physics 2A &amp; 2B(2H)</td>
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<tr>
<td>TM220 Mathematics 2A &amp; 2B(2H) (where necessary, appropriate bridging</td>
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<tr>
<td>mathematics for entry into Maths 2A &amp; 2B)</td>
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<tr>
<td>TM160 Physics 1A &amp; 1B(1H)</td>
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<tr>
<td>TS215 Behavioural Studies 1A</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS216 Behavioural Studies 1B</td>
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<td></td>
<td></td>
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<tr>
<td>Related background studies</td>
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<tr>
<td>(Maximum of 8 units including not more than 6 basic units)</td>
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<tr>
<td>TE110 Applied Electricity 1H</td>
<td>2</td>
<td>TE210 Applied Electricity 2H</td>
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<td>TE119 Circuit Theory 1H</td>
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<td>TE219 Circuit Theory 2H</td>
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<td>TE133 Electrical Drafting 1H</td>
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<td>TF353 Computer Techniques 1A &amp; 1B</td>
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<td>TF370 Tooling &amp; Inspection Methods</td>
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<tr>
<td>TF364 Work Methods Improvement 1</td>
<td>2</td>
<td></td>
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<tr>
<td>TF367 Work Measurement 1</td>
<td>2</td>
<td></td>
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<tr>
<td>TF318 Metrology 1A &amp; 1B(1T)</td>
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<td>TF420 Metrology 2A &amp; 2B(2T)</td>
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<td>Basic practices (As required, but must include the following 12 units:</td>
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<tr>
<td>Materials &amp; Processes 1A &amp; 2A,</td>
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<tr>
<td>Drafting 1A &amp; 1B, 2A &amp; 2B(2B)</td>
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<tr>
<td>Mechanical Drafting 1A &amp; 1B</td>
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<td>TF258 Mechanical Drafting 2AK &amp; 2BK (internally assessed)</td>
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<td>Materials &amp; Processes 1A</td>
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<td>TF330 Materials &amp; Processes 2A</td>
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<td>Specialist practices (as required)</td>
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<tr>
<td>Mechanical Design 1A &amp; 1B</td>
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<td>TF457 Mechanical Design 2A &amp; 2B, 2C &amp; 2D</td>
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<tr>
<td>Machines &amp; Mechanisms 1A &amp; 1B</td>
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<td>Mechanics of Fluids and Fluid Machinery 1A &amp; 1B</td>
<td>2</td>
<td></td>
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<tr>
<td>Refrigeration &amp; Air-conditioning 1A &amp; 1B</td>
<td>2</td>
<td></td>
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<tr>
<td>Supervision 1A &amp; 1B</td>
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</table>
83622G  Certificate of Technology – Production (work study)

The course consists of 22 core units and a minimum of 8 elective units of which 4 must be from engineering practice and related studies.

Core units  Hours
---  ------
TM120  Mathematics 1A & 1B (1H)  2  2
TM160  Physics 1A & 1B (1H)  2  2
TH115  Communication  2  2
TS215  Behavioural Science 1A  1  2
TS216  Behavioural Science 1B  1  2
TF364  Work Methods Improvement 1  2  2
TF365  Work Methods Improvement 2A  2  2
TF366  Work Methods Improvement 2B  2  2
TF367  Work Measurement 1  2  2
TF368  Work Measurement 2  2  2
TF369  Work Measurement 3  2  2
TF370  Tooling & Inspection Methods  2  2

Elective units  Hours
---  ------
TS245  Principles of Organisation  2  2
TS242  Introduction to Economics  2  2
TS243  Introduction to Law 1A  1  2
TS244  Introduction to Law 1B  1  2
TS120  Data Processing  2  2
TF417  Production Processes & Development 1A & 1B (1T)  2  3
TF450  Production Processes & Development 2A & 2B  2  3
TS150  Production Techniques 1A  1  2
TS151  Production Techniques 1B  1  2
TS250  Production Techniques 2A  1  2
TS251  Production Techniques 2B  1  2
TF230  Materials & Processes 1A  1  3
TF330  Materials & Processes 2A  1  3
TF121  Applied Mechanics 1A & 1B (1H)  2  2
TF271  Applied Mechanics 2A & 2B (2H)  2  2
TF327  Applied Heat 1A & 1B (1H)  2  2
TF427  Applied Heat 2A & 2B (2H)  2  2

4th year
TF461  Organisation & Management on Inspection H  3
TF421  Statistical Analysis H  4
plus:
1 approved elective

83651G  Higher Technician – Production Jig & Tool Design

Approved electives
TF440  Production Control H  2
TM441  Computer Applications H  2
TF442  Reliability H  2
TF443  Electronic & Electrical Inspection H

83621G  Higher Technician – Production Quality Control

Stage 1
TM120  Mathematics 1H  2
TM160  Physics 1H  2
TF121  Applied Mechanics 1H  2
TF318  Metrology 1T  2
TF180  Mechanical Drafting 1H  2
TF309  Machine Shop Practice 1H  4

Stage 2
TM220  Mathematics 2H  2
TF221  Applied Mechanics 2H  3
TF417  Production Processes & Development 1T  3
TF260  Jig & Tool Drafting 2H  2
TF409  Machine Shop Practice 2H  4

Stage 3
TF501  Toolmaking 1 Theory  1½
TF502  Toolmaking 1 Practice  2½
TF360  Jig & Tool Design 1H  4

Stage 4
TF450  Production Processes & Development 2N  3
TF460  Jig & Tool Design 2H  4
plus:
1 approved elective

83670E  Toolmaking

Course detail  Hours
---  ------
TF501  Toolmaking Theory 1  2
TF502  Toolmaking Practice 1  3
TF503  Toolmaking Theory 2  2
TF504  Toolmaking Practice 2  3
TF505  Toolmaking Theory 3  2
TF506  Toolmaking Practice 3  3

Post-apprenticeship

Entrance standard: Students may continue their practical studies in higher skills in various fields. It is necessary that the relevant trade studies have been completed.

Engineering Division
Welding

Entrance standard:
There are no prerequisite qualifications to join either welding classes, however to gain maximum benefit from the course, intending students should be employed in a relevant field of the welding industry. Many tradesmen wishing to improve their opportunities of advancement are finding the acquisition of these certificates a necessity.

Duration of either course: 3 years.

Course detail

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<th>Course Name</th>
<th>Hours week</th>
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<td>TF711</td>
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<td>TF810</td>
<td>Electric Welding Theory 2</td>
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<td>TF811</td>
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<td>TF910</td>
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<td>TF911</td>
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<td>TF950</td>
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<tr>
<td>TF921</td>
<td>Oxy-acetylene Welding Practice 3</td>
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</table>

General Studies Division

Preliminary or Tertiary Orientation Year

The preliminary or tertiary orientation course is designed to meet the needs of students who intend to proceed to tertiary education. In particular, students are prepared for the tertiary courses offered in Swinburne College of Technology.

In the allocation of places, preference is given to the following applicants:

- Students who have completed fifth form successfully, at a Knox regional technical school and people from the workforce.
- Usually there are a number of places available for other applicants.
- Career opportunities for students who complete the year successfully are in most respects equivalent to the opportunities available to successful HSC students.

Closing date for applications is 2 February 1977.
However, applicants who apply before 8 December 1976 will be given preference.

Enquiries
Mr. G.A. Harrison, 819 8183.
Mr. R. Gullan, 819 8378.
Mrs. U. Abernethy, 819 8370.

Science/Engineering

Mr. R. Gullan, 819 8378.

Other Courses

The course offered is for one year of full-time study, or two or more years part-time study in a range of subjects.

Subjects offered are:

- TH001 Attitudes in 19th Century Australia
- TH003 Art
- TM004 Biology
- TM005 Chemistry
- TS008 Economics
- TH010 English
- TH015 History of Western Civilization
- TH020 Introduction to Modern Government
- TM025 Mathematics (Science)
- TM030 Mathematics (General)
- TH032 Media Studies
- TM040 Physics
- TM045 Study of Ideas
- TH035 Personal Typing (available to students on a semester basis)

Students study five subjects of which four, including English, must be passed for successful completion of the year.

- 847405 General Studies (Art, arts and business) – full-time
- 847415 General Studies (Art, arts and business) – part-time

Typical programs are as follow:

A general course

TH030 English and a choice of four other subjects.

Other Courses

The course offered is for one year of full-time study, or two or more years part-time study in a range of subjects.

Subjects offered are:

- TH001 Attitudes in 19th Century Australia
- TH003 Art
- TM004 Biology
- TM005 Chemistry
- TS008 Economics
- TH010 English
- TH015 History of Western Civilization
- TH020 Introduction to Modern Government
- TM025 Mathematics (Science)
- TM030 Mathematics (General)
- TH032 Media Studies
- TM040 Physics
- TM045 Study of Ideas
- TH035 Personal Typing (available to students on a semester basis)

Students study five subjects of which four, including English, must be passed for successful completion of the year.

- 847405 General Studies (Art, arts and business) – full-time
- 847415 General Studies (Art, arts and business) – part-time

Typical programs are as follow:

A general course

TH030 English and a choice of four other subjects.
The aim of the course is to produce graduates who have sufficient knowledge of a variety of laboratory techniques, methods and procedures to provide immediate support to professional scientists, engineers and teachers working in laboratory situations.

The course is usually of four years duration and entails a half-day release, as well as one or two evening sessions per week. Provision is made for students to commence the course on a full-time basis, while they are seeking appropriate employment.

Entry requirements are the successful completion of relevant fifth-form subjects, although applicants with work experience may be admitted with less than fifth form level qualifications.

The choice of subjects available in the course caters for the needs of technicians in industrial, university, college and school laboratories.

Enquiries
Mr. J. Scott, 819 8379, Course Coordinator
Mr. R. Collan, 819 8378, Head of Maths and Science Department
Mr. G.A. Harrison, 819 8183, Head of General Studies Division

An approved course comprises 24 units including:

(a) 11 common units as detailed in Category 1

(b) 5 or more selected from Category 2A (Industrial/Research/College chemists or all units detailed in Category 2B (for School Laboratory Technicians)

(c) the necessary balance of elective units selected from Category 3, or in the case of School Laboratory Technicians from Category 2A and Category 3.
Subject details

Accounting 1A
Semester unit covering basic bookkeeping documents, books of original entry, ledger, revenue accounts and balance sheets with adjustments at balance day.

Accounting 1B
Semester unit covering financial control to understand coding and capabilities of equipment used in mechanical and electronic data processing equipment; to understand methods of recording and controlling cash, debtors, creditors, and payroll; to understand accounting records and reports of clubs.

Accounting 1C
Semester unit covering physical control of stock and fixed assets; preparation of records from incomplete systems; departments and branches, take-over of sale proprietorship; manufacturing statements.

Accounting 2A
Semester unit covering multiple ownership, converting existing business into a partnership or company, processes of forming a partnership, admission of partner, dissolution and formation of a company; statutory and other registers relating to shares and debentures.

Accounting 2B
Semester unit covering financial evaluation and planning. Sources of finance, fund statement and accounting ratios, role of budgeting, preparation of sales budget.

Accounting 2C
Semester unit covering costing elements, role of cost accountant; procedures, use, forms involved; material, labour, manufacturing costing.

Accounting 2D
Semester unit covering costing systems, role of cost accountant, procedures, forms, terminology, costing systems, process, standard costs, cost-volume profit relationships, by-products and joint products.

Accounting 2E
Semester unit on internal control, meaning, features and reliability of internal control systems.

Accounting 2F
Semester unit on auditing. Role of auditor, audit process relationship between internal control and external audit. Fundamental audit concepts.

Accounting 2G
Semester unit on budgeting procedures, preparation of budgets relating to a manufacturing concern, and to complete performance reports from these budgets.

Accounting 2H
Semester unit. Introduction to taxation, basic income tax procedures, group tax, payroll tax, sales tax, forms and documents relating to tax returns, use of income tax assessment act, payroll tax assessment act and sales tax assessment act.

Accounting 2J
Semester unit. Income tax law and practice, calculation of taxable income, sole proprietors, primary producers, companies, trusts, superannuation funds; responsibilities of tax agent. Recognition of problems.

Advanced Building Graphics
Techniques of graphic communication applied to building.

Air-conditioning 1T
The study of air, temperature, humidity, the gas laws and how to use them. Change of state from liquid to vapour; superheated vapours and the use of steam tables.

Psychrometry covering humidity, dem point, wet and dry bulb temperatures and measurement of air conditions and instruments used.

Air-conditioning 2T
Methods of reducing noise and vibration from equipment and pipe work. Air-conditioning systems and arrangement of equipment. Duct design, external and internal heat loads. Moisture transfer. Air-cooling and spray equipment.

Applied Geometry

Applied Heat 1T & 1H
Emphasis is placed on the qualitative development of the following topics: Temperature measurement and control, heat and heat transfer behaviour of gases, properties of steam, boilers and turbines, combustion, IC engines, air compressors.

Applied Heat 2H
Extension of Applied Heat 1H. Steady flow energy equation, power cycles, boiler plant, condensers, turbines, refrigeration, combustion, heat transfer.

Applied Mechanics and Applied Mechanics I

Applied Mechanics 1H

Applied Mechanics 2H
Applied Mechanics 3H

Attitudes in 19th Century Australia
Covers the period 1750–1901. The topics are planned to explore developments in early Australian history and whether they have persisted, changed or become myths. Students have the opportunity to do further research into topics of particular interest to them. Primary material is basic and wider reading encouraged.

Art
The subject consists of both history of art and practical work. For assessment, work in both areas is considered equally.
The history course explores two areas: 20th century movements in art and Australian art.
In the practical sessions, in addition to painting, other avenues of expression are employed.
Basic Measuring and Levelling (plumbing)
Efficient use of the dumpy Level, theodolite and other measuring instruments. Measurement procedures and the application of theory in practical situations.

Basic Quantities and Estimating
An introduction to quantity taking and estimating in the building industry.

Behavioural Studies 1A
Semester unit. Heredity and environment, needs and their satisfaction.

Behavioural Studies 1B
Semester unit. Groups and their relationships, groups and environmental factors.

Biochemistry 1S
Including conservation and dissipation of energy – types of biological compounds (properties and reactions) – metabolism – catabolic and anabolic – control and integration of metabolic pathways. Demonstrations of equipment – practical work.

Biochemistry 2S
Excursion into biochemical knowledge in certain important areas. Enzyme action, digestion, nutrition, isotopes, blood, muscle nerve biochemistry. Heredity. Immunology.

Biology 1A
Biological principles and materials. Awareness of the diversity of living organisms in nature and skills involved in handling of living materials.

Biology 1B
Supply and maintenance of living organisms. Sources of supply and methods of obtaining organisms for biology. Maintenance of organisms in the laboratory.

Biology (Preliminary year)
The course investigates, in a practical way, what takes place within the individual organism – with the internal structure, physiology and biochemistry – and with the ways in which the characteristics of the organism are determined and passed from one generation to the next.

Building Appreciation 1 T
To familiarise the student with terms used in the building industry and to develop the ability to read architectural drawings in conjunction with mechanical drawings and extract relevant information and dimensions.

Building Administration and Supervision
Approached from the points of view of the builder, the client and public authorities. Role of building surveyor.

Building Construction 1A
Basic principles of structure. Timber technology. Domestic building construction including timber framing, brickwork, masonry, foundations, footings, roof plumbing, joinery, internal fittings, services, plastering, painting. Simple concrete work.

Building Construction 1B
A folio of drawings covering eight selected topics, appropriate to the grade, to be submitted for examination at the end of the year. Some of the drawings will be solutions of given problems.

Building Construction 2A

Building Construction 2B
A folio of drawings covering eight selected topics, appropriate to the grade, to be submitted at the end of the year for examination. Drawings will be solutions to given problems.

Building Construction 2C

Building Construction 3A

Building Construction 3B
A folio of drawings covering eight selected topics, appropriate to the grade, to be submitted at the end of the year for examination. Drawings will be solutions of given problems.

Building Construction 3C
Design principles applied to structures.
Building Foremanship

Planning, organisation and daily administration of building projects from the point of view of given problems.

Building Mathematics 1


Building Mathematics 2


Building Science (T) A & B


Building Science 1A & B (building surveyors)


Building Surveying (T) Theory, Mathematics, Field

Areas of plane figures and volumes of solids. Use of levelling instruments (dumpy, theodolite, etc.). Measuring distances, recording observations datum points, bench marks, grades, bearings.

Building Services

A study of services to, from and within a building or site, including electrical, mechanical, hydraulic, civil and interior decoration services.

Business Backgrounds

Full year subject covering Australian natural and human resources, Australian industries, Australian business structure.

Business Mathematics 1A

Semester unit covering computation situations involving business mathematics, specialised mathematical application.

Business Mathematics 1B

Semester unit covering statistics, statistical processes in business, solution of business problems, use of formulae.

Business Practice and Basic Bookkeeping (plumbing)

Basic accounting concepts, basic data processing, accounting for contractors, office accounting techniques

Carpentry & Joinery

Module 1, Plane geometry: Basic concepts and constructions of squares, rectangles, triangles and regular polygons from data supplied.

Solid geometry: introduction to orthographic descriptions, reference plans and isometric drawing. Orthographic description, isometric drawings and developments of prisms, cylinders and pyramids.


Module 4, Trade drawing and practice. Skillion and gable roofs; eaves finishes.

Module 5, Trade drawing and practice: Simple joinery, preparation of set-out nods, cutting lists, construction, fitting hardwood and fixing architraves.

Module 6, Trade mathematics, trade theory and trade science: quantities, revision of mensuration, making out a ‘bill’. Types of doors and other joinery. Fencing. Floor construction, villa wall framing, including assembly, erection and bracing. Timber conversion and seasoning.

Module 7, Trade drawing and practice: Fence construction, gates, flywire doors.

Module 8, Trade drawing and practice: Dwelling: ‘L’ shaped in plan – setting out and construction

Module 9, Plane geometry: construction of regular polygons, ellipses and arches.

Solid geometry: solids cut by cutting planes. Conic sections.

Module 10, Trade mathematics: taking off quantities of timber for ceiling and roofing timbers, doors and door frames.

Trade theory: ceilings, hipped roofs, doors and door frames, glass, hardware, simple scaffolding.

Trade science: timber seasoning and reconditioning adhesives.

Module 11, Trade drawing and practice: ceilings and roofs for L shaped dwelling.

Module 12, Trade drawing and practice: door and door frames – internal and external.

Module 13, Trade drawing and practice: double hung windows – frames and sashes.


Trade science: sub-floor ventilation, timber grading and preservation.


Module 16, Trade drawing and practice: hip and valley roofs.

Module A51/B51, The study of the design and construction of functional systems of concrete formwork in timber.

Module A52, Study of the design and construction of hip and valley roofing of equal pitch over irregular shaped plans.
Module A53/B53. Fitting door jambs; fitting and hanging doors; fixing architraves, skirting and mouldings.
Module A56/B56/C56. Study of the design, construction, taking-off material and costing of staircases.
Module A57. Study of the design and construction of unequally pitched roof frames.
Module A58. Study of the construction of centres, dead and raking shores, slab on ground and the work of a carpenter in two storey domestic construction.
Module B52. Study of construction of systemised units of formwork suitable for off-form concrete.
Module B55. Preparation of drawings and construction of roof trusses and ceilings for industrial buildings.
Module B57. Study of site works, setting out and levelling.
Module B58. Construction of large centres, shoring and timbering of trenches.
Module C52/D52. Setting out and construction of timber doors, windows and louvres.
Module C53/D53. Setting out and construction of timber doors and windows incorporating curved work.
Module C57. Identification, design, planning the construction, taking off material and costing of stairs:
(a) with cut and strings,
(b) winders.
Module C58. Setting out and construction of a unit of geometrical stairs incorporating a wreathed string and handrail.

Chemistry (preliminary year)
Section A: fundamentals. Atomic structure, chemical bonding, stoichiometry, thermodynamics, chemical kinetics, chemical equilibrium in gases, solutions, redox reactions, organic chemistry.
Section B: lectures. Films and reading assignments on topics such as corrosion and electrochemistry, sewage disposal, pollution, fuels, polymers, lubricants and building materials.

Chemistry 1

Chemistry 2S
Embraces, at post-matriculation level, a study of dissociation, hydrolysis, oxidation and reduction. Introduction to gravimetric and volumetric analysis and elementary organic chemistry.

Clerical Practice 1
Full year subject. The role of the office, office clerical procedures, documents used in offices.

Clerical Practice 2
Full year subject. Tasks of section head, small office manager, office supervision, analysis and integration of office functions, evaluation of existing methods and instigating corrective measures. Application of analysis techniques.

Communication
The examination of methods of collecting, organising, evaluating and presenting factual information. Oral presentations, report writing, letters, memos and media analysis.

Computations
Aids to computation – slide rules, tables, calculators – capability of computers – formula programming.
Plotting, reading and solution of graphs. Sample problems related to industry.

Computer Applications H
The aim is to interpret data from printouts. Topics: fundamental rules in using Cobol and Fortran, program development. Application: sales, production control, stock control etc.

Chemistry Laboratory Techniques 1
Comprises a combination of lectures, demonstrations and student experiments including:
Handling and storage of chemicals, safety and first aid in laboratory, sampling, care of balances and glassware, analytical procedures.

Chemistry Laboratory Techniques 2
Includes safety rules, precautions and techniques involved in gravimetric and volumetric quantitative analyses. Identification of organic compounds.

Contracts & Building Law
The role of the architect in building, the obligations of the architect and builder, types and conditions of contracts, tenders and building regulations.

Construction Methods and Practice (plumbing)
To develop an understanding of structural systems and their organisation with particular reference to the effect on plumbing systems.

Crane Drivers, Dogmen and Crane Chasers
A course based on the theoretical requirements for crane drivers, dogmen and crane chasers as defined in the Lifts and Cranes Act, Victoria.

Data Processing 1
Full year subject. Understanding various types of data processing equipment – manual, key pressing, semi-automatic, automatic, electronic.

Data Processing 2
Full year subject. Electronic data processing, programming systems, language operation.

Data Processing 3
Full year subject dealing mainly with cobol programming.

Drafting Practice 1T
Geometric constructions relative to the interpenetration of pipes and ducting. Construction of involutes, cycloids and loci of points in mechanisms. Detail drafting relative to dies, forgings and fabricated parts.
Drafting Practice 2T

Drainage Design
Development of skills in the drafting and design of sanitary drainage installation relating to sewerage regulations. Installation and connection requirements for special apparatus.

Economic Geography
Full year subject covering man and his environment, world patterns, international interdependence.

Educational Aids Techniques 1
Understanding and operation of a wide range of audio-visual equipment. Preparation of slides and transparencies. Simple maintenance of equipment. Copying machines. The subject will be taken in a practical context.

Electrical Contracting and Estimating

Electrical Mechanics

English 1T
Development of ability to read with comprehension and appreciation. Practice in oral and written English. Preparation of clear, concise notes and summaries.

English 2T

English (building technician)

English (preliminary level)
A general course which requires the student to read widely, research topics and form judgements. A wide range of written work is covered including, essay, original writing, critical evaluation, questionnaire and presentation of a folio of individually chosen work. Oral communication is emphasised, involving practice in short reports, discussions, debates and interviews. In addition students will be offered a wide choice of electives including extra study in basic English, media, drama, contemporary literature, traditional literature and formation of social attitudes.

Estimating and Quantity Surveying (plumbing)
To develop techniques and skills in estimating, pricing, cash flow and related matters, including pricing, overhead and profit, tenders. rise and fall considerations, progress payments.

Factory Inspections
To acquaint students with some fundamentals of chemical industry by studying the relationships which exist between unit operations, chemical processes and quality control. Communication of technical information.
To study plant and laboratory layout-safety features, government regulations.

Fitting and Machining Modules
Module 1. Safety principles, marking out, hand tools, filing, measuring and testing tools, lathe preparation, lathe operations.
Module 3. Filing, chisels and chipping, drills and drilling, turning operations, equipment used to hold and set plain work on machines.
Module 5. Filing, drills and drilling machine cutting tools, lathe operations. shaping machine.
Module 6. Cutting speeds – related to shaping, application of sine, cosine, and tangent ratios, revision of fractions. Sketching to include methods of fastening parts, machining symbols, auxiliary projection, drawing exercises. Forces – work, energy, power, foundry practices.
Module 7. Filing, drilling, grinding practice, screw cutting in lathe, planing and slitting machines.

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Module 11. Screw cutting, form turning, Turret and Capstan lathes.


Module 13. Fitting, checking a lathe for accuracy.

Module 14. Revision of trigonometry, transportation and substitution of formula. Third angle projection, scale drawings, adjacent parts, assembly and detail drawings, sketching. Material testing methods and machines, hydraulics.

Module 15. Milling machine.

Module 16. Calculation of lead angles involving large leads and multi-start threads, revision of trigonometry, gear ratios. Surface finish symbols, welding symbols, representation of screw threads, assembly and detail drawings, sketching.

Module 17. Multi-start threads.

Module 18. Operational planning and production tooling.


Fitting and Machining

On completion of modules 1 – 20 inclusive, a student selects 4 alternative modules, 21, 22, 23 and 24. Each alternative module has an approximate 36 hour duration. Alternative modules are available in a number of different areas.

Fluid Mechanics


Foundations


Gas Technology 1T (Fundamentals of gas technology)


Gas Technology 2T (A) (Gas control techniques 1A and 1B)

The purpose and principles of control components applicable in fuel utilisation. Regulators, pressure control, volume control, flow control, temperature control, safety control. Applications of simple and complex control systems as applied to domestic, commercial or industrial gas utilisation. Particular reference to safety, fault finding and rectification.

Gas Technology 2T (B) (Gas control techniques 2A & 2B)

The principles and applications of combustion. Combustion systems, atmospheric and power mixers and burners, orifice sizing, port loading, flame stability and shape. Utilisation for domestic, commercial and industrial. Appliance design, testing, safety control. Fuel comparison. Flues: principles, design. This subject to be a practical application of the principles covered in Gas Technology 2T (A).

History of Western Civilization

A synoptic survey of major developments in western civilization from ancient times to the present. Emphasis is on the study and methodology of history, including an introductory unit on historiography. The scope of the course is broad but special emphasis will be placed on the Ancient World (especially Greece and Rome) and Europe in the 19th and 20th Century.

Industrial Electronics 1T


Industrial Electronics 2T


Industrial Electronics 3T General


Industrial Electronics 3T (digital control)


Industrial Relations

A study of interrelationship of management and the work force in the building industry.

Instrumental Techniques

(a) Methods of separation

The principles, techniques and applications of the separation of the components of a mixture by means of: ion exchange, chromatography in its various forms – electrophoresis – solvent extraction.

(b) Optical methods

A study of the various methods of chemical analysis using a variety of instruments, viz: colorimeters to spectrophotometers, fundamentals of flame photometry, atomic absorption and mass spectrometry.

(c) Electrochemical methods

An outline of the principles of conductivity, potentiometry, polarography, electrode position as applied to instrumental methods of analysis. Study of types of cells, electrodes and their uses. Electrolysis.

(d) Radioactive methods

Legal and safety aspects in use of radioactive isotopes. Applications of isotopes in industry and research and chemical procedures. X-ray diffraction and X-ray fluorescence – Instrumentation, experimental techniques and applications.
(e) Microscopy and scientific photography
  Microscopy (1 term). Mechanical parts -- numerical aperture -- methods of illumination -- photomicrography. Types of microscopes -- preparation of samples.

(f) Vacuum Techniques

Instrumentation H
  Extension of metrology and machine tools, where principles, construction, calibration and evaluation of more common instrumentation procedures are developed. Emphasis is placed on functional test of electronic equipment. Pneumatic circuit elements. Measurement of basic qualities, measuring circuits read out systems, automatic control, equipment evaluation, non-destructive testing methods.

Introduction to Economics
  Full year subject. Understanding of meaning and scope of economics. How to produce, how to produce, who shall produce, supply price. Understanding of the Australian economy at work.

Introduction to Law IA
  Semester unit. Origins and operation of law in Australia. Use of law in personal, civic and business affairs; Complexity of law.

Introduction to Law IB
  Semester unit. Contract law; Common types of contracts.

Introduction to Modern Government
  The course is designed to allow students to make a detailed study of certain aspects of Australian politics. The emphases are on political forces, procedures and machinery. Questioning of politics such as -- its nature, elements, interaction and comparisons are explored. The final unit examines the role of government in the Australian economy and in a non-market, socialist system.

Jig and Tool Drafting 1T
  Jigs and fixtures -- advantages, design and construction principles including junction, location and clamping techniques. Tolerancing on tool drafting, reference to standards. Introduction of production planning. Alternative methods of machining, analysis operation times.

Jig and Tool Drafting 2T

Laboratory Workshop Practice
  The course is practical and will be taken for the greater part in appropriate workshops. Topics will include materials, and their properties, use of hand- and power-operated tools, measuring instruments, joining techniques, soldering, glass blowing, technical drawing.

Laboratory Management
  Appreciation of design of specific purpose laboratories. Examination of flow patterns for both materials and people. Stock control and ordering procedures. Maintenance of laboratory records. Operation of laboratory stores. Sources of information such as text books, manuals, catalogues, standards. Knowledge of the law regarding certain chemicals and their usage. Laboratory safety.

Leaving Drawing A (metal trades technicians)
  Students usually study Leaving Drawing A. A pass in Fitting and Machining Trade Drawing 2 may be acceptable for certain courses. Projection, arrangement and detail drawings. Methods of fastening, transmission. Dimensioning. Introduction to structural steel framework.

Materials and Processes 1H

Materials and Processes 2H

Mathematics (preliminary year)
  This is a post-leaving course. Its load allotment consists of eight hours per week. The course is divided into two semesters with assessment consisting of progressive tests and end of each semester examination. The syllabus consists of the following topics: Calculus, vectors, complex numbers, statistics matrices, determinants, dynamics of a particle, and systems of particles.
Mathematics (business studies & general studies courses in preliminary year)

This course is intended to be a suitable preparation for tertiary mathematics at this college. It does not assume that students have been entirely successful in earlier stages of mathematics. Emphasis is placed on the understanding of basic concepts and their application.

Course Outline: Sets, geometry and mensuration

- Transposition of formulae, Inverse and joint variation.
- Indices, logarithms, surds. Use of the slide rule.
- Trigonometry, six ratios, sine and cosine rules. Vectors
- Radian measure, angular velocity and displacement.
- Mensuration. Quadratic and simultaneous equations.
- Graphs.

Mathematics 1T

- Three dimensional trigonometry. Graphs. Hyperbola,
- parabola and circle. Gradient of a point on a curve, rate
- of change of function. Graphical representation of data.
- Scatter diagrams, lines of best fit. Median, mean mode
- as measures of central tendency. Range and standard deviation
- as measure of dispersion. Applied statistics. Arithmetic
- and geometric progression. Mensuration.

Mathematics 1A & 1B

- Number system. Algebraic relation functions. Algebraic
- identities. Trigonometric functions. Trigonometric
- identities. Applications of trigonometry.

Mathematics 2A & 2B

- Calculus: differentiation, the sum, product, quotient and
- function rules for differentiation. Maxima and minima
- problems. Integration as a process which reverses
- differentiation. Area under curve, definite integral. Beam
- deflection formulae. Moment of inertia, radius of gyration.
- Parallel and perpendicular axis theorems. Differential
- equations, simple harmonic motion applications. Complex
- notation. Theory of complex numbers. Argand diagram,
- polar form.

Mechanical Design 1H

- Analysis of simple structures. Plain and eccentrically loaded
- columns. Shafting subjected to combined bending and
torsion. Spur and helical gears. Bolted and welded
- connections. Belt and chain drives. Couplings. Theory of
- static failure, fatigue and notch sensitivity. Project work
- and associated drawings.

Mechanical Design 2H

- Extension of work in Mechanical Design 1H. Straight spur,
- bevel and helical gears to BS436, Journal bearings.
- Clutches. Power crews. Brakes. Project work and associated
- drawings.

Mechanical Properties H

- Fundamental tests - tensile (room and high temperature),
- impact (room and sub-zero temperature), compression,
- shear, torsion, fatigue creep, hardness and cupping.
- Verification of correct heat treatment. Typical defects and
- guide in critical survey of castings, forgings, extrusions,
rated products, weldments, plastics and other non-metallic
- materials. Testing for surface defects. Testing for internal
- defects. Preparation of work for testing methods employed
- and interpretation of results. Practical work involving
- mechanical testing and testing for surface defects,
- interpreting results.

Mechanics 1T

- Vectors, rectilinear and angular motion, acceleration,
- messia and momentum. Friction, work power and energy,
- machines, mechanical advantage, velocity ratio and

Mechanics 2T

- Statics, kinematics, dynamics, stress and strain, shells
- and joints, beams, torsion, hydrostatics and fluids in
- motion. Laboratory work.

Media Studies

- Media Studies involves an introductory study of film, radio
- and television. The course takes a critical, historical and
- appreciative appraisal of film, television and radio, with a
- particular emphasis on these areas in Australia. Other aspects
- covered in detail are the language, effectiveness and impact
- of these media.

Metallurgy 1T

- Classification of alloys, cast irons, carbon and alloy steels,
- copper base alloys, light alloys. Physical and mechanical
- properties of materials. Solidification of metals, defects.
- Principal working operations in manufacture of shapes.
- Furnaces, temperature measurement. Heat treatment of
- rations of annealing, normalising, hardening and
- tempering.

Metrology & Inspection H

- A more theoretical approach to the fields of metrology and
- gauging. Emphasis is placed on equipment used, component
- identification reference to various current standards.
- Metrology 1 may be considered as a prerequisite.

Metrology 1T

- Introduction to length metrology. Materials for standards
- and gauges. Slip gauges. Sources of error in workshop
- measuring. Measuring equipment, lengths, angles, flatness,
surfaces at right angles. Optional projection. Introduction
to surface texture.

Metrology 2T

- Length metrology, measurement of angles, straightness and
- flatness. Optical measurement of screwthreads. Errors in
- measurement. Surface texture.

Microbiology 1S

- Includes a series of lectures and demonstrations and
- practical work embracing bacteriology, viruses, fungi,
- protozoa and serology.

Microbiology 2S

- Lectures, tutorial, demonstration, practical laboratory
- techniques on bacteriology, immunology and virology as
- major topics.

Oil and Polymer Chemistry

- Gives an account of some of the more important products,
- production processes and testing procedures involved in
- those industries which deal with petroleum, synthetic
- polymers and vegetable, animal and marine oils.
Organic Chemistry 1
Provides a systematic study of organic compounds and their properties and reactors. Examples tend to favour those which are useful to a subsequent study of oils, polymers and detergents.

Organisation & Management of Inspection
This subject deals with quality control through management. Topics include:
Basic management concepts, sampling schemes, design and development tests and trials, legal obligation, safety, training methods.

Personnel 1A
Semester unit. Responsibilities of various parties in recruitment, selection and employment. Sequence of events in filling a vacancy. Application of these techniques.

Personnel 1B
Semester unit. Company wages system, company salary system, awards, agreements, increment, evaluation incentive bonuses, E.D.P. role.

Personnel 2A
Semester unit. Company safety system; detrimental factor to health, accountability of personnel officer for welfare. Range of employee services.

Personnel 2B
Semester unit. Australian trade union, employee organisation, Conciliation and Arbitration Commission, government departments and industrial relations.

Personnel 2C
Semester unit. Historical development of personnel function. The personnel function, basic knowledge of administrative practice. Need for personnel specialist.

Personnel 2D
Semester unit. Manpower planning and development, training programs of operation and supervision.

Physics (preliminary year)
Geometrical optics, vectors, kinematics, particle dynamics, friction, mechanical equilibrium, vibratory motion dimensions. Gravitation, electrostatics, electromagnetism, electric currents, kinetic theory of gases, wave optics, atomic structure (an introduction).

Physics 1H

Physics 2H
A course designed to introduce students to the methods and techniques of experimental physics and the operation and use of a wide variety of equipment. It is mainly a practical course. The work is carried out in the fields of — optics, electric circuits, electronics, electronic measuring equipment and photography. Other activities include student projects and visits to laboratory installations.

Physics Laboratory Techniques 1 & 2
Taught in the second semester during two years and includes the planning and design of experiments, safety precautions, use of correct units and care of apparatus in the fields of measurement, mechanics, electrical and optical work, heat temperature and properties of matter.

Physics 1S
Course of theoretical physics at post-Leaving Certificate level including — measurement and dimensions, geometric optics, linear mechanics and rotational dynamics, hydrostatics, heat and temperature, electrostatics.

Physics 2S
Course of lectures at post-Matriculation standard includes — wave motion, thermodynamics, electro-magnetism, AC and DC circuits, properties of matter.

Physics 3S
Combines theory and techniques exercise embracing physical optics, atomic and nuclear physics, acoustics — properties of matter.

Pipe and Duct Fitting 1T
This subject is designed to give the student a basic knowledge of the types of tools and materials used for the fabrication and installation of pipe and duct systems. Basic elementary use of these tools and materials.

Pipe and Duct Fitting 2T
A practical exercise in the fabrication and installation of different components of a ducted heating system.

Pipe Line Design (sanitary plumbing) A & B
Types of sanitary plumbing, regulation considerations, fixture installation, design drawing practice, pump and ejector systems (basement fixtures), minor trade waste and plant rooms.

Plant Reading (plumbing)
Review the principles of specification report writing and understand the structure and use of specifications and drawings.

Plant and Equipment (plumbing) 1T
Basic principles of the care and use of equipment, safety regulations and correct procedures.

Plant Equipment 1T
The study of mechanical services equipment such as boilers, chillers, pumps etc. their operation and methods of control. To develop the ability to sketch and draw schematic plant layouts incorporating equipment, pipework, valves and controls.

Plant Equipment 2T
The study of low velocity, high velocity, dual duct, and multi-zone air-conditioning systems, and associated equipment such as fans, housings, coils, ductwork, mixing boxes, registers, controls and piping.
Plant Services Drafting 1T & 2T
Deals with detailing of elements of systems and layouts of relatively simple systems associated with heating, ventilation, air-conditioning and refrigeration services. The work performed will be in line with the work covered in the subjects Pipe and Duct Fitting 1T & 2T.

Plant Services Drafting 3T
Layouts of the more complex systems associated with mechanical services are developed in this subject. A high standard of craftsmanship together with a meticulous attention to detail and appropriate degrees of accuracy is required of all students.

Plumbing and Gasfitting
Phase 1:
Orientation: Safety tools, materials and gauges, building terms.
Modules 1 to 12: Related instruction, Trade drawing, geometry, developmental drawing and pattern cutting.
Trade science – properties of materials. Action of water on materials, force, principle of moments, the pulley, capillarity, heat and temperature, ventilation.
Water supply, storage and distribution, materials and taps. Gasfitting – natural gas, gas meters, the manometer, liquid petroleum gas.
Sheet lead: The working of collars.
Sheet metal: Jointing and fabricating models based on pattern cutting.
Phase 2:
Modules 13 – A55
Trade Theory: Water supply for domestic services. Head and pressure of water, storage tanks, defects in water services and industrial services, garden sprinkler systems, flushing cisterns, country water supply.
Phase 3:
Modules A56 – A63
Trade Theory – Sanitary Plumbing: Multiple fixtures up to five stories, separate and combined pipe systems, fixtures for industrial and trade purposes, pipe-sizing and estimating.

Gasfitting natural gas: Planning and sizing, commercial and industrial requirements. Automatic controls, regulators. Liquid petroleum gas – single and two stage systems.
Conversion.
Modules Q51 – Q63
Heating: Heating equipment, types, piping systems, water heating.
ventilation, Air-conditioning & refrigeration: types of systems, equipment, temperatures.
Water supply: planning, storage, design, source of supply, pressure, special services.
Mild steel pipe, copper tube & plastics: bends and offsets, straight, angle and branch joints.
Mild steel sections: flat, angle and round, applications and welding.
Gasfitting – natural, L.P. blended: planning, pressures, principles and installation, conversion, safety.
Welding and cutting: oxy-acetylene, electric and argon techniques.
Plumbing Foremanship
Dealing with the administrative and supervisory aspects of the foreman's work including powers and duties in a company, implications of contracts, human relations and problem solving, project organisation, clerical recording and employment considerations.

Powers and Duties of a Municipal Building Surveyor Part 2
Administration and law. Town planning. Building regulations.

Practical Inspection (building) or Building Practice

Designed to train potential building inspectors to inspect construction. The aims of inspection include: protection to owners, builders and workers, prevention of unsound practices and strict adherence to codes of material and craftsmanship.

Principles of Organisation
Full year subject. Fundamentals and process of management, planning, organising, staffing, directing, controlling. Manager and the changing environment.

Process Heating

Production Control H
Designed to give an understanding of general management and financial controls. Topics include factory organisation, function control, production control, psychology in industry. Industrial legislation.
Production Processes & Development

A more theoretical approach to the machining of materials, forming processes, plastics, precision casting, modern processes: Laser beam machining, electron beam welding, numerical control of machine tools. Prerequisites are Trade Technician or M/CShop 1H and 2H Fitting & Machining 5 or Toolmaking 1 and Production Processes and Development 1T, H, or approved electives.

Production Processes & Development 1T


Production Techniques 1A

Semester unit. Role and responsibilities of the various functions which form a total production unit. Applying control and planning techniques.

Production Techniques 1B

Semester unit. Extension of Production Techniques 1A.

Production Techniques 2A & 2B

Semester units. Factory planning, product design, intermittent manufacture, continuous manufacture, project planning, decision-making.

Properties of Electrical Materials


Quality Control


Quantity Surveying 1 and Quantity Surveying H


Quantity Surveying (plumbing)

To develop basic skills in the taking off of quantities in preparation for estimating and pricing; including units of measurement, simple quantities, standard mode of measurement, bills of quantities.

Refrigeration 1T

The theory of heating and cooling of liquids and vapours. The study of the vapour compression cycle using ammonia, R12 and R22 refrigerants. Description of refrigeration equipment and different types of refrigerants. Sizing of refrigeration equipment.

Refrigeration 2T

The study of compressors, volumetric efficiency, compressor losses, multi-stage compressors, flooded systems, capacity control, matching components in a VC system; absorption refrigeration and heat transfer. System faults in a simple VC system. Refrigeration piping design. Application of refrigeration for preservation of food and air-conditioning.

Reliability H

Emphasis is placed on design experiments to ensure reliability. Topics include basic theory (statistics) fundamental concepts of reliability design development and manufacture for reliability. Data collection.

Reticulated Systems 1T

Designed to cover the principles of all services associated with the heating, ventilation, air-conditioning and refrigeration installations. Several field excursions are undertaken to provide the necessary introduction to each type of service.

Reticulated Systems 2T

Covers control components, specialised material selection, Standards Association requirements and controlling authorities.

Role & Function of a Clerk of Works

A study of terms of employment, ethics and duties of a clerk of works.

Sales 1A

Semester unit. Basic knowledge of the occupation of a salesman. Factors contributing to success in selling. Role of salesmen in modern business.

Sales 1B

Semester unit. Acquiring and applying skills, knowledge and attitudes for success in selling.

Sales 2A

Semester unit. Identify basic principles of organisation applying to marketing. Function of marketing manager, sales manager, sales supervisor. Planning sales function and organising sales operation of a medium sized company.

Sales 2B


Scaffolding Construction

Class 1: Instruction sufficient to enable the scaffold to erect, alter or dismantle pole scaffolding, both tube and timber and frame scaffolding.

Class 2: Instruction sufficient to enable the scaffold to erect, alter or dismantle cantilever and bracket scaffolding.

Class 3: Instruction sufficient to enable the scaffold to erect, alter or dismantle heavy-duty suspended scaffolding and heavy-duty swing-stage scaffolding.

Class 4: Instruction sufficient to enable the scaffold to erect, alter or dismantle light-duty swing-stage scaffolding and boatswain’s chair.
Scaffolding Inspection
Covers interpretation of scaffolding regulations, defines responsibilities of all persons involved in the provision, erection, and use of scaffolding including steel tube, frames, suspended cantilever bracket, ladders and miscellaneous equipment.

Science 1H

Science 2H

Shorthand
Developing knowledge and skill in shorthand (Pitman’s) as a preparation for other secretarial subjects to be taken later.

Social Science
Participation in activities which will provide a background for students following a building career.

Specifications, Drawing Interpretations & Co-ordination
Study of the interrelationship of contract documents (including drawings specifications and related architect’s instructions) and the documentation of matters arising therefrom.

Statistical Analysis 1H
Basic use of statistics in the field of process control. Topics include basic theory, process control variables and attributes, acceptance sampling, significance testing.

Statistics
Theoretical approach and simple applications of statistical methods of design experiments and various techniques of quality control in industry, including randomisation of sampling.

Statutory Control of Buildings or Powers and Duties of a Municipal Building Surveyor – Part I
Administration and law. Regulatory control and inspectional procedure.

Structural Drafting 1H
Usual prerequisite for this subject is a pass in Leaving Technical Drawing A. Course includes practical drafting and lectures on type of steel sections, splicing, connections, standard drawing practice. Structural terms, reinforced concrete, timber.

Structural Drafting 2H
Usual prerequisite is a pass in Structural Drafting 1H. Project drafting work and necessary theory in structural features. External features multi-storey buildings, large industrial building, composite type building, concrete projects, detailing from an engineering specification.

Structural Mechanics 1H
Review of statics, external forces acting on rigid bodies, principles of equilibrium, internal forces within rigid bodies. Load-defonnation characteristics of materials. Structural joints and connections. Laboratory work.

Structural Practices 1H
Designed to give an appreciation of surveying theory and practice and an introduction to the construction and structural consideration of industrial type buildings.

Structural Practices 2H
Extends Structural Practices 1H and also includes industrial building roof design and multi-storey building construction.

The Study of Ideas
This course is an introduction to philosophy. Ideas are studied in units around the themes of: education, religion, politics and societies. Skills developed in oral and written expression have strong emphases on discussion and argument. Suitable reference materials are suggested throughout the course.

Study Methods and Efficient Reading
Motivational and perceptual aspects of study, study routines, taking and making notes, study methods and examination technique. Improvement of speed and comprehension in reading. This subject is taken for half of an academic year.

Supervision

Supply Procedures 1A
Semester unit. Understanding and use of basic principles of performing the supply and purchasing function and then applying specialised procedure for their operation and control.

Supply Procedures 1B
Semester unit. Material standardisation, quotations, suppliers, speculative buying, quantity ordering, negotiation, following through the order, sales tax requirement, purchasing budget.

Supply Procedures 2A
Semester unit. Importing, payment, insurance, tariffs processing, Australia’s trade agreements, interaction between purchasing and market research. PERT.
Supply Procedures 2B
Semester unit. Project buying, value analysis technique, equipment stores organisation, materials handling, packaging, containerisation. Handling and storing raw materials.

Survey Cartographic 1H
Introduction to modern survey instrumentation. Topographical, hydrographic, underground geodetic and cadastral surveys. Introduction to town planning. Drafting and examination of field notes.

Survey 1H Parts 1 & 2
Details of this subject have not as yet been determined.

Technical Reports (building)
Summaries, comprehension, records used in industry, types of report (written and oral). Logical argument and the use of the spoken word. Use of library material. Uses of visual aids in reports.

Toolmaking 1

Toolmaking 2

Typing Advanced 1
This subject is intended to develop the skill of typing which will be necessary for students of later secretarial subjects which will not be offered in 1977. The better students may sit for advanced Typewriting 2 examination.

Work Study 1T

Technical Colleges and Schools in the Knox Region
Proposed part-time evening classes for 1977
The following information may help students to choose classes at the most convenient school offering the courses in which they are interested. Enquiries concerning any of these classes should be directed to the college or school concerned.

Blackburn Technical School
Koonung Road, Blackburn, 3130
Telephone: 878 3777
Certificate of Business Studies
English B
Business Mathematics
Introduction to Law
Sales 1
Production Techniques 1
Bookkeeping & Accounts 1
Work Method Improvement 1
Work Method Improvement 2A
Work Measurement 1
Work Measurement 2
Behavioural Science
Supervision Certificate
Communication
Business Procedures
Supervision 1
Supervision 2
Hobby Classes
Pottery
Woodwork

Boronia Technical School
Mount View Road, Boronia, 3155
Telephone: 762 4044
A co-educational school providing secondary technical education, to form four level in 1977. In 1977 the school will be divided into four mini-schools, with different philosophies in each of the schools. Educational programs are based on a system of core subjects supplemented by a wide range of electives.
Enquiries should be directed to the Principal.

Box Hill Technical College
Dunloe Avenue, Box Hill, 3128
Telephone: 89 0231
Art
Painting
Photography (Limit 12)
Pottery
Building Studies
Practical Structures
Tech. Reports Building
Basic Quantities and Costing and Estimating
Building Construction 1A/B
Building Construction 2A/B
Building Construction 3A/B
Other Technical Colleges

Building Foremanship
Architectural Drafting and Design Projects 1
Architectural Drafting and Design Projects 2 & 3
Building Maths 1
Building Maths 2
Crane Drivers, Dogmen and Crane Chasers
Building Science 1T & 1H

Civil Engineering
Survey Drafting 2H
Acts Regulations
Civil Design Drafting 1H
Civil Design Drafting 1H & 2H
Computer Studies
Soils Geology
Survey 1H (Part 1)
Survey 1H (Part 2)
Survey 2H
Cartography Survey Drafting
Cartography 2H
Hydraulics 1H
Structural Mechanics 2H
Structural Mechanics 3H
Town Planning H
Maths 2VW
Civil Engineering H
Structural Design Drafting H
Transportation H

Electrical
Electrical Module C51 – C54
Industrial Electronics Grade 1 Practice
Industrial Electronics Grade 1 Theory
Industrial Electronics Grade 2 Theory
Industrial Electronics Grade 2 Practice
Electrical Wiring Theory 3
Electrical Wiring Theory 4
Electrical Wiring Practice 4
Industrial Electronics Technology
Electrical Module 8 – 16
Electrical Module 9 – 13
Electrical Module 7
Electrical Module 5 – 6, 14 – 15

Electronics
Circuit Theory 1H
Circuit Theory 2H
Circuit Theory 3H
Electronics 1H
Electronics 2H
Electronics 3H
Pulse and Digital
Physics 1H
Properties of Materials
General Lab Session
Digital and Logical
Applied Electricity 1H
Maths 3H

Engineering Practices
Metallurgy 1T Theory
Metallurgy 2T Practice
Engineering Graphics 1
Engineering Graphics 2
Technical Drawing 1
Fitting and Machining Rep. Module
Fluid Power 1T
Tech. 3 Tool Gauge Modules
Fitting Maintenance
Jig Tool Drafting Tech. 3

Humanities
Adult Reading & Writing
Communications and Report Writing
English 1T & 2T
Social Science 1H
Supervision 1A & 1B
Behavioural Studies
Intermediate English
Leaving English

Mathematics & Science
Prep. Science Form 3
Maths 1, 2 Intermediate
Maths A Leaving
Maths 1H
Maths 2H
Maths 3H
Maths B Leaving
Prep. Maths Form 5
Physics Leaving
Physics 1H
Science 2 Intermediate

Mechanical
Applied Mechanics 1H
Applied Mechanics 2H
Applied Mechanics 3H
Drafting Practice 1M
Mechanical Drafting 1H
Mechanical Drafting 2H
Maths 1T
Maths 2T
Maths 1A/B 1H
Maths 1H
Maths 2H
Science 1T
Science 2T
Mechanical Design 2H
Physics 1H
Applied Heat 1H
Engineering Materials 1H
Structural Drafting 1H & 2H

Motor Mechanics
Diesel Maintenance Fitter
Owner-driver Maintenance

Plumbing Sheetmetal
Plumbing Rep. Module Theory
Decorative Metalwork

Radio
Radio Repeat
Radio Mechanics Year 1
Radio T.V. Mechanics 1st Year
Radio T.V. Mechanics 2nd Year
Amateur Radio

Building Studies
Woodwork Hobbies
Woodwork Rep. Modules
**Burwood Technical School**  
Cnr. Middleborough and Eley Roads, **Burwood, 3125**  
Telephone: **288 6711**

- General (hobby)
- Art
- Dressmaking
- Pottery
- Woodwork (Ladies & Mens)

**Ferntree Gully Technical School**  
Fernwood Highway, Upper **Ferntree Gully, 3156**  
Telephone: **758 2466**

- Art
- Painting
- Pottery
- Hobby
- Woodwork
- Motor
- Owner-driver
- Advanced Motor Mechanics
- Dressmaking
- Shorthand
- Typing

**Jordanville Technical School**  
Yamnam Drive, off High Street Road, **Ashwood, 3147**  
Telephone: **277 1509, 277 2212**

- Higher School Certificate Subjects
- English Expression
- Politics

- Art
- Pottery: (A) Advanced; (B) Beginners.
- Sculpture: General and Portrait including casting techniques.
- Creative Arts: Introduction to a variety of craftworks, including Basic Leatherwork, Macramé, Candlemaking, Printmaking, Simple Weaving, Stained Glass.
- Painting:  
  (a) General, introducing painting to the beginner.  
  (b) Life Class, disciplined drawing and painting for the more advanced student.

- Mathematics  
  (a) Preparatory and Form 4.  
  (b) Leaving.

- Woodwork  
  (a) Beginners' hobby class.  
  (b) Advanced hobby class.

- Fitting and Machining  
  Hobby classes to give basic engineering skills, welding and moulding casting skills.

- Electrical  
  Hobby classes to be announced.

**Knox Technical School**  
345 **Boronia Road, Boronia, 3155**  
Telephone: **762 1055**

- Art Metal Work
- Owner-driver Motor Mechanics course
- Basic English
- Pottery
- Painting
- Typewriting
- Shorthand (Pitman)
- Gourmet Cookery
- Cake Decorating
- Dressmaking
- Embroidery
- Pattern Drafting
- Woodwork
- Photography

**Lilydale Technical School**  
Nelson Road, **Lilydale, 3140**  
Telephone: **735 1133**

- Dressmaking
- Pottery
- Shorthand
- Typewriting
- Woodwork (hobby)
- Oil painting

**Mitcham Technical School**  
46 Dunlavin Road, **Nunawading, 3131**  
Telephone: **874 1888**

- General
- Art metalwork
- Dressmaking
- Pottery
- Shorthand
- Typewriting
- Woodwork

**Mooroolbark Technical School**  
Reay Road, **Mooroolbark, 3138**  
Telephone: **Croydon 723 1379, 723 3062**

- General
- Pottery
- Shorthand
- Typewriting
- Woodwork – general
- Owner-driver – motor mechanics

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Other Technical Colleges

**Ringwood Technical School**
Neathmont Road, Heathmont, 3135
P.O. Box 358, 3134
Telephone: 870 4555

- Evening
  - Art (including painting, sketching and figure drawing)
  - Pottery & Stoneware
  - Copperwork & Enamelling
  - Woodwork Hobbies
  - Dressmaking
  - Cake Decorating
  - Typing (TAFE)
  - Shorthand (TAFE)
- Daytime
  - Weaving

**Swinburne Technical School**
505 Burwood Road, Hawthorn, 3122
Telephone: 81 1521

- Mathematics/Physics — Leaving Certificate Level
- Shorthand — Pitman’s
- Typing
- Dressmaking — Hobby class
- Pattern Drafting — Hobby class

**Syndal Technical School**
Lawrence Road, Mt. Waverley, 3149
Telephone: 232 6022

- Higher School Certificate
- English Expression
- English Literature
- Australian History
- Economics
- Social Studies

- Leaving Certificate
- English
- Shorthand (Beginners)
- Shorthand (Speed)
- Typing

- Hobby Classes
  - Art
  - Pottery
  - Carpentry
  - Owner-driver Motor Mechanic
  - Machine-shop Hobby
  - Art Metalwork
  - Dressmaking
  - Cookery (Beginners)
  - Cookery (Advanced)
  - Cookery (Hostess)
  - Cake Decorating

**Templestowe Technical School**
Cypress Avenue, Lower Templestowe, 3107
P.O. Box 75
Telephone: 850 6333

A co-educational technical school providing a range of secondary technical courses to Form five level for boys and Form four level for girls.

- Adult Personal Fitness & Recreation (phys. ed.)
- Cookery - gourmet
- Motor Mechanics, Ownerdriver
- Needlecraft
- Typewriting
- Woodwork

**Whitehorse Technical College**
1000 Whitehorse Road, Box Hill, 3128
Telephone: 89 6245

- Certificate of Business Studies
  - Accounting: A, 1B, 1C, 2A, 2B, 2C, 2D, 2G, 2H, 2J
  - Data Processing
  - English 1A, 1B
  - Introduction to Economics
  - Banking Practice
  - Behavioural Studies
  - Introduction to Law
  - Shorthand
  - Typewriting
- Certificate of Technology (clothing)
- Fashion Design
- Pattern Making
- Other selected subjects

- Selected subjects.

- General Art
- Floral Art
- Graphics
- Jewellery Making
- Painting
- Pottery

- Business Studies
  - Accounting Machine Operating
  - Punch Machine Operating
  - Shorthand vocational & hobby
  - Typewriting

- Fashion
  - Dressmaking
  - Embroidery
  - Pattern Making
  - Textile Crafts

- Home Economics
  - Cake Decorating
  - Cooking (basic & advanced)
  - Cooking (Asian)

- Physical Education
  - Keep Fit (ladies)

- General
  - Personality Development for Ladies
  - Background Science for nurses
  - Picture Framing
### 1977 College Calendar

#### January
- 4 College re-opens
- 31 Australia Day

#### February
- 7 STC first term commences
- 14 SCOT first semester commences

#### March
- 14 Labour Day

#### April
- 6 SCOT classes cease 9.30 pm for Easter break
- STC classes cease 5.00 pm for Easter break
- 8 Good Friday
- 11 Easter Monday
- 13 STC classes resume 8.00 am
- 14 SCOT classes resume
- 25 Anzac Day

#### May
- 6 STC first term ends, classes cease 9.30 pm for vacation
- 13 SCOT classes cease 9.30 pm for mid-semester break
- 23 SCOT classes resume
- STC classes resume

#### June
- 13 Queen's Birthday
- SCOT study break for first semester examinations begins
- 20 SCOT examinations commence

#### July
- 8 SCOT first semester ends
- 18 SCOT second semester begins

#### August
- 19 STC second term ends, classes cease 9.30 pm for vacation
- 26 SCOT classes cease 9.30 pm for mid-semester break

#### September
- 5 SCOT classes resume
- STC third term begins
- 22 Show Day

#### October

#### November
- 1 Melbourne Cup Day
- 4 SCOT study break for second semester examinations begins
- 14 SCOT examinations commence

#### December
- 16 STC third term ends
- SCOT second semester ends
- 25 Christmas Day